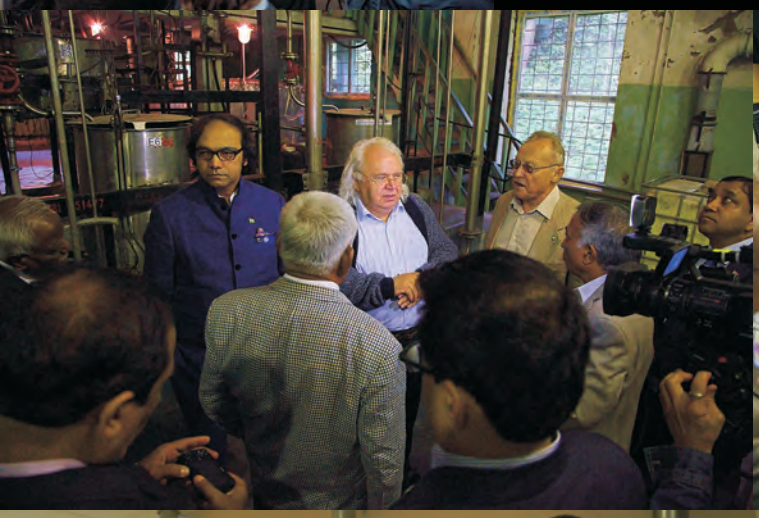
Report on visit of "Indian Scientific Delegation" based on Scientific Discoveries & Inventions done by Academician Prof. V.I.Petrik at St. Petersburg, Russia

22nd July to 29th July 2013








Report on visit of "Indian Scientific Delegation" based on Scientific Discoveries & Inventions done by Academician Prof. V.I.Petrik at St. Petersburg, Russia

Indian Scientific delegation with Prof. V. I. Petrik, St. Petersburg, Russia

22nd July to 29th July 2013

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Note: This report is accompanied by 2 CDs. (Annexures CD and "Indian Scientific Delegation" video CD)

Report on visit of Indian Scientific Delegation to Prof. V. I. Petrik's laboratory, Russia, July 22, 2013 – July 29, 2013

This report presents the observations and conclusions based on our visit to Professor V. I. Petrik's laboratories in St Petersburg, Russia and after surveying the inventions, discoveries and the applications of technologies patented by Russian scientist Prof. V. I. Petrik. We were invited by Prof. Petrik to Russia on a 4 days visit to St. Petersburg, to visit the laboratories and look at the demonstrations. The general idea was to introduce us to the discoveries and standards of these discoveries, to understand the applicability in India and world. The patented discoveries were examined on various parameters by us. In general a fairly comprehensive study and investigation was done by our team on the authenticity, the safety standards and the suitability of these discoveries for exploitation and use in India and world at large.

We were introduced to Prof. Petrik as follows: -

Professor Victor Ivanovich Petrik is born in Ukraine (Kiev); He studied Physics and Psychology at Leningrad State University. He is an academician of Russian Academy of Natural Sciences, Russian Technological Academy, Petrovskaya Academy of Sciences and Arts, International Academy of Sciences, Ecology and Nature, an honoured member of the European University.

His scientific work began in 1972 as a senior engineer at the Research Institute of Physics at Leningrad State University. He then worked as scientific officer Research Institute. Today, Prof. Petrik is the scientific leader at the Research Institute of Super-Molecular Systems and Nanotechnology, Joint Nuclear Research Institute in St. Petersburg and Russian Academy of Natural Sciences.

Mr. Nilesh Neel, the Founder President & Director of WFR, first approached Dr. Vijay Bhatkar and briefed about the WFR collaboration with Prof. Petrik, which aims to bring water purifying technology to India. Mr. Nilesh Neel briefly introduced Prof. Petrik and his technologies to us. We read about Prof. Petrik on Internet and saw some controversial reviews too. Mr. Neel explained that media is a strong thing and there is always positive and negative version that media displays. Prof. Petrik is a scientist with brilliant discoveries and politics is involved too in portraying the image of the scientist. It would be best if scientists base their views after seeing the demonstrations and presentations by their own eyes.'

The discoveries by Prof. Petrik are also at commercial level and their public release can change the face of the world. Thereby the acknowledgment of these discoveries and commercializing at world-class level has been a matter of geopolitics. Many advanced countries have used his technology in some or the other way to solve ecological and technical problems in their country. We ourselves visited the laboratories, production units and saw in reality the application of the technologies and we base our observations and conclusions on the documentation, presentation, demonstrations and the study done by us during our visit.

For more information refer:
Annexure 14:- About Prof. V. I. Petrik (The Discovery Made in Russia)

Invitation

The process begin with an invitation [annexure 1] from Water Freedom Revolution (WFR). WFR is working in collaboration with Prof. V. I. Petrik. The gist of the invitation was to get us introduced to the breakthrough foundations and the applications created by the Russian scientist. The invitation letter covers in brief about the four discoveries for which the invitation was made. On the grounds of these discoveries, the technologies are patented in 56 countries (patents mentioned in Annexure 2 & 3).
Prof. Petrik is an author of the publications mentioned below:

"Phenomenon of magnetic-ordered state of osmium-187 isotope in the ferromagnetic matrix", Diploma No. 180.

"Phenomenon of generation of nanostructured carbon complexes", Diploma No.163.

"Phenomenon of nuclear spin selectivity in reversible chemical reactions with graphenes", Diploma No. 312.

"Unique gas-phase method for extraction, separation and refining platinum group of metals and production of catalysts for oil and automobile industry based on this method."

High Temperature optical armor ceramics (spinel)

"Regularity of generation of the geometric spatial multidimensional structure using the mathematical golden section algorithm" Diploma No.168

Based on the area of inventions Dr. Vijay Bhatkar, former member, Scientific Advisory Committee, Government of India was requested to lead the Indian scientists delegation. He was requested to suggest the names of Indian scientists who would form the team accompanying him to Russia. A team of six scientists was formed, namely, Dr. Vijay Bhatkar, Dr. Shivram Bhoje, Dr. S. H. Pawar, Dr. Satish Wate, Dr. Madhav Chitale and Dr. Satish Shetye. However due to extremely busy schedule of Dr. Mahhav Chitale and Dr. Satish Shetye could not become a part of the team. Once the team was finalized, individual invitations were sent by Prof. Petrik to the scientists and an itinerary was prepared.

As a leader of the scientific delegation from India, Dr. Bhatkar requested Mr. Neel, to submit available information and documentation on the discoveries of Prof. Petrik including information on patents owned by Prof. Petrik in different countries with a view to ascertain their originality and novelty, non-obviance and utility. WFR presented the requested documentation, including that which is strategic to WFR (Please refer all Annexures).

Team of Scientists

In the context of the proposed visit, Dr. Vijay Bhatkar wrote to the Indian Ambassador in Russia, Consulate General and the Science Counselor in Indian Embassy about the purpose of their visit to Russia, and also requested to meet them during their visit.

The delegation was formed, consisting of:

1.	**Dr. Vijay Bhatkar**	• Chariman, Board of Governors, Indian Institute of Technology, Delhi • Chairman, ETH Research Lab, Pune • Former Member, Scientific Advisory Committee, Government of India. • Former Executive Director of C-DAC, Pune. • Founder Chancellor India International Multiversity. • Chancellor, D.Y. Patil University, Kolhapur, Maharashtra, India.
2.	**Dr. Shivram Bhoje**	• Former Director, Indira Gandhi Centre for Atomic Research, Kalpakkam, Department of Atomic Energy, Government of India. • Former chief Academy Advisor, Shivaji University, Kolhapur.
3.	**Dr. S. H. Pawar**	• Vice Chancellor, D Y Patil University, Kolhapur, Maharashtra, India. • Former Prof & Head of Department of Physics, Shivaji University, Kolhapur, Maharashtra.
4.	**Dr. Satish Wate**	• Director, NEERI, CSIR, Nagpur, Maharashtra, India.
5.	**Mr. P. J. Rangari**	• Chief Engineer, MIDC, Nanded, Maharashtra, India.
6.	**Mr. Elvis P. Gomes**	• Director & Additional Secretary, Urban Development, Government of Goa
7.	**Mr. Nilesh Neel**	• Poet, Entrepreneur and Coordinator. • Founder, President & Director Original 21st Century Discoveries Pvt. Ltd. • Founder, President & Director, Water Freedom Revolution Industries Pvt. Ltd • Founder, President & Director, Griffiannayza Architecture Pvt. Ltd. • Founder, President & Director, IRSPBB. • Founder & Chairman, bashirbadr.com

The visit was planned from 22nd July to 29th July 2013.

The delegation to Russia

Indian delegation at hotel Metropol, Moscow

22nd July 2013

Our delegation arrived at Moscow on the 22nd of July. After lunch at Metropol Hotel we proceeded to St. Petersburg on the same day. We were introduced and welcomed by Prof. Petrik himself with a formal reception. Our food and stay was organized at hotel 'Astoria'. We were presented with the four days agenda which consisted of demonstrations, presentation, discussions, laboratory, factory visit and a press conference (Annexures 1).

Prof. Petrik receive Indian delegation at St. Petersburg Rly. Station

1st Day – 23rd July 2013

1st day was presentation at the 'Benua' hall in hotel 'Astoria'. The presentation was conducted by Prof. Petrik presenting the scientist's inventions, discoveries and technologies.

Prof. Petrik addressing to the Indian delegation at Hotel Astoria

Following were the subjects covered in the presentation:

1. Invention: "Phenomenon for generation of nanostructures carbon complexes", This Discovery was awarded by International Association of scientific discovery authors, on January 3, 2001, Diploma No. 163.

2. Invention: "Phenomenon of nuclear-spin selectivity in reversible chemical reactions with graphenes. Discovery was awarded by International Association of scientific discovery authors, on June 15, 2006, Diploma No. 312."

3. Invention: "Phenomenon of magnetically ordered state of Osmium-187 isotope in ferromagnetic matrix". Discovery was awarded by International Association of scientific discovery authors, on July 7, 2001, Diploma No. 180.

4. Invention: "Unique gas-phase method for extraction, separation and refining platinum group metals and production of catalysts for oil and automobile industry based on this method."

Group photo of Indian delegation with Prof. Petrik at conference

2nd Day – 24th July 2013

We visited Prof. Petrik laboratories for demonstration of the technologies presented on the previous day.

(a) Extraction and division of metals of platinum group in the test plant.
(b) Production of high-active catalysts from gas phase, transfer of produced catalyst samples, intake of obtained metals.

Prof. Petrik doing demonstration of extraction of platinum group metal

(c) Gas-phase synthesis of solar silicon. Method for production of mono crystalline and polycrystalline silicon from gas phase, competitive properties of solar silicon from gas phase & its demonstration in the plant.

(d) Industrial production of graphenes from graphite by cold destruction method.

(e) Discussion of new carbon material properties. Transfer of samples.

Prof. Petrik explaining about polycrystalline silicon

Prof. Petrik demonstrating the process of HRCM

(f) Anti-Stokes Compound: high resolution ability. Manufacturer of safety labels for products for which the protection and identification of authenticity is exercised directly by the consumer.

3rd Day – 25th July 2013

We visited the production facility units:

Delegates at HRCM factory

Delegates seeing the Industrial production of HRCM

Familiarization session:

- Familiarization with industrial production of graphenes.
- Familiarization with production of optically transparent polycrystalline armor ceramics.
- Familiarization with production of metal nano-powders.
- Familiarization with industrial production of Rhenium.

Prof. Petrik showing Industrial production of Cl_2O_7

We were also introduced to another discovery:
"Regularity of formation of geometrically spatial multi-dimensional structure using golden section mathematical algorithm". Discovery was awarded by International Association of scientific discovery authors, on March 29, 2000, Diploma No. 163.

- Golden section in nature, arts and mathematics.
- Golden section and violin;
- Golden section and pyramid;
- Golden section and chemical reactions. (We have not described this anywhere in the report.)
- Internet technologies. New applications for iOS-based devices. (We have not described this anywhere in the report.)

4th Day – 26th July 2013

A press conference was held at 'Itar Tass' office, St. Petersburg, where we shared our experience, observations and inferences drawn by us after the 3 days visit to laboratories and production facilities.

Graphenes & HRCM

I. Graphenes and HRCM

Delegation seeing the process of HRCM

Delegates holding lightest material HRCM in hand

Based on the presentations, demonstrations and visit to production facilities of Prof. Petrik, following comments, understanding and observations were drawn by our delegation:

We asked the professor to explain the uniqueness of the HRCM nanotechnology and whether graphenes are nanoparticles? Do they pose any health hazard when used for purification of water?

Further to this question, the leader of Indian Delegates, Dr. Bhatkar requested for elaboration on Graphenes.

Prof. Petrik and the team clarified the fact as follows:-

HRCM Nanotechnology is "a phenomenon of generation of nanostructured carbon complex" certified by the international association of Authors of scientific Discoveries in 2001, diploma No.163, the author is Academician Prof. V. I. Petrik.

What Is HRCM?

As is well known, carbon is the most widespread element on earth. Up till now, science knew of only three allotropies of carbon – graphite (coal), diamond and the so called carbine.

HRCM is the fourth modification of carbon. It is not found in nature and people did not know about it, till its creation in 1997 by academician of Russian Academy of Natural Sciences Prof. Petrik Viktor Ivanovich.

Crystal lattices of all above mentioned materials are constructed from one and the same chemical element – carbon. The principle difference between coal, HRCM and diamond can be defined by their basic inner structure. By reconstructing the inner structure, it is possible to obtain one modification of carbon from another. It is known that if we apply 80,000 atmosphere pressure on a particle of graphite and heat it up to 1600˚C, carbon atoms will reconstruct from graphite hexagonal plane structure to cubic diamond, i.e. we will get a real diamond.

On the contrary, if we heat a diamond in vacuum till 1600˚C, it will turn into a piece of ordinary graphite. HRCM differs from graphite as well as graphite differs from diamond. The essence of Prof. Petrik's discovery is obtaining carbon with a principally new inner structure, so called HRCM.

International Association of Authors of Scientific Discoveries confirmed establishment of the scientific discovery “Phenomenon of formation of nanostructured carbon complexes” (author of this discovery – Prof. Petrik Diploma No 163) based on the results of scientific examination of discovery application No A-191 of January 3rd, 2001.

What Makes HRCM Unique?

Prof. Petrik demonstrating nano bottle water HRCM filter by passing mixture of crude oil, water & soil, result gives instantly pure drinking portable water

HRCM is known to clean water to its highest level of purity, which was demonstrated to the scientists in Russia based on test reports from Russia, the USA and India. HRCM has a water purification technology, which completely cleans the water from all known bacteria and viruses. By the usage of smallest suspension in the filters, the microorganisms are inhibited from moving independently in water. Moistened HRCM keeps the smallest particulate matter bound together in the thickness of the filter element. The process also obstructs bacteria through the nano-silver-plating, thus cleansing water from all microbes. HRCM as a filter makes it possible to clean water from microorganisms in the water. The fact is that many microorganisms do not sail in the water in a free state, they usually settle down on small suspensions.

Since HRCM retains even minutest suspensions, during filtration, the suspensions are retained with the microorganisms. To avoid the microbial multiplication in the filter itself, HRCM is silver plated. Silver-plated HRCM possesses enormous advantage in comparison to other silver-plated sorbents which is because the silver ions in HRCM are not so easily washed out into the filtered water.

HRCM unique property:

When a solution passes through the HRCM layer of 10 - 15 cm thickness, the biological consumption of oxygen (BCO) decreases by 2 times. Only special bacterial filters can work similar in fashion. Gainfully, the natural salts and microelements are still retained in water after HRCM filtration.

When HRCM is made, wet mass of substance is formed which has a potential of enormous water resistance that is very high than, let’s say, even activated charcoal. The mass as in a very tightly interlaced network, "they are entangled" - mechanically- even in the smallest suspension. This means that in HRCM the thickness not only works as sorbent, retaining admixtures with the aid of the unsaturated inter atomic bonds but also as a filter, mechanically retaining even the smallest admixtures and their suspensions.

HRCM filter works quite similar to a membranous house filter. The difference lies in the fact is that in the membranous filters, the membranes retain admixtures either in single plane or several planes whereas HRCM holds them in volume. To clog a membrane or system of membranes by fine admixtures and smaller suspensions, it is sufficient to pass water through them, several times. Membrane filters

require regular cleaning, wherein the system of reverse washing sharply raises the price of purification of water. The cartridges are required to be changed often, whereas due to the high sorption property, cartridges of the HRCM filter do not require any particular cleansing.

Properties of HRCM

The sorption and other properties of HRCM allow using it as a material for solving various technological problems, such as:

- Neutralization of toxic waste and destruction of chemical warfare agents
- Localization and extinguishing of fires of toxic and combustive fluids on land and on water surfaces
- Recovery of spilled crude oil and its products from water surface and land. The oil can be recovered from the filter and both can be reused. 1g HRCM absorbs 67 g of crude oil.
- Using the technology of gaseous phase application of platinum group metals onto graphenes, Prof. V. I. Petrik has created a highly effective hydrophobic catalyst for the recovery of water from heavy isotopes of hydrogen. He has established an industrial production of light water with a residual content of deuterium being equal to 2-3 ppm.
- A unique installation for cleaning water from tritium is being built in Russia with the participation of the Ministry of Nuclear Energy, on the basis of Prof. V. I. Petrik's development. This technology will solve the main problem of PHWR i.e. contamination of heavy water with tritium.
- Solar cells
- Microelectronics
- High performance computers
- Super capacitors for storage of electricity
- Clears the most harmful pollutants the tap water (residual chlorine and aluminum have no equal in water treating polluted colloid Iron).
- HRCM effectively clears water of weighed particles arsenic, smells, turbidity, chromaticity, organic connections, free active chlorine, chlorineorganic connections, trivalent ion, deposit hydroxide, trivalent Iron (rusts), copper, aluminum, zinc, heavy metals, fats, oil, and mineral oil.
- It is also observed that HRCM sorbent possesses bactericidal and bacteriostatic action that enriches the water with iodine and potassium, which may also add longevity to life by 20 to 25 years.

Prof. Petrik highlighted that the following range of application of graphenes (HRCM Sorbent) have been developed and protected by the patent as under:

- Water purification.
- Cleaning of water surfaces and grounds from hydrocarbons
- Purification of blood plasma.
- Decontamination of toxic waste and destruction of chemical warfare agents.
- Medical treatment of skin diseases.
- Decontaminating bandages.
- Localization and extinguishing of fires of toxic and combustible fluids.
- Removal of polyaromatic hydrocarbons from tobacco smoke.
- Decontamination of liquid radioactive waste.
- Separation of hydrogen isotopes.
- Air cleaning from viruses.
- Production of decontaminating enterosorbent.

HRCM as medicine for wound healing

(HRCM is characterized by a high sorptive capacity against contaminating agents of organic nature.)
The study was aimed at investigation of the high reactivity carbon mixture (HRCM) wound healing effect upon septic and burn wounds in laboratory animals. For the first time, the Report provided the experimental results of evaluation of HRCM wound healing activity based on clinical and laboratory data. The conclusion confirming the wound healing effect of HRCM and appropriateness of its further pre-clinical study to obtain data of acute toxicity, local irritative and sensibilizing effects of the product has been drawn to be submitted to the State Pharmacological Committee, Russian Ministry of Health. Information given in the Report will help to perform the primary tasks at the current stage of the product clinical effectiveness study, i.e., to evaluate an appropriateness of further clinical trials of the carbon sorbent.
Please see the annexure :- **'PRE-CLINICAL EVALUATION OF WOUND HEALING ACTIVITY OF HIGH REACTIVITY CARBON MIXTURE' (*HRCM*)**

Invention of Special Filter for India: 'HRCM *Balti*'

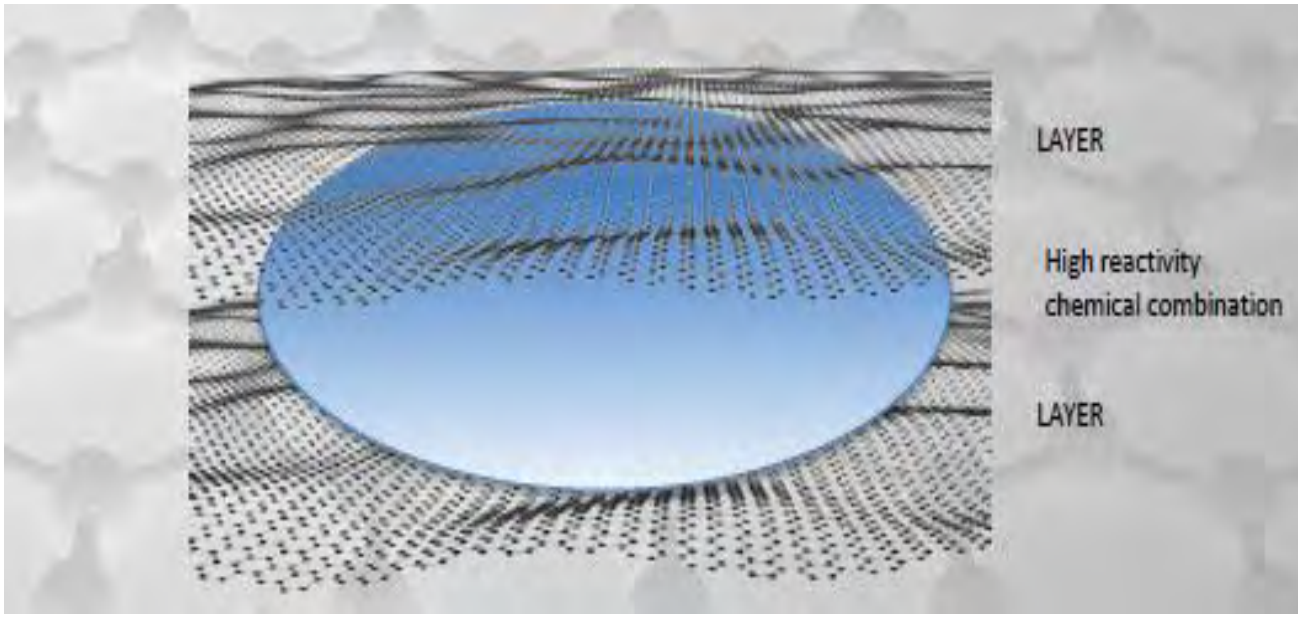
India's biggest problem is not the availability of water but of availability of "clean water". India has ample resources of water in rivers, lakes and wells. But to implement filtration process for all households in remote areas is difficult. Mr. Nilesh Neel has worked alongwith Prof. Petrik to create a unique filter which can used in remote areas. People can simply take the raw water from direct water resources and fill the Bucket (Balti) to get the clean healthy water on the spot.
The work of HRCM as a filter allows the purification of water from microorganisms - bacterium and viruses.
Advantages of HRCM filter are:
1. Possess bactericidal and bacteriostatic action. 2. Enrich water iodine. 3. Clean water of arsenic. 4. Do not lower concentration of useful salts and minerals
More than the filter Balti is synonymous to WFR for Rural & Tribal India.

Demonstration of HRCM Bucket filter by passing mixture of crude oil, water & soil instantly gives pure drinking portable water

Prof. Petrik showing the HRCM bucket filter for India

HRCM Production and Composition

HRCM is produced by the method of cold destruction of carbon laminated compounds into carbon clusters, graphenes. To this effect, the chemical compounds being sensitive to explosive decomposition under external action (photochemical, mechanical, chemical, etc.) are inserted into the interlayer spaces of the laminated carbon compounds, by subsequent initiation of the autocatalytic process of decomposition of the compound. The gaseous products of decomposition of the chemical compound



being generated in the interlayer spaces destroy the carbon matrix with generation of individual two-dimensional carbon crystals (graphenes), whose structure is complimentary to the structure of graphite's basal plane.

What are Graphenes?

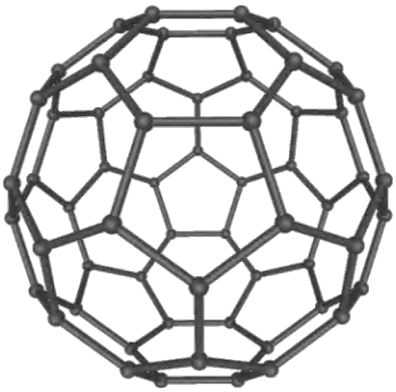
The structure of graphite is similar to the structure of a book where the pages are graphenes. Carbon atoms in graphenes are settled down in the form of hexagons, that is why it is said that graphenes have hexagonal lattice structure.

Carbon is the chemical element with symbol C and atomic number 6, ${}_6C^{12}$. It is nonmetallic and tetravalent element- making four electrons available to form covalent chemical bonds. Carbon has three natural isotopes C^{12}, C^{13}, C^{14}. C^{14} is radioactive. There are several allotropes of carbon of which the best known as graphite, diamond and amorphous carbon (soot, charcoal). The physical proprieties of carbon vary widely with changing allotropic form. Atomic carbon is very short lived and therefore, carbon is stabilized in various multiatomic structures with different molecular configuration called allotropes.

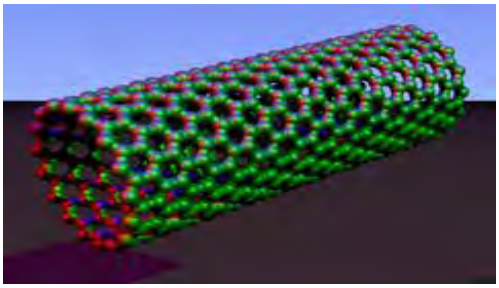
Fullerene is any molecule composed entirely of carbon, in the form of a hollow sphere, ellipsoid or tube. In 1985, researchers made a crucial invention in the sphere of carbon chemistry. Investigating graphite

vapour spectrum during laser irradiation of solid carbon, they found molecules C60 and C70. Despite efforts of researchers aimed at optimization of fullerene production processes, primary cost of final product after electric arc method is still unaffordably high, constituting a major reason for limited industrial application of fullerene.

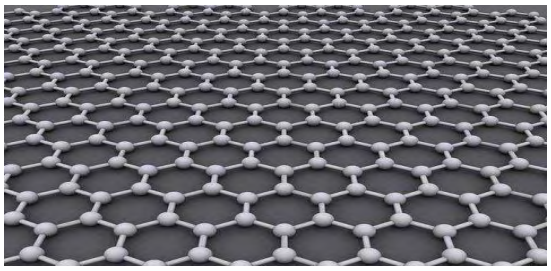
Graphene is an allotrope of carbon. Carbon atoms are arranged in regular hexagonal pattern. It is one atom thick layer of the mineral graphite. Many layers of Graphene stacked together effectively form crystalline flake graphite. The Nobel Prize for Physics for 2010 was awarded to Andre Geim and Konstantin Novoselov at the University of Manchester for graphene. We were told, Prof. Petrik protested the award, putting his claim. The bond length in graphene is 0.142 nm and inter-planar spacing of 0.33 nm. Thickness of paper is 10^5 nm. Graphene is produced on large scale by reaction of graphite with Cl_2O_7 solution in cold condition.



C-60



Carbon Nano Tube



Graphene

Graphene

Cl_2O_7 is produced by a special reaction on NaCl in platinum electrolyzers. A retardant is added to Cl_2O_7 to slow down the reaction by avoiding explosion. The reaction is autocatalytic chain reaction. It was claimed that this method of Graphene production is only known to Prof. Petrik. Carbon material produced by cold destruction of stratified carbon compounds, mostly consisting of graphenes and having high activity to pressing is named High Reactivity Carbon Mixture [HRCM]. It consists of graphenes, various web type carbon structures in rolls, nanotubes, branching nanotubes, nanofractals, etc, which form homogenous carbon mass as a result of chaotic concretion possessing tremendous specific surface and high chemical activity. Abnormal sorption properties of HRCM can be explained by the fact that carbon atoms at the graphene periphery are not saturated have increased chemical activity and can be bound to many compounds in order to compensate free valence. Graphene has unique properties -very high sorption ability, very light 2 kg/m3, high thermal conductivity, high electrical conductivity very strong- 200 times steel.

The thickness of graphene is equal to the diameter of atom. So this size also does not fall into the category of nanoparticle dimensions. Hence it follows that graphenes cannot be called nanoparticles.

In addition, it should be noted that a carbon particle can not exist in a free state. When we start a fire, atomic carbon is released. The carbon atom instantly oxidizes converting into CO_2. Those atoms that have not managed to oxidize can form atomic clusters (up to 10 nm). Such clusters can continue growing generating nanodimensional particles. The lifetime of such particles is equal to few seconds – they either combine with each other generating stable carbon particles (fumes, which we observe during burning or soot) instantly oxidize at a sufficient contact with oxygen.

IUPAC decided to call one atomic carbon layer a graphene, and call two or more of them – a graphite packet. During graphene destruction, the above-mentioned chemical compound could not be settled in all the interlayer spaces. So HRCM consists of graphenes and graphite packets. For the first time, HRCM was investigated in the Institute of criminology of the Federal Security Service of Russia in 1998.

It was claimed that HRCM is a new substance of a certain class having no analogues in the world by physical, chemical, functional and economic characteristics as well as by ecological purity, versatility and variety of spheres of application.

Demonstration of Graphene

Industrial method for production of Graphenes

Delegates at factory

Layer-like structure of graphite was discovered in 1912 with the help of the method of X-ray structural analysis.

However, R. Paersly in 1934 and L. Landau in 1937 theoretically substantiated impossibility of existence of a carbon layer separated from crystallite as a result of its thermodynamic instability. Theoretically, such layers should either disintegrate or aggregate into separate three-dimensional particles. In fact, the attempts of researchers to obtain a two-dimensional carbon crystal ended in failure.

In 1996 Prof. Petrik demonstrated for the first time, a possibility of existence of graphenes (two-dimensional carbon layer) beyond the crystal lattice of graphite and developed technology for cold destruction of graphite into separate two-dimensional carbon crystals.

For that purpose, chemical compositions capable of explosion-like disintegration are introduced into interlayer spaces. Further, using any of the following methods: chemical, mechanical, and thermal, a reaction of auto-catalytic disintegration of chemical composition placed in the interlayer spaces can be started. The products of disintegration of the chemical composition separate two dimensional graphite layers having thickness of single atom, which in that same year, on the proposal of IUPAC were called “graphenes”. Two or more layers of graphite were given the designation of “graphite packets”.

Prof. Petrik gave a designation of High Reactivity Carbon Mixture (HRCM) to the obtained carbon material consisting of a mixture of graphenes and graphite packets.

The HRCM was studied in Russia for the first time in 1998, in the Institute for Criminalistics under the Federal Security Service of the Russian Federation, with the help of scanning electron microscope GSM - 6490. As a result of the

Delegates visited the warehouse of HRCM

conducted investigations, it was demonstrated, that: “HRCM is a homogeneous carbon substance, consisting of graphenes - two-dimensional elements of graphite structure, graphite packets, as well as the products of their chaotic splicing, bound by Van der Vaals forces”.

In 2000, presence of graphenes in the composition of HRCM was confirmed in the Institute of Spectroscopy of the Russian Academy of Sciences. As a result of investigations it was demonstrated that HRCM contains microcrystals of mono crystalline graphite.

The HRCM was studied in Moscow State University named after M. V. Lomonosov, and
In the USA, the structure and properties of HRCM were investigated by : -

1. University of California; Irvine Wen-An Chiou, Ph.D.
2. Carbon Nanotechnology Laboratory; Howard Khan Schmidt, Ph.D.
3. University of California; Davis; Department of Chemical Engineering & Material Science
4. University of California; Irvine Jian-GuoZheng, PhD
5. Brunswick Laboratories
6. Brighton Analytical LLC
7. Nautilus Environmental
8. Sierra Analytical
9. Del Mar Analytical
10. University of Nevada – Reno Nevada Stable Isotope Laboratory
11. University of Waterloo Canada
12. United States Department of the Interior, U.S. Geological Survey ,431 National Center
13. Excelchem Environmental Labs

We were informed that industrial method for production of graphenes is patented in 56 countries, including the USA and countries of the European Union.

The method enables to produce HRCM in industrial quantities under field conditions without necessity of special hardware.

Demonstration of HRCM on glass table

Following links were brought to our notice for the videos on the Internet,

- HRCM production at the table

http://www.youtube.com/watch?v=Z7GG-0_bwaM&feature=share&list=PLA92F23DED12EB09E

- HRCM production with Ralph Moss

http://youtu.be/51J98sMjlcY

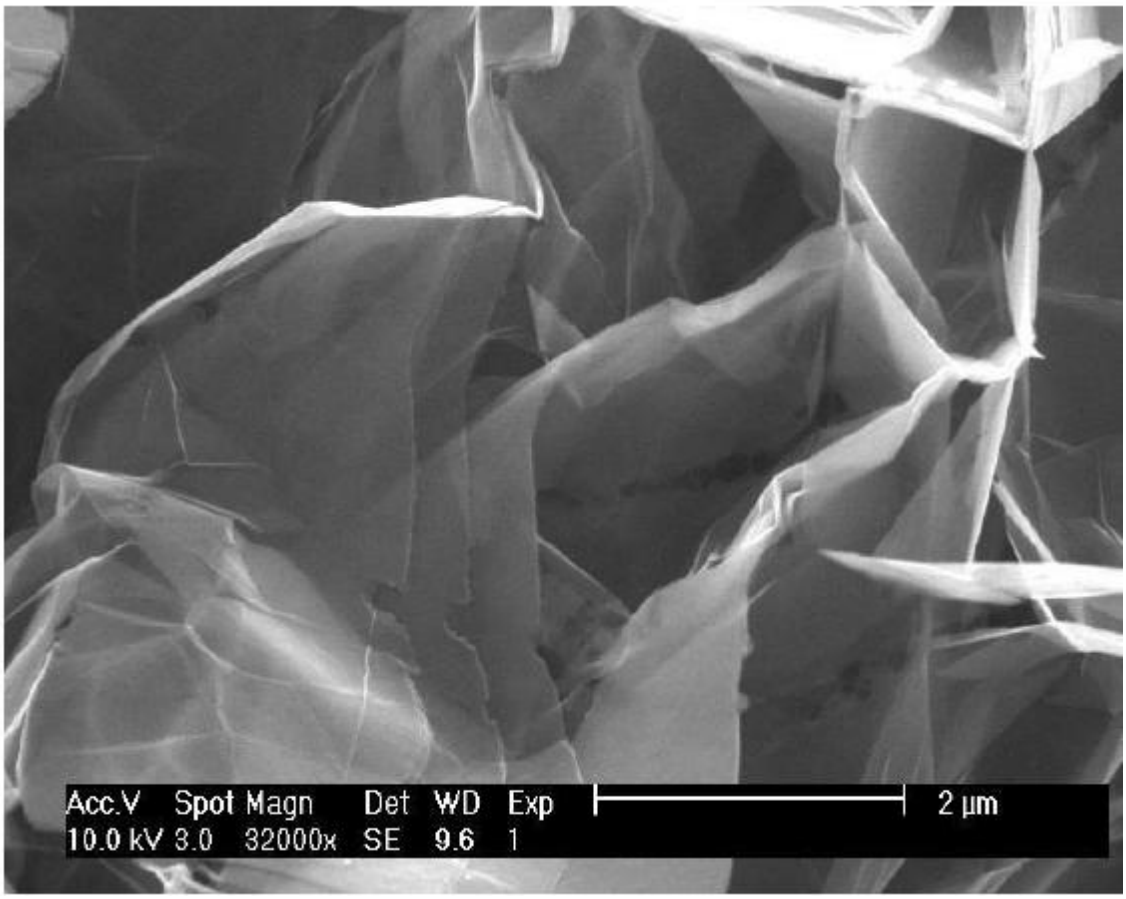
- HRCM production at the hand

http://youtu.be/zIHJ6FPHSts

- HRCM production with American expert

http://youtu.be/WHWKQAiN3Eg

The high reactivity carbon mixture and technology for its production have been developed as a result of the scientific discovery made by Academician Prof. Petrik: **"Phenomenon of generation of nanostructured carbon complexes"** certified by the International association of the authors of scientific discoveries in 2001, Diploma No.163.



Based on the facts laid regarding the abilities of HRCM, the Indian scientist were in detail explained **the method of obtaining HRCM:**

'Nano' means dimension 10^{-9} meter. Carbon nano-layer is a layer whose thickness equals to 10^{-9} meter. Such atomic carbon layer is called graphene.

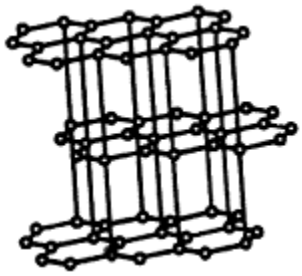
Structure of Graphite

Bonds between graphenes are weak (when we write with a pencil we break these bonds), they are called Van-der-Waals's bonds.

Bonds between atoms in hexagonal lattice are strong. Physicists did not believe for a long time, that Prof. Petrik could break off inter atomic bonds (they are also called covalent), because it was considered that they could only be broken off at the epicenter of nuclear explosion.

Prof. Petrik synthesized chemical compounds capable of explosive decomposition. By simple pouring on to the graphite, this compound is capable of penetrating into interlayer graphite spaces (LCC). It can stay in this condition indefinitely and does not show itself. It is enough to blow up the critical quantities of

molecules of this compound and the real chain reaction starts. It is possible to start this reaction of autocatalytic decay of compound by, for example, mechanical influence (i.e. by simple stroke), chemical influence, heating to 150 – 200 degree C, or even by a directed powerful sound. One atomic carbon layer (graphene) is separated from the general graphite mass (LCC) with every explosion of included molecule.



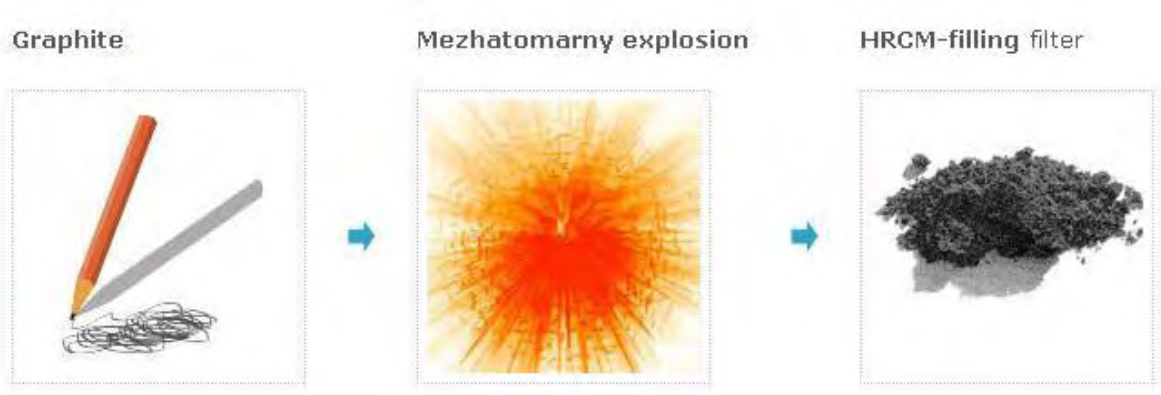
Then as a result of an uncontrolled cold chain reaction, radical destruction of LCC occurs, and its volume increases by more than 500 times.

Process of obtaining HRCM and LCC by the way of uncontrolled cold chain reaction

A piece of graphite turns out into the finest black powder containing up to 20% of nanostructures.

Nanostructures contained in HRCM are not only graphenes, but also nanotubes, branched nano-tubes, nano-rings, nano-fractals.

Separated from the common graphite structure – graphene rolls up into nanotube.
Explosions of molecules of chemical connections break off not only Van-der-Waals's connections between graphenes (as a result, graphite "fluffs up" and expands by more than 500 times), but they also partially break off covalent connections between carbon atoms in graphenes, which results in the formation of lots and lots of free radicals – non- saturated atomic connections within the HRCM mass.



Physical and chemical properties of HRCM

HRCM is a chemically inert, electrical, hydrophobic (contact angle over 90 degrees), resistant to aggressive media and environmentally clean mixture. The carbon content is not less than 99.4%, bulk density: 0.01 – 0.001 g / cc (depending on the method of manufacture), Specific surface area – 1600^2m per gram, Operating temperature: -60˚Celsius to 3000˚ Celsius returns the attached material - up to 98%.

HRCM and Thermally Expanded Graphite (TEG)

The method of destruction of graphite through the disruption of Van-Der-Waals bonds was known from 40-50 years of XXth century. This method is summarized as follows:

CMS wetted with sulfuric acid and oxidizing agents - nitric acid, hydrogen peroxide, potassium dichromate, etc., the resulting compound is heated to 2000 ° C (thermal shock) for 2-3 seconds. The molecules of sulfuric acid at such a dramatic heating do not have time to evaporate and due to this there is a sharp increase of the heating of sulfuric acid "raspushaet" CMS, resulting in a substance that looks similar to the HRCM, which is called the Thermally Expanded Graphite (TEG).

Nanotechnology is the understanding and control of matter at dimensions of roughly 1 to 100 nm where unique phenomena enable novel applications. Encompassing nanoscale science, engineering and technology, nanotechnology involves imaging, measuring, modeling, and manipulating matter at this length scale.

Unsurpassed sorption characteristics of HRCM have been virtually confirmed by the result of multiple full-scale tests, in various countries worldwide, as well as numerous expert examination studies conducted by competent national and international organizations. Many specialists, Scientist and leaders have visited Prof. Petrik’s laboratories.

Sorption property of graphene is made use of by converting it to filter, for purification of domestic drinking water, which is polluted at many places. The pollutants include dissolved substances, mud, bacteria, virus, oil, fluoride, arsenic, heavy metals, chemicals, industrial waste, drainage etc.

It was explained graphene filter does not remove useful salts from water, Ca, Mg and K. The purified water has biological activity, antioxidant and enhances the adaption capabilities of organisms.

COMMENT

After seeing the production facilities of all these filters and purification systems, we wanted to know from Prof. V. I. Petrik, under what license HRCM is currently manufactured.

To this, it was clarified that HRCM is manufactured in St. Petersburg under the federal approval by government of Russia.

We were informed that Russia, Ukraine and Germany have conducted various tests on different types of water filters and found that filters produced from graphene are the best. Such filters are put to use in Russia and Ukraine in schools, canteens, hospitals. The effectiveness of water purification was evaluated by 22 indicators, which comprised organoleptic characteristics [taste, colour, odor, turbidity], physical and chemical parameters [oxygen content in water oxygen demand, acidity], content of organic chemical substances [benzene, chloroform, formaldehyde, carbon tetrachloride, etc], as well as the content of heavy metals [lead, arsenic, cadmium, copper, zinc].

Considering the applications of HRCM sorbent as compared to Granular Activated Carbon (GAC) and Reverse Osmosis (RO), the Indian delegation were of opinion that HRCM nanotechnology is an innovative discovery in the field of water purification and also other fields like the oil spillage in river, sea and in offshore can also be effectively removed with low cost and in minimum time period. The environmental impact of surrounding area and aquatic culture can be resolved.

To the question whether HRCM is a nanomaterial and whether the filtering medium contains nanomaterials, Prof. V. I. Petrik mailed a detailed scientific reply as follows :-

HRCM is produced by the method of cold destruction of graphite. To this effect, a chemical compound being explosively degradable is introduced into the graphite interlayer spaces. Under a chemical physical action, the autocatalytic reaction of decomposition of the chemical compound is launched. As a result of this decomposition, gases (decomposition products) are released in the interlayer spaces, which tear off graphenes.

In 1996 IUPAC decided to call the two-dimensional carbon crystals, which graphite is composed of, the graphenes; it is the same year when Prof. V. I. Petrik discovered the method of their production.

So grapheme is a plane replicating the graphite particle size. Normally the size of graphite particles fluctuates from 5 to 30 microns. it is to be recalled that such particles, which size if within the range from 19 to 100 nanometres, are attributed to nanodimensional particles.

The thickness of graphene is equal to the diameter of atom. So this size also does not fall into the category of nanoparticle dimensions. Hence it follows that graphenes cannot be called nanoparticles.

In addition, it should be noted that a carbon particle cannot exist in a free state. When we burn a fire, atomic carbon is releasing. The carbon atom instantly oxidizes converting into CO2. Those atoms that have not managed to oxidize can form atomic clusters (up to 10 nm). Such clusters can continue growing generating nanodimensional particles. The lifetime of such particles is equal to femtoseconds – they either combine with each other generating stable carbon particles (fumes, which we observe during burning or soot) or instantly oxidize at a sufficient contact with oxygen. Hence other Russian

academician speaking of the danger of HRCM (which can produce nanoparticle dust) demonstrates his non-understanding of the main properties of carbon.

IUPAC decided to call one atomic carbon layer a graphene, and call two or more of them – a graphite packet. During graphene destruction, the above-mentioned chemical compound could not be settled in all the interlayer spaces. So HRCM consists of graphenes and graphite packets.

For the first time, HRCM was investigated in the Institute of criminology of the Federal Security Service of Russia in 1998. (Refer Annexure) for Background of industrial production "graphenes and carbon compound of High Reaction ability (HRCM)

Tests conducted nationally and internationally.

In view of the present scenario of Indian water purification systems for masses Dr. Vijay Bhatkar, was concerned about the HRCM purification and safety standards. Hence looking at the possibility of providing the safe drinking water to the masses Dr. Vijay Bhatkar wanted to know about various tests that have been conducted in Russia, India and at international labs. Attached in the Annexure are the test reports of all tests conducted nationally and internationally.

India

In India, various tests at Water resources department, Hydrology Project, Water Quality Laboratory Aurangabad, Maharashtra, as well as mice experiments at "National Toxicology Center" Pune were conducted, to test the water quality after filtering **through HRCM filters. MITCON has prepared "Techno Economic Feasibility Report" on Water Purification Systems High Reactivity Carbon Mixture Project (HRCM Sorbent) (Attached)**
They have prepared a report on:

- Technical Feasibility
- Marketing Feasibility
- Financial Viability

WFR Team & MITCON Chairman on submitting Report to CM of Goa Mr. Manohar Parrikar

They were satisfied that water is safe and meets national quality standards. Goa Government after having appreciated understanding of HRCM technology has started the process to sanction land to WFR for HRCM facility unit. In this contest WFR President and MITCON Chairman met Chief Minister of Goa for further cooperation to set up HRCM plant in Goa.

In Subject to this various laboratory water tests have been conducted in Government of Maharashtra, Water Resource Department Hydrology Project, Water Quality Laboratory, Aurangabad and NABL approved laboratory, Pune in India for water and Industrial wastewater by

MIDC Chief Engineer Mr. P. J. Rangari and the results obtained are within the permissible limit of Bureau of Indian standards.

MITCON Pune, CONCLUSION: -

- The technology of HRCM manufacturing is proven and is a discovery of 21st Century.
- The building and infrastructure for the activity proposed is sufficient so as to achieve the projected sales.
- The suppliers of machinery & equipment's being the technology providers themselves are experienced in their own field. The installed capacity of machinery is sufficient enough to manufacture proposed quantity of filters.
- The raw material required is adequately available.
- The utilities required for processing are adequately available.

In view of all above, the project is technically feasible

USA

Comparative tests of HRCM sorption characteristics conducted in Excelchem Environmental Labs (USA) have shown that HRCM is superior than Granular Activated Coconut Charcoal (GAC) being the best on the American market by 50…200 times depending upon the liquid substance being under investigation.

In particular, the HRCM sorption characteristics as to crude oil surpass GAC by 134.4 times, i.e. one gram of HRCM binds 67.2 grams of oil. It is notable that oil can be separated from HRCM, which allows using HRCM as a sorbent repeatedly.

HRCM and materials obtained on its basis have being studied in the following American research and development institutions and laboratories: -

1. University of California Irvine Wen-An Chiou, Ph.D.
2. CARBON NANOTECHNOLOGY LABORATORY Howard Khan Schmidt, Ph.D.
3. University of California Davis Department of Chemical Engineering & Material Science
4. University of California Irvine Jian-GuoZheng, PhD
5. Brunswick Laboratories
6. Brighton Analytical LLC
7. Nautilus Environmental
8. Sierra Analytical
9. Del Mar Analytical
10. University of Nevada – Reno Nevada Stable Isotope Laboratory
11. University of Waterloo Canada
12. United States Department of Interior U.S. Geological Survey, 431 National Centers
13. Excelchem Environmental Labs

Germany

In 2012, in the Nova Biotec research center (Germany), on the initiative of Rospotrebnadzor, the comparative testing of five leading filter manufacturers had been performed. The tests were conducted with respect to 22 analytical parameters. The HRCM-based filters manufactured by Golden Formula Holding LLC have been ranked first with respect to 22 parameters.
This phenomenon opens a new era in water treatment technologies, a new understanding of the water value in biological processes, a new radical approach to solving health assurance problems.

Russia

In Russia the systematic investigations of HRCM have been performed since 1998 in the following research institutions: -

1. Institute of criminology, Federal Security Service of the Russian Federation
2. Institute of spectroscopy, Russian Academy of Sciences
3. Moscow state institute of electronic engineering
4. M.V. Lomonosov Moscow state university
5. Research Institute, Ministry of Defence of the Russian Federation
6. V.G. Khlopin Radium Institute Science & Production Association, a federal state unitary enterprise (FSUE)
7. F.F. Erisman Federal science and production centre, a federal state science institution (FSSI)
8. Centre of extreme medicine FSUE I. I. Janelidze Ambulance Research Institute
9. Institute of toxicology FSSI

These investigations have shown that the use of HRCM as a sorbent opens new unique possibilities relating to water treatment technologies. In doing so, the investigations performed in Institute of toxicology FSSI (Russia), in Brunswick Laboratories (USA) and in National Toxicology Centre (India) have convincingly demonstrated that water, which has passed through HRCM, has biological activity, antioxidant properties and enhances the adaptation capabilities of organism. This phenomenon opens a new era in water treatment technologies, a new understanding of the water value in biological processes, a new radical approach to solving health assurance problems.

Taking into account the above, the United Russia party announced in 2007 about a national project called **'Pure Water'**. According to this project all schools, children's institutions, medical institutions shall be equipped with filters based on HRCM.

In his speech at the Pure Water - 2010 International Forum, V.V. Putin determined the Pure water national project as a top priority project.

In 2009 all social institutions in Velikiy Novgorod and Novgorod Region have been equipped with such filters. It follows from the report prepared in the town of Novgorod that for the period of 2008-2009 the sickness rate related to viral hepatitis had virtually decreased by three times and the average children's sickness rate related to dysentery had been reduced by 64.5% as compared to the average Russian level.

The monitoring of the quality of water treated on Golden Formula Holding LLC's systems installed in social institutions in the town of Novgorod and Novgorod Region was performed according to the agreement with the Novgorod Government by the efforts of Rospotrebnadzor. During the period from 2007 until 2010 over 1400 positive responses were observed. During the discussions Prof. V. I. Petrik also clarified that his filter was awarded the best filter award by the Ministry of Defence of Russian Federation. (Attached in Annexure)

"In the course of conduction of research developments under a commission of the Ministry of Defence of the Russian Federation, a number of HRCM-based systems for water cleaning from bacteria and viruses have been developed. These filters will become indispensable in a rescue kit during ecological catastrophes."

Kuwait

For many decades the residents of Kuwait have been forced to accept the unnatural smells of hydrogen sulphide, which exudes along with water during excavating soil for construction works. The Kuwaiti Government has many times called together the best world specialists in order to solve this problem. Once Her Highness Sheikha Amthal Al Sabah personally applied to Prof. V. I. Petrik with the request to render help in such a misfortune. Soon thereafter Prof. V. I. Petrik delivered a high-performance installation to Kuwait for catalytic oxidation of sulphur dioxide by atmospheric oxygen.

The various test reports are summarized as below, these can be of special interest to India as it will aid in solving ecological, health and technological problems.

- Abnormal absorption properties of HRCM can be explained by the fact that carbon atoms at the graphene periphery are not saturated, have increased chemical activity and can be bound to many chemical compounds in order to compensate free valence.
- A high effectiveness of HRCM use in case of spills of Fuel and Lubricant Materials (FLM) and oil products into soil. At present this material is used by many enterprises and organizations for liquidation of ecological consequences of various accidents
- The unique data have been obtained on medical treatment of burning wounds by means of HRCM.
- Before the dawning of the age of HRCM, there have existed no technologies in the world, which could be capable to clean water from humic acids.
- Basing on HRCM, Prof. V. I. Petrik has created a unique technology for the recovery of water from radioactive elements and their reliable fixation in carbon matrixes.

Also Ukrine and Germany have conducted various tests on different types of water filters and concluded its safe and purest form of water. In support of the same, the Indian team was emailed the copies of manufacturing licenses (attached in Annexure 13:- HRCM Water Filters product and License).

CONCLUSION

Based on the details, documents on patents, production facilities, test reports and a license, the team is of the opinion that the HRCM technology would be of great interest to India and World. These inventions may have substantial applications in the practical spheres of various technological and ecological matters. The "Pure Water" meets the national and international standards of safe drinking water, which if implemented widely, shall be able to reach the masses in India and World.

We made a conclusion that reviewed technologies represent essential interest to Indian masses.

Prof. V. I. Petrik has collaborated with WFR, India for bringing this technology to India. Prof. V. I. Petrik is ready to transfer technology to manufacture HRCM and special liquid used in industrial production of HRCM. The technical feasibility for production will be shared under non-disclosure agreement. Mr. Neel Founder President & Director of WFR has collaborated with Prof. V. I. Petrik to bring this technology in India. Based on results of studies performed on Prof. V. I. Petrik water purification standards. Further MITCON has prepared "Techno Economic Feasibility Report" on Water Purification Systems High Reactivity Carbon Mixture (HRCM Sorbent Project) (Attached) They have prepared a report on: Technical Feasibility, Marketing Feasibility and Financial Viability. They were satisfied that water is completely safe and meets national quality standards. The technology of HRCM manufacturing is proven as well as HRCM Project is technically feasible to set up plant in Goa. After MITCON appreciative positive TEF Report on HRCM, Goa Government has readily finalized the project of WFR for setting up the industry at Goa.

To summarize, we are of the opinion that for the first time in history, an industrial production technology of graphenes has been implemented, using the method of cold destruction. We can say it's the pioneering discovery of cold destruction.

HRCM Nanotechnology is "a phenomenon of generation of nanostructured carbon complex" certified by the International Association of Authors of Scientific Discoveries in 2001, diploma No.163. The author is Academician V. I. Petrik. The methods of industrial production and use of graphenes (HRCM) are protected by the patents: RU2163883 30.09.1999"The method of industrial production of the high reactivity carbon mixture by the cold destruction method and a device for its implementation, "2 US 7,842271 B2 30/11/2010 "Mass production of carbon nanostructures, " US 2003/0024884A1 06/02/2003 "Method for removing oil, petroleum products and/or chemical, pollutants from liquid and/or gas and/or surface, "European patent No.EP1247856, Eurasian patent No.002579 as well as patents of a number of Asian Countries. The technical solution of the method is based on the graphite restructuring using in highly reactive chemical compounds enabling the graphite cold destruction into infinitesimally thin sheets. The discovery of graphite cold destruction may lead to a large number of applications. This technology is advance, ecofriendly & economical.

For more information refer:
Annexure 4/5/6/7/8/9/10/11/12/13/15/16

New Method for Production of Platinum Group Metals by Gas Phase

II. New Method for Production of Platinum Group Metals by Gas Phase

Prof. Petrik doing demonstration of extraction of platinum group metal

Prof. Patrik introduced his next invention i.e. production of Platinum group metals by Gas Phase.

It is known that platinum group metals are rare in nature to be found and their production artificially is almost next to impossible. Prof. Petrik has developed brand new system for extraction and separation of platinum group metals by gas phase.

The process is based on capability of platinum group elements to generate volatile compounds (complexes) with trifluorophosphine under particular conditions.

Technology of production

Prof. Petrik gave following elaboration: Trifluorophosphine complexes have the following composition: Pd (PF3)4, Pt (PF3) 4, etc. and represent volatile fluids under normal conditions.

Basic aspect assumes strong difference in physical and chemical properties of the above complexes depending on metal (boiling point, melting point and temperature of decomposition). This method for platinum metal separation and refining is exactly based on the difference in physical and chemical properties of these compounds. It has been proven experimentally that during selection of suitable process conditions (temperature, pressure, composition of working gas, etc.), platinum metal can be completely extracted from the charging material of complex composition, with subsequent separation of platinum metals and production of powders with purity over 99.99%

In the process of metal extraction, trifluorophosphines are completely regenerated. Technological process consists of the following operations

- Initial preparation of charging material.
- Processing by gaseous substance.
- Successive batch of gas compound to gas tanks where the following complexes decompose successively under different temperature conditions: palladium, platinum, iridium, rhodium, ruthenium and osmium complexes with sedimentation of purified metals and emission of gaseous compound.

This method has a number of advantages over the conventional process such as waste free, high recovery, low cost, easily automated, direct coating whenever needed & very high purity,

The use of platinum group metals is being increasingly used for industrial production of catalysts for oil and automobile industry.

It is informed by Prof. Petrik that the isotopes of these metals also get separated due to differences in vapour pressures.

It is possible to enrich uranium by this method. It can be studied further in detail.

A lab scale pilot plant was shown to the delegation. The triflourophospines were circulated through pipe at high temperature in vaccum. In two boxes glass depositors with increased surface [enlarged dia.] One element deposits at high temperature [350^{o}C], second element at lower temp 250^{0}C and then third element at 150^{0} . The purity of the element can be judged from the brightness of the deposited metal.

Rhenium is one of the rarest elements in the earth's core. It is produced only in three countries, USA, Russia and Kazakhstan from gas emissions from Volcanoes. A patent on "Method for the production of rhenium powder by chemical deposition from the gaseous phase" has obtained by Prof. Petrik, who has produced nano crystalline rhenium with purity higher than 99.995% and grain size of 30-125 nm.

CONCLUSION:

We are of the opinion that Platinum group metal separation developed by Prof. Petrik is a remarkable and appreciable achievement and would of interest to India. A technical workshop should be organized in India involving interested parties to explore the application of this innovation in India. (For more information Annexure 17/18)

Identification of Secured Document with AntiStokes Fluorescent Compositions

III. Identification of Secured Document with AntiStokes Fluorescent Compositions

Relating to the application of isotopes, Prof. V. I. Petrik has created antistoke compounds, which have a very significant application practically in all spheres of virtual security.

Benefits

Professor explained the benefits for creation of antistoke compounds:

The fact lies that owing to forgery and duplication, there is a necessity of creation of a security system based on the latest developments and technologies, intended to protect bank-notes, similar securities, financial, confidential and other legal documents against forgery. Likewise creation of various kinds of excise oridentification labels used in the sphere of production, export & import of spirits, tobacco and other products, which are taxed,by the State Federal and regional Excise Departments are also a matter of significance.

Based on this, the invention of antistoke compounds was introduced to Russian Federation.
The reports made by Russian Scientists confirm that the Russian Federation now really possesses the technology on practical use of reliable security marks based on anti-stoke compounds that contain several rare-earth elements with sufficient operating brightness. Any attempt to reproduce a specific anti-stokes compound is practically impossible since the complexity of such operation is comparable to the complexity of deciphering of modern high-level computer cryptosystems and would require efforts of an individual at any Research Institute for many years. At the same time it is possible to automatically apply the mark on products to be marked, and the mechanism of this operation can be easily integrated into the existing polygraphic technologies used in the Goznak Association. The instrument used for detection is an infrared radiator, which is extremely easy to handle, does not require a special setup, and has dimensions comparable to those of a usual fountain pen. Such an instrument can be a tool suitable to act in accordance with production compliance not only for check organizations, but also the consumer.
This discovery could be of high importance, we hence wanted to understand how this antistoke compound was created and how was it practically used?

Prof. V. I. Petrik and his team elaborated on the same.

The invention provides a secured document comprising a composition of Anti Stokes fluorescence having,

a) an ion capable of absorption of electromagnetic radiation,
b) an ion capable of emitting electromagnetic radiation, and
c) a matrix composition comprising Gd, Yb, La, and Tm

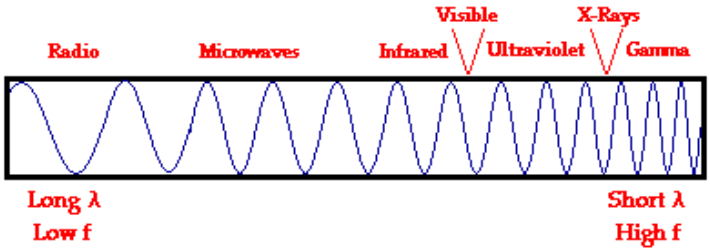
The concentrations of a and b are adjusted to achieve concentration quenching of Anti Stokes luminescence

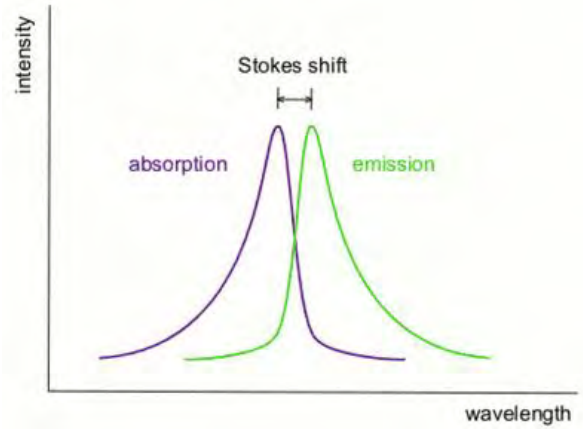
[Gd [1-x-y] Yb. x Tm.y] O2.S , [Gd{1-x-y}]2. O2. S. Yb.x Tm.y x>0, y>0

Yb is the ion capable of absorption and Tm is the ion capable of emission. The composition is optimized. The authentication elements of the invention are applied to secured documents through printing ink or pigment. Such compositions are capable of converting comparatively low energy [IR] excitation radiation in high energy radiation [anti Stokes] India has relatively large Rare Earth elements. Dr. Petrik mentioned that India should not mine these elements and sale them for non important usages. These elements have strategic applications and India should be very careful.

Creation of Antistoke

Osmium 187 has natural abundance of only 1.64% whereas Prof. V. I. Petrik has increased O_S187 isotope to more than 99%. The practical application of the developed technology for O_s187 includes protection of securities, bank notes, credit cards etc. by application of special tag - 2 to 3 µg of isotope. According to the available information O_s187 and Hg196 (also called red mercury) have energy transition required to produce gamma LASER (graser). The combination is based on the technology known only to Prof. V. I. Petrik and it is impossible to duplicate it.





CONCLUSION

India has relatively large deposits of rare earth elements and they should be effectively mined and processed in India to locate a higher commercial value compared to what is commercially sold today as unprocessed raw materials. A technical workshop should be organized involving interested stake holders whose technologies developed by Prof. Petrik can be presented and future strategies for exploring rare earth elements arrived at.

(For more information Annexure 18 :- Anti-Stokes compounds of High resolution Capability)

Solar Power Engineering

IV. Solar Power Engineering:

Gas Phase Fluorosilane Technology for Silicon Production

Introduction

Prof. Petrik explaining his solar power engineering

Our team was also introduced to harnessing of solar power in the laboratories of Prof. V. I. Petrik.

Solar power engineering is one of the most dynamically developing industries. Source of solar energy is Sun. The existing technology for production of Silicon semiconductors was elaborated in the 50s of last century by the expert of Siemens Company (Siemens Process). In the production of polycrystalline silicon as per the given technology, highly toxic and dangerous explosive substances are used such as chlorine, hydrogen, hydrogen chloride, trichloridesilane. In addition to obtain Silicon using such a technology is associated with high energy consumption that is 360 – 400 kW h/kg which actually multifolds the cost of final product. The listed factors form reasons for existence of the silicon problem.

Technology

Prof. V. I. Petrik claimed that few years ago he introduced new gas phase fluorosilane technology for obtaining of semiconductor silicon, which indeed is useful in solar power engineering. The technology is based on the use of cheap accessible raw material (specific factory waste). The waste contains silicon in the composition in the form of fluorides, that is fluosilicates. Transfer of solar power energy to nano-crystalline and mono crystal silicon obtained through monosilane based on this technology provides reduction in cost of 40$/m2; wherein the cost of generated energy can be lowered to 10 cents/kW h. Most important advantage of this technological process is the closure of the technological cycle

Conclusion

Solar power engineering technology develop by Prof. V. I. Petrik is fluoro-silicon hydride technology for production of semiconductor silicon. The technology is based on using low cost and accessible raw materials: recidues of fertilizer production. Hence this technology is ecofriendly. Energy expenses for producing fluoro-silicon hydride technology is very low hence production cost is very economical and ensure quality and efficient product. This technology can help India to produce much needed electricity through solar power.

High Temperature optical armor ceramics (spinel)

V. High Temperature optical armor ceramics (spinel)

Spinel [$MgAl_2O_4$] is a cubic crystalline material with unique combination of ruggedness and excellent transmission from the ultraviolet [0.2 mμ] to the mid infrared [5 micrometer] region. This positions spinel as the de facto material of choice for the numerous defense department and commercial infrared window applications-DDG destroyer, submarine high energy lasers, domes of missiles and rockets, night vision devices etc.

The poor quality of commercial spinel ceramics in attributed to the inhomogeneous mixing of the sintering aid with spinel powders.

This leads to porosity and trapped sintering aid. NRL has developed a novel and patented process to uniformly coat the sintering aid on to every spinel powder particle and enable it to be removed during hot pressing process at around 1600^0 C. This enables full densification and fabrication of uniformly transparent high optical quality spinel ceramic. It is possible to make thick windows and conformal optics, including lenes and dome shapes.

Dr. Petrik has developed spinel making process by pressing powders obtained by sol gel method, which gives high uniformity of the mixture. The workshop, which is deep in jungles was shown to us. The facility has double screw press, electric furnace, a tank and control systems. It occupies a space of about 10 x 5 x 3 m.

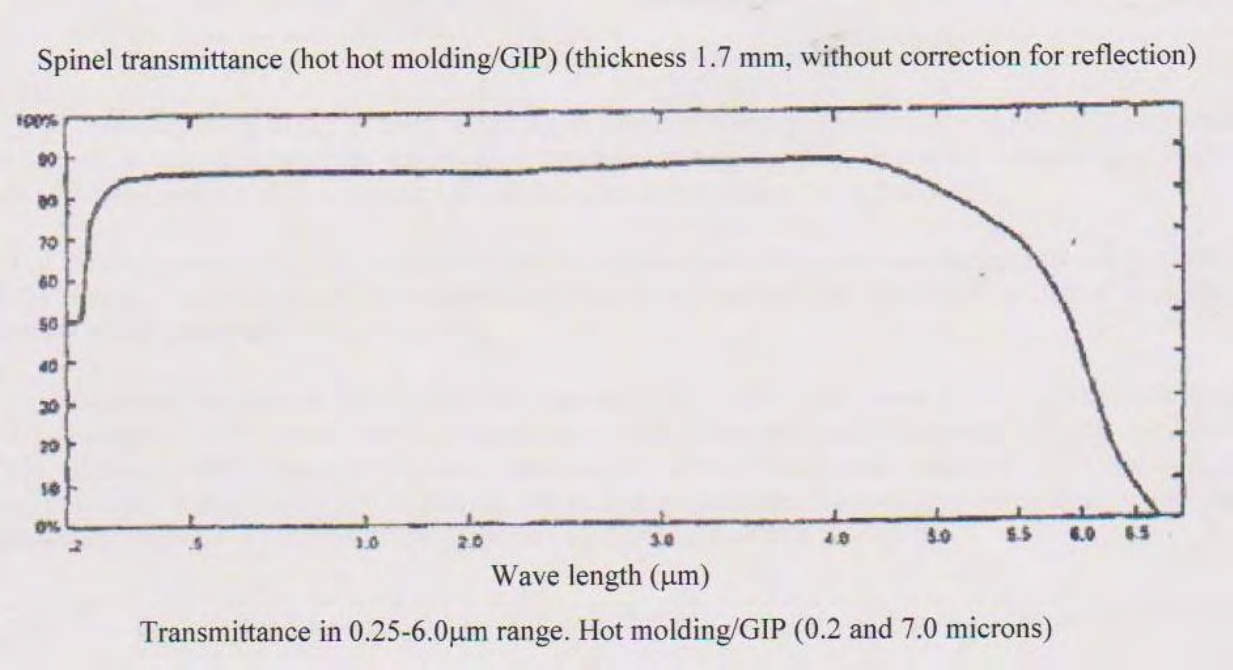
The production of high quality transparent ceramic demands both careful powder synthesis and close control during densification. Ballistic test were conducted on ceramics to check structural behavior.

Important optical, mechanical and thermal properties of spinels

Property	γ ~AION	Mg~spinel	Unit
Refractive index (at wavelength 0.5 µm)	1.8	1.723	
dn/dT(in 3-5 µm wavelength range)	3	3	$10^{-4}k^{-1}$
Absorption coefficient (at 3.39 µm wavelength)	0.1	0.018	cm^{-1}
Total integrated optical scatter (at 0.64 µm;~5 mm thick sample)	2.0	7.2	%
Transmission wavelength range*	0.22-6	0.25-6.5	µm
Optical homogeneity achieved in 15 in x 25 in. part with 3.4in aperture	~5	N/A	ppm
Typical transmittance without AR coatings (in the visible range)*	>84	75-80	%
Typical haze (in the visible range)*	<2	<10	%
Typical clarity (in the visible range)*	>98	>95	%
Flexural strength	300	70-10	MPa
Hardness (Knoop at 200 g load)	1850	1450-1650	kg/mm^2
Young's modulus	323	277	GPa
Facture toughness	2.4 ± -0.11	1.72 ± -0.06	MPa-$m^{1/2}$
Weibull modulus	8.7	19.5	
Thermal shock resistance*(figure of merit R')	1.2	1.1	
Thermal expansion coefficient (30-900^{0}C)	7.5	N/A	10^{-6} K^{-1}
Thermal conductivity (at 25^{0}C)	12.6	25	W/(m.K)

The spinels produced by Prof. Petrik's lab were evaluated by defense institutes, measurement of sample spectral characteristics confirmed high optical transmittance and X-ray structural checks confirmed that delivered ceramic is a polycrystalline spinel. The technology for synthesis of transparent armor ceramics is developed in Russia which has wide applications in items operating under extreme loads and development of this ceramics is an outstanding scientific achievement.

Spinels



Transmittance in 0.25-6.0μm range. Hot molding/GIP (0.2 and 7.0 microns)

Conclusion

High temperature optical armous ceramics developed by Prof.V. I. Petrik has many applications in defence, such as missiles, helicopters, aeroplanes. Being an advanced strategic technology, we should consider Indo-Russian collaboration in this area to develop and manufacture products relating to this technology.

Golden Section In Nature, Arts and Mathematics

VI. Golden Section In Nature, Arts And Mathematics

"Regularity of generation of the geometric spatial multidimensional structure using the mathematical golden section algorithm".

Prof. V. I. Petrik has devised a formula 'golden section', based on a certain ratio that gives high performance of a violin. He also states that this golden section had a base in creation of Pyramids and hence can reveal the mysteries behind it.

- Golden section and violin;
- Golden section and pyramid;
- Golden section and chemical reactions.

For more information please refer Annexure 19

Prof. Petrik's Remarkable pieces of art (Engraving on Gems)

VII. Prof. Petrik's Remarkable pieces of art (Engraving on Gems)

Academician Prof. Petrik masters the inconceivable for common understanding art of carving images on precious stones. With absolute accuracy he can reproduce any work of art on any gem. Comparatively, today's best-known techniques for solid substance processing - by means of laser and ultrasound - cannot compete here, as they do not provide for as fine a carving. The unique feature of this creative work by academician Prof. Petrik is that he has a conceptually different approach to solve specific tasks in science and engineering, and uses a universal technology with all the tools necessary.

Remarkable pieces of art, Prof. Petrik's carvings include diamonds, emeralds, topazes, amethysts, sapphires, rubies, garnets, noble spinel, and other gems. These were shown to the Indian Scientists delegation.

For more information please refer Annexure 14 & 20

CONCLUSIONS

Conclusions

We were invited by Professor Viktor I. Petrik through Mr. Nilesh Neel of Water Freedom Revolution (WFR) to visit his labs in St. Petersburg, Russia to get familiar with his inventions and innovations for harnessing them in India and for the larger benefit of the humanity as a whole.

The Indian scientific delegation led by Dr. Vijay Bhatkar included Dr. Shivram Bhoje, Dr. S. H. Pawar, Dr. Satish Wate, Mr. P. J. Rangari and Mr. Elvis P. Gomes, with Mr. Nilesh Neel acting as a coordinator. The visit was undertaken from 22nd July to 29th July 2013.

The Indian scientific team was made familiar with the following inventions of Prof. Petrik: Graphenes and Highly Reactive Carbon Mixture (HRCM), including their commercial production method; Production of Platinum Group Metals by Gas Phase; Anti-Stokes Fluorescent Compositions and their Security Applications; Gas Phase Fluorrsilane Technology for Silicon Production; Golden Section in Nature Art and Mathematics; and High Temperature Optical Armor Ceramics.

Prior to undertaking the visit, during the process of visit as well as post visit, the team was given access to comprehensive documentation on the afore mentioned inventions as well as on Prof. Petrik and his accomplishments and the lab infrastructure and the various demonstrations that were held earlier and their media coverage. Many documents were specifically requested by the team to understand the novelty and scientific validity of Prof. Petrik's inventions, including proprietary information on commercial viability of production of Graphenes and HRCM. The aggregate volume of this documentation is over 700 printed pages.

Our conclusions presented here are based on the afore mentioned documents, presentations directly made by Prof. Petrik assisted by his team, demonstrations made at his labs, visit to production facilities in St. Petersburg, and question and answer sessions that took place during presentations and lab demos.

Based on the study of the patent certificates and associated documents, we are of the view that Prof. Petrik is a prolific and enigmatic innovator holding patents of his invention in 56 countries, including USA, Russia and India. We are aware of the controversy surrounding Prof. Petrik in the web media and we asked Prof. Petrik to respond on this controversy which was attributed to scientific jealousy, protection of commercial interests of existing technologies and geopolitics. The team decided to generally ignore on the controversy and focus on the scientific investigations. The team feels that the innovations of Prof. Petrik are novel, non-obvious, with significant applications that can bring benefits to people at large.

We specifically focused on the innovation of Graphenes and HRCM and their applications for water purification as it has a potential for large scale application in India and the world at large. After the Nobel Prize in Physics to André Geim and Constantine Novoselov in 2010 for which Prof. Petrik had also laid his claim we were told, has been one of the intense areas of scientific and technological explorations and Graphene is considered as a wonder material of great promise in a variety of areas. We believe this can be a high potential and high priority area for Indo-Russia scientific collaboration.

For the first time, to our knowledge, an industrial production technology of Graphenes has been elaborated by Prof. Petrik using the method of cold destruction. The technical solution of the method is based on the graphite restructuring using in highly reactive chemical compounds enabling the graphite

cold destruction into infinitesimally thin sheets. The discovery of graphite cold destruction may lead to a large number of applications. Prof. Petrik holds several patents on HRCM and its production method in a number of countries.

We were actually demonstrated a working plant of commercial production of HRCM.

We were also shown various embodiments of HRCM for building water purification systems for domestic, office, enterprise, public and industrial application. These are being currently assembled in the Prof. Petrik's St. Petersburg complex with proper manufacturing and sales licenses.

Prof. Petrik has collaborated with Nilesh Neel to bring this technology to India special purpose vehicle which has been named Water Freedom Revolution. For technical, Financial, MITCON has prepared a Techno-Economic Feasibility (TEF) Report. MITCON has concluded that the commercial production of HRCM and resulting water purification products is viable and bankable proposition. Based on the TEF Report of MITCON, Goa Government has positively responded to the proposal of WFR, including readiness to allocate the required land and placement of pilot orders for installing water purification systems in public places, subject to the satisfaction of applicable procurement procedure.

For assessing the efficacy and safety of HRCM based water purification systems, we had asked WFR to submit Indian and international reports from certified test labs in India, Russia, USA and other countries. These form an important part of the references to this Report. The test reports show that the water from various input sources as examined is safe and meets the current national and international standards. The HRCM process is efficient and economical Comparison with other technologies was also presented.

For bringing the HRCM technology to the masses, rural, tribal and slum areas as well as for mass domestic use in India, WFR has worked along with Prof. Petrik to realize a low cost plastic bucket, colloquially called as Balti in India. We feel that this embodiment of Balti can have large scale and far reaching impact in India for making available safe water to its slum, rural and tribal dwelling people.

Also HRCM water purification systems could be installed in public places to make available safe and pure drinking water for people at affordable cost.

We were also demonstrated other inventions of Prof. Petrik. This included a new method for production of Platinum group metals by gas phase. A lab scale pilot production was shown. Rhenium is one of the rarest elements in the earth's case. It is produced only in three countries, namely USA, Russia and Kazakhstan from gas emissions of volcanoes. A Patent on "Method for the production of Rhenium powder by chemical deposition from the gaseous phase" has been obtained by Prof. Petrik, who has produced nano crystalline Rhenium with claimed purity of 99.995% and grain size of 30-125 nm. We feel that the platinum separation method developed is important to India.

Relating to Osmium isotopes, it has significant applications in security of bank notes, security documents, credit cards, etc. Prof. Petrik has developed method for creating Osmium isotope based anti-strokes fluorescent composition for the identification of secured documents. This could be of importance to India. A special workshop should be organized on this topic in India to take this innovation forward. We feel India has relatively large deposits of rare earth elements and they should be effectively mined and processed to realize higher commercial values that what is being commercially sold today as unprocessed raw material. A special interest group technical workshop should be

organized involving interested stake holders where technologies developed by Prof. Petrik could be presented and future strategies for exploring rare earth elements worked out.

Prof. Petrik claimed that few years ago he introduced new gas phase fluorosilane technology for obtaining of semiconductor silicon, which indeed is useful in solar power engineering. The technology is based on the use of low cost accessible raw material (specific factory waste). The waste contains silicon in the composition in the form of fluorides i.e. fluosilicates. Transfer of solar power energy to nano-crystalline and mono crystal silicon obtained through monosilane based on this technology provides reduction in cost of 40$/m2; wherein the cost of generated energy can be lowered to 10 cents/kWh. Since India is significantly investing in solar power, Prof. Petrik's technology should be explored for joint development, commercialization and large-scale applications.

High temperature optical armous ceramics developed by Prof. V. I. Petrik has many applications in defence, such as missiles, helicopters, aeroplanes. Being an advanced strategic technology, we should consider Indo-Russian collaboration in this area to develop and manufacture products relating to this technology.

Prof. Petrik also elaborated to us the idea of Golden section, and its applications in nature, arts and mathematics. Specifically we were told about how it can be used for creation of violins, pyramids, and other artifacts.

Prof. Petrik also showed us his works of arts and crafts, including his paintings and unbelievable carving in diamonds, emeralds, topazes, amethysts, sapphires, rubies, garnets, noble spinet and other gems, demonstrating he as a master artist and craftsman.

In summary, we feel that the inventions and innovations of Prof. Petrik are significant and relevant to India. These innovations can be further developed and harnessed through joint scientific, technological and industrial collaborations.

28th November 2013

Dr. Vijay P. Bhatkar
Leader of Indian Scientific Delegation
Visit "22nd July – 29th July 2013" Russia
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Press conference and media coverage on 26th July 2013

The press conference held at St. Petersburg at 'Itar Tass' was addressed by we all scientists and Mr. Nilesh Neel. Mr. Nilesh Neel has put together the latest technologies under one roof, O21CD. The O21CD, an Original 21st century discovery is an initiative to bring together all the innovative technologies from diverse fields under one roof, comprising: ecological homes, Pure Water, sports development and literature academy.

Dr. Vijay Bhatkar

Dr. Bhatkar thanked Prof. Petrik and Mr. Nilesh Neel for the invitation. In his interaction with media he said:

"According to me, the technologies certainly bring a lot of hope for the humanity. Not forgetting that Russia and India have long history of cooperation and collaborations. That Russia has been very supportive to India, as was also the case when I received support for my super computer, which initially was denied by USA. I feel India and Russia can have long tie-up and do great wonders. We are here for the applications of these technologies and not to debate on the creator of these.

I praise Mr. Nilesh Neel for his efforts in initiating to get the technologies to India. After, all the demonstrations, tests and studies I am delighted that this technology would revolutionize the water purification technology. In India, where the price of water is almost at par with price of milk, the HRCM technology will be a boon.

Not only HRCM but antistokes compounds hold a very important application where the problem of forgery, counterfeit currencies, medicines and false documentation has be put to an end."

He also showed interest in the other technologies of O21CD which can a play an important role in reclaiming India's power in 21st century

"Lastly, I personally believe Indian and Russian scientists should cooperate and undertake research and innovations not only for India but also for the world. Such a cooperation exists at Government level calling the ILTP programme but what we are proposing is also in a private framework through a foundation 'Original 21st Centuries Discoveries Research Foundations' through enterprises that will actually bring the commercialization of the project. And this foundation also can cooperate with government laboratories of both the countries, academies of sciences and solve the problem of people of the world."

Video Interview coverage at Astoria Hotel on 27th July 2013

Dr. Vijay Bhatkar

Dr. Vijay Bhatkar giving interview at hotel Astoria

As the world advances to the next century it opens new avenues to science, but also poses newer challenges. Technologies of Prof. Petrik are 21st century discoveries, and will gain credence, as they seem promising in unraveling these underlying challenges of the world. Societal concerns of the world can be collectively solved with some these discoveries. Technologies are ever advancing and the present discoveries by Prof. Petrik are such example of notable advancements of the 21st century, it promises colossal commercial implementation and implications.

After visiting the laboratories of Prof. Petrik and after going through the licenses held by him, I am of the opinion that HRCM based water purification has been verified deeply to keep any discrepancies at bay. HRCM technology has exceptional application in water purification.

The antistokes compound would prove extremely useful to check money laundering, violations related to regulatory and compliance authorities, forgery and hence will make screening accurate and comprehensive. The antistoke compounds developed by Prof. Petrik can eliminate the typographical errors and minute inconsistency, which go a miss when verifications are carried out. Hence, will keep counterfeit notes at bay.

India can benefit from these technologies. It is also important that it solves the problem of the world, namely terrorism, clean water and counterfeit currencies. Having gone through the demonstrations and presentations elaborately, I propose India and Russia can collate together and also work together in many other areas of science too.

Mr. Nilesh Neel

Mr. Neel giving interview at hotel Astoria

Mr. Nilesh Neel who is the Founder President & Director of WFR & O21CD says world has found a genius scientist especially on HRCM nanotechnology, proving solution for water problem. Prof. Petrik is a versatile personality and has created unusual inventions, discoveries and achievements. He has wished Prof. Petrik the very best in his future of science.

Dr. Shivram Bhoje

Nanoscience and technology has shown lot of progress in this century. The application of nanotechnology for water purification is an important discovery, all over the world. Other applications of nanotechnology like antistokes, platinum group of metals and similar applications have benefits of their own. After visiting the labs of Prof. Petrik, Dr. Bhoje was impressed with the demonstrations. He says Prof. Petrik is man of many facets with many more ideas and strongly feels these technologies must be implemented in the world especially India. He thanked Prof. Petrik and Mr. Nilesh Neel.

Dr. S. H. Pawar

He was glad to have visited Russia on this invitation. He spoke that Mr. Nilesh Nilesh Neel has made coordination between Indian and Russian scientists that the technologies and science can be useful to India, making improvements for Indian scientists. Prof. V. I. Petrik's invention in field of water purification by graphenes is a boon, as it is economical and can to reach common man. The experiments, done so far have an advantage for humanity. He was glad that eminent professors would be supportive of WFR, as water is the need of the world.

Dr. Satish Wate

He was contacted by Prof. Vijay Bhatkar regarding the visit to Russia, to see demonstrations of the innovative technologies. This visit was based on collaboration of Prof. V. I. Petrik and Mr. Nilesh Neel. Since his area of work also lies in water purification, he was hence very interested. He was looking at an opportunity where there can be a link of India and Russia on scientific level either through governmental partnerships or private partnerships. The visit was quite useful, the visits to labs and demonstrations were informative especially the graphenes, he feel that India can have a very good R&D platform.

Meeting with Deputy Director General RISTC at Metropol Hotel Moscow on 28th July 2013

Dr. Bhatkar and Mr. Neel with Mrs. Lyudmila

At Hotel Metropol there was a meeting with Mrs. Lyudmila Kornaukhova, Deputy Director General of Russian-Indian Scientific and Technological Centre, Moscow with Dr. Vijay Bhatkar and Mr. Nilesh Neel. Mrs. Lyudmila has a long association with Dr. Bhatkar in ILTP programme and coordinator in the project of Super Computer. Dr. Bhatkar introduced Mrs. Lyudmila to Mr. Nilesh Neel. They discussed directions for cooperation between the Indian organization O21CD and RISTC.

Mrs. Lyudmila honoured with shawl by Mr. Neel

Meeting with the President of Kremlin Fond at Metropol Hotel Moscow on 28th July 2013

Ms. Lyubov Kulikova honoured with shawl by Dr. Bhatkar

The President of Kremlin Fond Ms. Lyubov Kulikova working with Mr. Nilesh Neel under MOU signed for Business Cooperation in the areas of Economic Cooperation, Cultural Interaction and Tourism with O21CD. Ms. Lyubov Kulikova wanted to meet Dr. Bhatkar as a courtesy meeting, where she mentioned that she is happy to extend all support for any projects of Indian-Russians inventions with Indo-Russia collaboration.

Meeting with Ambassador at Embassy of India Moscow on 29th July 2013

Indian delegates with honourable Ambassador H. E. Mr. Ajai Malhotra at Embassy of India at Moscow, Russia

On the last day, we met Ambassador of India to the Russian Federation H.E. Mr. Ajai Malhotra at Embassy of India. There Dr. Bhatkar shared his views and opinions about the four-days visit at laboratories and its prospects in India. The Indian ambassador wanted to know what Indian scientists learnt and propose. Once the scientists return to India and have prepared their report on the visit to Russia, he has requested the same to be sent to him so that he can also extend his complete support in bringing these technologies for development of India.

Annexures List

Annexure 1 :- Visit Programme & Invitation

Annexure 2 :- Patents

Annexure 3 :- American Patent

Annexure 4 :- Prof. V. I. Petrik In brief letter about reports on HACC / HRCM and its various biological activities

Annexure 5 :- Russian Reports

Annexure 6 :- American Report, Kuwait Report, Germany Report

Annexure 7 :- Indian Reports, News, Mice Experiment "National Toxicology Centre Pune.

Annexure 8 :- MITCON "Techno Economic Feasibility Report on water Purification systems HRCM for WFR Industries Pvt. Ltd.

Annexure 9 :- Background of Industrial Production. Graphenes and Carbon Compound of high reaction ability (USVR) HRCM

Annexure 10 :- A Factory for Production Of A Nanocarbon Sorbent And Household Filters For Drinking water Purification.

Annexure 11 :- WFR Association with Prof. V. I. Petrik

Annexure 12 :- Golden Formula HRCM project catalogue

Annexure 13 :- HRCM Water Filters product and License

Annexure 14:- About Prof. V. I. Petrik (The Discovery Made in Russia)

Annexure 15 :- Isotope Analysis Report

Annexure 16 :- Sierra Analytical Report

Annexure 17 :- Osmium -187 Stable Isotope

Annexure 18 :- Anti-Stokes compounds Of High resolution Capability

Annexure 19 :- Golden Section

Annexure 20 :- High Temperature Optical Armor Ceramics

Annexure 21 :- Pre-Clinical Evaluation Of Wound Healing Activity Of High Reactivity Carbon Mixture / The Preliminary Report on the Clinical Study of 'HRCM–VIP Reactive Carbon' Remedy for Topical Wound Treatment

All the above annexures are available on CD as well as WFR Website: www.waterfreedomrevolution.com

Prof. V. I. Petrik demonstrating a model of new transportation system for modern cities

Demonstration of a model of new transportation system

Profile

Profiles of Indian Scientific Delegation:-

DR. VIJAY BHATKAR:

Dr. Vijay Bhatkar is one of the most acclaimed and internationally acknowledged scientists of India. India's leading computer magazine Dataquest has acclaimed Dr. Vijay Bhatkar amongst the star pioneers who shaped India's celebrated IT industry (US$ 100 Billion In 2012), with supercomputing capability, capacity, and infrastructure, as its crowning glory.

Dr. Bhatkar is best known as the architect of India's national initiative in supercomputing where he led the development of Param supercomputers. When India was denied the supercomputer by USA, Dr. Bhatkar took the challenge of developing an indigenous supercomputer in a record time of 3 years and delivered Param 8000 in 1991 and went on to develop terascale Param 10000 in 1998, propelling India into the exclusive club of select nations, who possess this strategic technology. Based on the Param series of supercomputers, he built the National Param Supercomputing Facility (NPSF) which has been now made available as a grid computing facility through Garuda grid on the National Knowledge Network (NKN) providing nationwide access to High Performance Computing (HPC) infrastructure. Today, Dr. Bhatkar has once again taken the lead in proposing the National Mission on Development of Exascale Supercomputing Capability, Capacity and Infrastructure on National Knowledge Network. This is one of the largest projects in S&T in India with a 12th Plan budget of nearly Rs. 5,000 crores that will not only transform India's computing but will also catalyze India's leadership in Science through Third & Fourth modes of scientific discovery by engaging world's largest number of researchers and scientists across a large number of research labs and universities of India collaborating together.

Dr. Bhatkar is also widely known for bringing ICT to the masses through a wide range of path-breaking initiatives, such as the celebrated GIST multilingual technology covering India's 22 official languages with 10 diverse scripts that has dissolved the language barrier on computers once for all; MKCL's computer literacy programme that made a world mark by creating 7.5 million computer literates within a decade; Education to Home (ETH) initiative for bringing the benefits of ICT to school education, in learning, teaching, administration, governance and communication & collaboration.

In the 80's, Dr Bhatkar substantially contributed to the ushering of electronics revolution in India. He led the development of several innovations such as India's first fully solid state colour television, colour TV broadcast during Asiad in 1982, distributed control systems for Indian power plants and process industries, traffic control systems, automation of security systems, defence simulators and the like from the component level upward that contributed to building the indigenous foundation of India's electronics industry which was to become India's IT industry later.

Faced with the challenges of creating a large number of software professionals in a shortest possible time, Dr. Bhatkar founded the Advanced Computing Training School (ACTS) in C-DAC which during the 90s provided over 10,000 software professionals to India's fast growing IT industry. Dr. Vijay Bhatkar is credited with the creation of several national research labs and institutions, notably amongst them being C-DAC, ER&DC Trivandrum, IIITM-K, TechnoPark, MKCL, IsquareIT, ETH Research Lab and Multiversity. Simultaneously, he has mentored several innovation-based start-ups.

Ever since he joined as a core member of IPAG Electronics Commission in 1972, Dr. Bhatkar has substantially contributed to shaping of India's path breaking policies in electronics, automation and control, computer and software, ICT, education and S&T and e-– - Governance over the successive four decades contributing to India's pre-– - eminence in these fields.

Dr. Bhatkar has served as a member of the Scientific Advisory Committee to PM, Member of the Governing Council of CSIR. He was also a member of the IT Task Force constituted by PM in 1998. He is a Fellow of IEEE (USA) and Fellow of ACM (USA), world's foremost professional societies in Electronics and Computers respectively, besides being Fellow of CSI, INAE, IETE, NASI, MASc, etc. He has served as the Chairman of e-– - Governance Committees of Maharashtra and Goa. He was called upon to address the Royal Society of London; he led the Indian delegation to South Africa to formulate India-– - SA initiative in advanced computing; he was a member of the Indo-– - Russian Long-– - Term Programme (ILTP) in S&T, Indo-– - Hungarian and Indo-– - French Joint Commissions, substantially contributing to India's international cooperation in electronics, computing and ICT.

Dr. Bhatkar has authored/edited over 12 books and 80 technical and research papers and addressed several university convocations, international and national conferences and conventions and public functions. His ground-– - breaking articulations have been widely covered by both print and broadcast media. His current research interests are in supercomputing, artificial intelligence, brain-– - mind-– - consciousness, and synthesis of science and spirituality.

Dr. Bhatkar is one of the most decorated scientists of India in terms of national and international awards, fellowships of professional societies and public recognitions. He was conferred with the Padmashri Award in 2000 by Government of India and the Maharashtra Bhushan Award of 1999-– - 2000, the highest recognition of the Government of Maharashtra. He is the recipient of the prestigious Jindal Prize 2012 for science and technology in the service of society. He was conferred with the Saint Jnaneshawar World Peace Prize 2010 by World Peace Centre for promoting synthesis of science and spirituality in the service of humanity. He was also nominated to the Petersberg Prize 2004 for Information Technology for Development and was conferred with the prestigious Dataquest Lifetime Achievement Award 2003. Dr. Bhatkar has been showered with a string of awards, notably amongst them being Adi Godrej Award 2010, C-– - DAC Oration Award 2006, KG Foundation's Personality of the Decade Award 2004, PGCIL Award 2001, Om Prakash Bhasin Foundation Award 2000, Global e-– - Biz Award 2001, FICCI Award 1999 for Excellence in Engineering & Technology, Lokmanya Tilak Award 1999, Rotary Excellence Award 1997, Pune's Pride Award 1996, H.K. Firodia Award 1996-– - 97 for Life-– - Time Achievements in Science & Technology, Distinguished Alumni Award 1994 of IIT Delhi, VASVIK Award 1993, and Electronics Man of the Year Award 1992 and many more. For contributions to the social service and to the world of spirituality, he has been conferred with several social and spiritual awards and public recognitions.

Dr. Vijay Bhatkar is presently the Chairman of Board of Governors of IIT-– - Delhi, Chairman of ETH Research Lab, Founder Chancellor and Chief Mentor of Multiversity, Chancellor of D. Y. Patil University, and National President of Vijnana Bharati a People's Science Movement of over 6,000 scientists across India. Dr. Bhatkar did his Ph.D. in Engineering from IIT Delhi in 1972; M.E. from M.S. University in 1968; and BE from VRCE, now VNIT, Nagpur in 1965. He has been honoured with D.Sc. (Honoris Causa) by Dr. D.Y. Patil University. Dr. Bhatkar is a Distinguished Alumni of both IIT, Delhi and VNIT, Nagpur.

Dr. SHIVRAM BABURAO BHOJE:

Dr. Shivram Baburao Bhoje was a Distinguished Scientist in the Department of Atomic Energy and worked for forty years for the design, construction, operation, and Research and Development of Fast Breeder Reactors (FBR). Considering India's large energy requirements and limited resources, FBRs are required to be developed at the earliest possible time.

Dr. Bhoje was born on 3rd November 1942 at Kasaba Sangaon in Kolhapur district of Maharashtra state. He did his Bachelor of Mechanical Engineering in April 1965 from College of Engineering, Pune under University of Pune. He completed one year training in Nuclear Science and Engineering at the Bhabha Atomic Research Centre Training School and joined as Scientific Officer at BARC, Trombay. He started work in Fast Reactor Section for design of an experimental reactor. He was deputed to FBR Research Centre at Cadarache, France for a year, as a member of the design team, during 1969-70.

He was transferred in 1971 to a new research centre called Indira Gandhi Centre for Atomic Research, Kalpakkam. Initially he was in-charge of design of 40 MWt Fast Breeder Test Reactor (FBTR) reactor assembly. On completion of the design, he was responsible for the construction of FBTR. He successfully interacted with Indian industries and got manufactured the key components to the stringent specifications. He redesigned the reactor core with new carbide fuel. FBTR achieved its first criticality in October 1985. In 1988 he was made Reactor Superintendent of FBTR. He very ably removed the initial problems and raised the reactor power in steps, after commissioning of all the systems. The reactor was connected to the grid and electricity was generated in July 1997 at 10 MWt power. In September 2002, the indigenously designed and fabricated fuel reached a burn up of 100,000 MWd/t without any failure. In 1985, he was designated as Head Nuclear Systems Division and was responsible for the preliminary design of 500 MWe Prototype Fast Breeder Reactor (PFBR). He developed capability in the centre to carry out sophisticated analyses for design. In 1992, he became Director, Reactor Group and was responsible for the operation of FBTR, and design and engineering R &D of PFBR. He developed PFBR design safety criteria for AERB. He served as Member and Chairman of several committees of DAE.

In August 2000, he was promoted as Distinguished Scientist. In November 2000, he became Director, Indira Gandhi Center for Atomic Research. He significantly contributed in design, R&D, manufacturing technology development, obtaining statutory clearances for construction and pre-project activities of PFBR. Financial approval for the PFBR project was obtained in September 2003 and the construction was started in August 2003 itself. A new PSU called Bharatiya Nabhikiya Vidyut Nigam Limited was established in October 2003 for the construction and operation of PFBR. Mr. Bhoje was one of the founder Directors of this company.

Mr. Bhoje has visited many R&D centers and FBRs all over the world. He has published over 200 papers in journals and conferences. He represented India as a member of International Atomic Energy Agency (IAEA) Working Group on Fast Reactors during 1987-1997. He was a member of the Steering Committee on Innovative Reactor and Fuel Cycle project. He was also a member of the advisory committee to the Director General, IAEA during 2000 to 2004.

He has coordinated FBR R&D, funded by IGCAR and carried out in twenty five different educational institutions like IITs, IISc and research centers like Fluid Control Research Institute, Palghat; Kirloskar Brothers Limited, Pune.

He received Vasvik Award for research in Mechanical Sciences for the year 1992. He was elected Fellow of the Indian National Academy of Engineering in 1995. Mr. Bhoje was decorated with Padmashri by the Government of India in January 2003. He received Sir Visvesvaraya Memorial Award from Engineers Foundation in April 2004 and Life Time Achievement award from Engineers Forum, Nagpur in 2005.

He was chairman of five Central School committees at Kalpakkam during 2000 to 2004. The total student strength of these schools was about 5000.

He received the prestigious H.K. Firodia Award for excellence in Science and Technology in November, 2006.

He wais a member of All India Board of Post-Graduate Education and Research in Engineering and Technology, of all India Council for Technical Education (AICTE), during 2004-2009.

He retired from government service at the age of 62, on superannuation, in April 2004, and settled at Kolhapur in Maharashtra. He is chairman of a voluntary organization committee to improve education at Kasaba Sangaon, his native village. He is cultivating sugarcane in his land. Just in one year he increased the cane yield by 50%.

He was chairman of the organizing committee which arranged Students' Science Conference at Kolhapur during May 2005. About 520 students participated in the conference. He worked as Chief Academic Advisor at Shivaji University, Kolhapur from July 2005 to June 2008. The main responsibilities were placement of students, R & D co-ordination, and starting of department of Technology (B. Tech. & M. Tech.)

He is a member of the Governing Council of KIT's College of Engineering; Kolhapur. He is also a member of Project Appraisal Committee of Rajeev Gandhi Science and Technology Commission, Govt of Maharashtra.

He has delivered many lectures on Science & Technology, Nuclear Energy and Indo- US nuclear deal in colleges, institutes, industries and NGOs

He received "Doctor of Science" honorary degree from D Y Patil University, Kolhapur, in March 2013.

Awards:-

1. Padma Shri, for his contribution to science and engineering 2003.
2. H K Firodia awards for his contribution science and technology 2006.
3. VASVIK award, in the field of Mechanical Sciences and Technology, 1992.
4. Sir Visvesvaraya Memorial Award from Engineers Foundation.

PROF. (DR.) S. H. PAWAR :-

Received his M.Sc. degree and Ph.D. degree in Solid State Physics from the Shivaji University Kolhapur in 1969 and 1974 respectively. Prof. Dr. S. H. Pawar is presently working as the Vice-Chancellor of the D. Y. Patil University, Kolhapur. He is an academician with distinguished record and scholastic recognition in the national and international circle of Physicists. Prior to this position he has worked as "Emeritus Scientist" CSIR, Delhi and held various important responsibilities like Director, Research & Technology Development, T.K.I.E.T. Warananagar; Coordinator, School of Energy Studies; Professor & Head, University Department of Physics; Acting Registrar and Director, BCUD of Shivaji University, Kolhapur. Prof. Pawar has successfully guided 50 Ph. D, 10 M. Phil and 1 M. Tech. students and presently guiding 10 Ph.D. students in the frontier areas of research in Nanotechnology, Medical Physics, Superconductivity, Thin Film Physics and Renewable Energy Resources. He has edited 10 books, written 14 review articles and published more than 600 research papers in National & International Journals and Proceedings of the Conferences. He has 4 patents to his credit.

In connection with advanced research, he has visited U.K., France and Holland in 1975, Canada in 1978 and Germany and Slovakia in 1997, under the bilateral cultural exchange of Scientists programme, San Diego, California, USA in 2001 and worked in University of Cambridge, U.K. in 2003. At international level, Prof. Pawar has participated in Multinational-Multilateral superconductivity program (2005-2010) between ten scientists from seven different countries, U.S.A, France, South Korea, Austria, Japan, U.K. and India. Under this program, he has visited South Korea in January-February 2005 to attend joint meeting at Jeju Island. Prof. Pawar has visited University of Yangon, Myanmar, March 2005 and November 2005, under the M.O.U signed between Government of India and Union of Myanmar to supervise Ph.D. Students in Myanmar. He has visited National University of Singapore in May 2007. He has also visited Shanghai University, China in November 2011 and recently Bhutan in 2012.

He has vast experience in High Tc Superconductor, Thin Films Physics, Luminance, Energy Science, PEC, Magnetic Refrigeration, Solid Oxide Fuel cell and Electrochemistry etc. The current research includes the synthesis of nanoparticles and nanofluids for magnetic hyperthermia treatment, Immunosensor, Magnetotactic bacteria, Nanobiosensors, Sunscreens and organic nanoparticles etc. The He has worked as the Principal Investigator of 21 major Research Projects in Shivaji University and 6 major Research Projects in D.Y. Patil University sanctioned by DST, CSIR, DRDO, MNES and UGC, Delhi and BRNS Mumbai and got research funding more than Rs.10 crores to develop the research infrastructure. He has been invited as a resource person and delivered more than 150 invited talks and has Chaired number of sessions at national and international conferences and UGC refresher courses. He has been honored by ten different National Research Societies by offering him their memberships. Recently he has established "Centre for Interdisplinary Research" with a thrust on "Nanotechnology and Medical Sciences" at D. Y. Patil University, Kolhapur.

DR. S. R. WATE, DIRECTOR, NEERI:

Dr. S. R. Wate has taken over as Director of National Environmental Engineering Research Institute (NEERI), Nagpur with effect from 6 August 2010. Prior to his becoming Director, NEERI, Dr. Wate was working as Scientist 'G' and Head, Environmental Impact and Risk Assessment Division, NEERI, Nagpur.

Dr. Wate (born 22 December 1955) did his M.Sc. Ph.D. in Biochemistry from Nagpur University. His R&D activities related to environmental biotechnology were largely devoted to the application of metabolic activities of microorganisms to solve various environmental problems in the country. He was involved in various significant R&D activities such as biogas production from renewable resource, biodegradation of oil sludge and recovery of hydrocarbons, development and application of a biosensor for environmental monitoring, development of biochemical processes for treatment of wastewaters from petroleum industry, decolourisation of azo dyes using microbial consortium, development of molecular imprinting polymers for detection of polynuclear aromatic hydrocarbons and development of novel organo-lanthanide materials for environmental applications. Dr. Wate has significantly contributed in designing and developing water safety plans with recourse to quantitative chemical and microbial risk assessment, grey water recycle plants in rural areas, wastewater treatment-cum-recycle systems for oil containing wastewaters and assimilative capacity based standards for discharge of treated wastewaters in Amlakhadi.

Dr. Wate has pioneered various projects related to environmental impact and risk assessment studies in India and abroad. These studies involved various industries such as petroleum, mining, fertilizer, sugar and distilleries, leather, pulp and paper, thermal power plants, oil refineries, iron and still, aluminum, copper, zinc, pharmaceutical, etc. He has also been involved in the major projects such as Sethusamudram Ship Channel Project and Kalpasar Project. By providing coastal and marine environment management plans and carrying capacity based development planning to the environmental regulatory authorities Dr. Wate has consequently helped in formulation of new environmental policies in India for such regions. He has coordinated several R&D and consultancy projects funded by The World Bank, UNDP, ADB, UNEP, WHO, Ministry of Environment and Forests, Department of Biotechnology, Department of Science and Technology, Pollution Control Boards, Public Sector Industries and Multi- National Private Sector Industries. He has been World Bank Consultant on EIA to Philippines Government.

Dr. Wate has published 51 research papers in international SCI journals, 31 in national peer reviewed journals and presented 121 papers in International / national conferences. He has 2 patents to his credit. He has authored more than 590 technical reports of major developmental projects in industry and infrastructure sector, and basic and applied R&D. He has contributed in 9 books too.
Dr. Wate has been a WHO Fellow for assessment of water supply and sewage treatment practices in developing countries. He has many such honours and academic distinctions to his credit. He has also visited many countries in connection with various R&D and consultancy projects.

MIDC CHIEF ENGINEER MR. P. J. RANGARI:

P. J. Rangari is working as Chief Engineer in Maharashtra Industrial Development Corporation (MIDC), Government of Maharashtra undertaking at Nanded (Marathwada Zone) since August 2009. Marathawada is the backword area of Maharashtra State.

Mr. Rangari has acquired technical qualification in Diploma in Civil Engineering, Bachelor of Engineering (Civil), Master of Engineering (Environmental Engineering). He has an experience of about 35 years in the field of water supply and sewerage system, effluent treatment plant, roads, tree plantation, buildings, industrial sheds, street lights, power supply network and substation installation and allied infrastructure development works. He has implemented number of water supply schemes for supplying water to industrial areas and close by urban and rural areas and maintaining the same effectively. Mr. P. J. Rangari is involved in research and development works of various infrastructural works and specially water supply schemes. He has published 2 international and 5 national technical papers in various conferences.

He knew that India is in a grave need of a purification that would serve people at large. He was on a lookout for clean and pure water can be made available to the people of the state and nation and to serve the society in a best and effective manner. As his core field is water supply he is aware of various technologies that are into water purification, and after knowledge of all he has named High Reactivity Carbon Mixture- HRCM water purification as the best technology for water purification. This is a revolutionary nanotechnology. This technology is invented and discovered by Russian scientist from St. Petersburg, Prof. V. I. Petrik.

Mr. Nilesh Neel founder and director of Water Freedom Revolution (WFR) is counterpart of Prof. Petrik. Mr. Rangari contacted to Mr. Nilesh Neel and showed his eagerness for getting the information of HRCM nanotechnology so that this technology can be used in MIDC organization and the state by result of which pure water can be made available to the industries and the people. And thereby production of the industries and the lifestyle of people working in industries and around areas can be improved. Looking at his keenness and dedication in the field of water, Mr. Nilesh Neel introduced him to the technical literature and HRCM Balti (Bucket). Mr. Rangari knows this technology will revolutionize the water purification sector, hence he needed to conduct certain test for Indian waters, so that the technology if foolproof. On permission of Prof. Petrik, Mr. Nilesh Neel allowed Mr. Rangari to carry out all kind of tests on waste water, filtered through HRCM nanotechnology.

HRCM Balti (Bucket) is a creation of Prof. Petrik for the masses and underprivileged class of people in India, with the good intention that poor people should get the purest form of water from this bucket be it any kind of water i.e. Bore well; open well, river, lake, stored, etc. Mr. Rangari immediately contacted a team of scientists from Government Hydrology Laboratory of Water Resource Department at Aurangabad and conducted the tests. Before the visit of former BJP President Mr. Nitin Gadkari to Russia, all the various kind of tests for water and industrial waste water were over and in conclusion it was observed that results obtained from this HRCM Bucket is much more superior to any conventional water treatment plant or central effluent treatment plant. Reports of the same were submitted to the MIDC headquarters by him, requesting MIDC to adopt the HRCM nanotechnology in their organization.

Mr. Rangari and himself and his 8 engineers have drank the beer factory effluent after passing the effluent from HRCM Bucket proving that the filtered HRCM water was fit for consumption.

Prof. Petrik invited Mr. Rangari to Russia to familiarize him to the details of the technology. Mr. Rangari shared with the Prof. the details about the water supply scheme he is implementing for Aurangabad and the various kinds of tests performed by him and showed him various copies of reports obtained from Government Hydrology Laboratory. Prof. Petrik was impressed by the background work done by Mr. Rangari

Since then Mr. Rangari has published number of technical papers on HRCM nanotechnology. He has travelled and done various conferences and delivered the presentations to the engineers, technocrats, scientists and people related to the field of water.

Mr. Rangari presented technical papers in national conferences:

1. 'Water For Pure' in February 2011, Sant Guru Gobind Singh Ji Institute of Engineering and Technology, Nanded,
2. National conference on 'Environment Pollution and Management' in January 2011 at Govt. Engineering College, Aurangabad,
3. Annual Convention on Indian Water Works Association (IWWA) in January 2012 at Raipur, Chhattisgarh State,
4. International conference on 'Water Security on Sustainable Basis' of IWWA Goa Center in August 2012
5. Annual convention of IWWA 'Water for Gen Next' at Pune in January 2013.

He received the best technical paper award on the topic of Discovery of 21st Century of Prof. V. I. Petrik, HRCM nanotechnology in water purification. Mr. Rangari has supported WFR to finalize the location for HRCM manufacturing unit at Goa. Mr. Rangari has coordinated with MITCON for finalizing the project of WFR for setting up the industry at Goa. He also coordinated with WAPCOS (A Govt. of India undertaking-power and infrastructure development Consultancy firm) for Joint Venture assignment with WFR.

Being now the integral part of WRF, Mr. Rangari, Prof. Petrik again invited him to visit to Russia along with delegation of Indian Scientist in which Padmashree Dr. Vijay Bhatkar computer scientist, Padmashree Dr. Bhoje, Nuclear Scientist, Dr. Pawar Vice Chancellor of D. Y. Patil University of Kolhapur and Dr. Wate, Director, NEERI Nagpur. Prof. Petrik demonstrated the various inventions by him to the delegation of Indian Scientists and detailed deliberation were made by the Indian Scientists. All the Indian Scientists appreciated the various discoveries made by Prof. Petrik and specially HRCM nanotechnology for water purification.

After the visit of the Indian Scientists to Russia, Mr. Rangari has presented a technical paper on HRCM nanotechnology in 'Tech ForSeva' conference in September 2013 at Pune. This conference was arranged by Vigyan Bharti (a society of 6000 number of scientist of India). In this conference about 1200 scientist, technocrats, agriculturist and students attended. The presentation made by Rangari on the above topic was highly appreciated. He has also conducted tests on water, bowel water and industrial waste water in NABL approved laboratory at Pune.

Mr. Rangari has also briefed the former Chief Minister of Maharashtra Mr. Ashok Chavan about the HRCM nanotechnology of Prof. Petrik, along with Mr. Rajendra Darda former Industrial Minister and

Chairman MIDC at Aurangabad and to Mayor of Aurangabad Municipal Corporation with his officials and technocrats and everybody has appreciated HRCM nanotechnology of Prof. Petrik.

Population of India is more than 1.2billions and is 2nd highest in the world and in India industrialization and urbanization is increasing. There are number of rivers passing through various states, however it is observed that rivers of India are polluted due to large discharge of treated and untreated industrial and domestic waste. In addition to it, dead animals, burnt dead bodies, cleaning clothes and utensils and cleaning animals also increase the pollution of the river. Govt. of India is implementing National River Conservation Plan (NRCP) for cleaning the number of rivers in country and huge expenditure are being made by Govt. of India to clean the rivers, however effective results are yet to receive. If Prof. Petrik's HRCM nanotechnology is adopted and used, the pollution of rivers in India can be minimized and controlled effectively at low cost and thus good quality of water can be made available to the people of India and agriculturist. To supply pure water in rural, remote in tribal areas big plastic tank/container fix with HRCM cartridge can be used for providing water supply to villages which will be very much economical and effective. Govt. of India and State Govt. can also implement Pure Water Programme (PWP) for the benefit of the people so that occurrence of water born diseases can be minimized and controlled. HRCM nanotechnology small plastic bottle can also be made available to the people at the time of any disaster like flood, hurricane etc. so that people should get the clear, pure form of potable water in disaster period.

Mr. Rangari has carried out lot of research on Prof. V. I. Petrik's discovery of HRCM nanotechnology and he has concluded that this technology is the advanced and ultimate solution in the field of water purification. By using this technology pollution of river, stream lake, sub soil water, bore well, open well can be restricted and the water can be made fit for drinking in the purest form. If this filtered form of water is made available to the industries and people, it will help in longevity of human lives and good health can be achieved. Moreover it is also revealed that HRCM nanotechnology has numerous other applications in addition to the water purification.

MR. ELVIS GOMES:

Mr. Elvis Gomes is one of the senior most bureaucrats in the administration of the Govt. of Goa in India. He has vast experience in administrative matters and was responsible for many initiatives for public good. As the former Director of Tourism, the professional “life guarding” service introduced on the beaches of Goa has saved thousands of lives, was due to his efforts.

He takes technology which improves community conditions with open arms. In this context, he has been an avid follower of the proposal of Mr. Nilesh Neel to bring into India, water purification using the technologically superior HRCM systems of Prof. V. I. Petrik, through the WFR movement. Mr. Gomes believes in turning around the living conditions of the large number of humans in India who have no access to safe drinking water and has been actively supporting the establishment of the first plant in Goa for commercial production of the Prof. Petrik filters.

NILESH NEEL:

(Founder President & Director, Water Freedom Revolution & Original 21st Century Discoveries)

Mr. Nilesh Neel (www.nileshneel.com), a Poet, Writer, Speaker and Project Coordinator in many orientation programs. Mr. Neel being creative at heart is dedicated to the love of poetry and the thirst of man. Understanding the importance of water and the urgency of the situation, he suggested creating an international social movement, the Water Freedom Revolution. This movement is for promoting awareness regarding the importance of water and the current global water situation focused on Clean Water, Save Water, Serve Water.... By adopting HRCM technology for water purification both in commercial and social setup innovated by Russian Scientist Prof. Petrik.

His first poetry book "Chubhan" is introduced by Padma Shri Dr. Bashir Badr, an eminent Urdu poet and has acknowledged Neel as "A new voice of real poetry" Mr. Neel is also a Founder, President & Director of IRSPBB (www.irspbb.org) and Founder & Chairman of www.bashirbadr.com

His second poetry book “Life” (www.lifethepoetry.com) in Urdu & Hindi got honored for 2013 Russian prestigious a high public award - the Order of "National Glory". He is the first Asian and first Indian to have this award and simultaneously awarded an honorary Diploma for contribution in International Cultural Heritage. Which was acknowledged by the Board of Trustees of the Kremlin Foundation towards his contribution for development of Indo-Russia relations through fields of water, eco-house, sports etc.

Mr. Nilesh Neel has put together the latest technologies under one roof, O21CD. The O21CD, an Original 21st Century Discovery is an initiative to bring together all the innovative technologies from diverse fields under one roof, comprising: ecological homes with Architecture Mr. Vitaley Grebnev (www.griffin-nayza.com) Pure Water with Prof. V. I. Petrik (www.waterfreedomrevolution.com) & Sports development. He has coordinated the sport development in Goa with Lesgaft University, Russia.

For India Mr. Nilesh is bringing Special filter for which have worked with Prof. Petrik to create a unique filter. This can be used in remote, rural & tribal India. People can simply take the raw water from direct water resources and fill the Bucket (Balti) to get the clean and healthy water on the spot. More than the filter Balti is synonymous to WFR for Rural & Tribal India.

Prof. Victor I. Petrik

Academician of the Russian Academy of Sciences (Doctor of Technical Science)

Prof. Victor I Petrik is a world famous scientist, known to have contributed to the scientist world by important discoveries and inventions. He is also called "Da Vinci of modern Russia". His research and findings are prevalent and extends into areas such as nanotechnology, contaminated soil treatments, techniques of oil separation to help the world's oil companies recover from oil spills etc.

One of his greatest achievements - is an effective treatment technology of polluted water. Scientist himself is confident that his discovery will make an important contribution to protecting the world's environment and improve the general conditions of existence human civilization.

Member of the Russian Academy of Natural Sciences (RAEN); Member of the International Academy of Sciences for Ecology and Safety of Man and Nature (MANEB); Member of the Petrovskaya Academy of Science and Arts; Vice-President of the International Slavonic Academy of Science, Education, Arts and Culture; Honorary Professor of the European University; Doctor of Engineering. Specialties: physics, psychology.

Graduated from the Leningrad State University.

Began his scientific activity in 1972: Senior Engineer of the Research Institute of Physics of the Leningrad State University, Senior Research Worker of the Research Institute named after Bekterev, General Director of "Incorporation 4T", General Director of "Infpro" ZAO of the President Programs fund. At present: President - Research Director of the RAEN Research Institute for Physics of Fullerenes, Director of the Strategic Researches Department of the Academy of National Security of Russia.

Author of four scientific discoveries: "Phenomenon of formation of nano-structural carbon complexes" - Diploma № 163; "Phenomenon of magnetoregulated state of isotope of osmium - 187 in a ferromagnetic matrix" - Diploma № 180; "Mechanism of formation of a geometric spatial Multidimensional structure when using a gold section mathematical algorithm" - Diploma № A -168, Diploma №312 “The phenomenon of nuclear-spin selectivity of reversible chemical reactions with grapheme”

Main scientific activities: fundamental researches in the field of nuclear physics, Nano-carbon structures, crystallography and optical ceramics, anti-Stokes Compounds, carbon sorbents.

Author of more than a hundred of inventions patented in different countries.

Awarded with Medals of P.A. Kapitsa "To the Autor of a Scientific Discovery", St.Daniil Order of the Patriarchy of Russia, Anniversary Medal of the Marshall Zhukov of the Soviet Union, Order "For Services to the Fatherland and the Cossacks" of the First Degree, Insignia - Order of Nicolas the Second, Georgiy Cross of the Fourth Degree.

In year 2005 the U.S. Government had considered the request of delivery of the feeding filters. The delegation of Victor Petrik Filters intended a humanitarian assistance to the Americans, who suffered the hurricane in the state of Louisiana (Orleans). President Bush requested scientist to make a device for removal of the dangerous toxin from water. Within a short period Prof Petrik actually created this device, using a property of crystal structures to remove pollutants and admixtures. The equipment was comprehensively checked and exported to USA, and now Americans are prepared to order it for removal of MTBE from water. This equipment's are manufactured and exported by a company in St. Petersburg.

For cleaning the water Prof. Petrik has not invested complex machines but a very simple chemical composition called HRCM. Up to now, science knew of only three modifications of carbon in nature – graphite (coal), diamond and the so called carbine. HRCM is the fourth modification of carbon. It is not found in nature and people did not know about it till its creation in 1997 by academician of Russian Academy of Natural Sciences Petrik Viktor Ivanovich. Crystal lattices of all above-mentioned materials are constructed from one and the same chemical element – carbon.

The work of HRCM as a filter allows the purification of water from microorganisms – bacterium and viruses – and this seems paradoxical to many people. The fact is that microorganisms cannot swim in the water like fish or swimmers in a pool. They have "to sit" on micro rafts – some kind of small-sized particle. As HRCM withholds all kind of particles, even the smallest, they withhold all kinds of microorganisms: they remain within the HRCM thickness, and water is purified from any kind of bacterium and viruses. However, microorganisms lying in the ramified structure of HRCM can continue to multiply. That is why in order to stop the multiplication of organisms within the HRCM thickness it is necessary to take some others measures, for example to silver HRCM, as is used in all HRCM filters for drinking water. Silvered HRCM has a great advantage as compared to other silvered sorbents (for example, silvered activated carbon) not only in efficiency in protection from bacterium and viruses (microorganisms can pass silvered carbon on its "raft", but it can not pass HRCM), but also the HRCM as a sorbent and filter surpasses all world known equipment in water purification sphere. With a single filtration of drinking water, turbidity decreases by 25-60 times, the number of fluidized particles is reduced by 10 – 30 times, it achieves a high level removal of sulfates, sulfides, fluorides, chlorides, nitrites, ammonium nitrogen, arsenic iron, zinc, copper, aluminum, manganese, lead, molybdenum and free chlorine.

Prof. Petrik has innovated World's first and unique water filters using a High Reactive Carbon Mixture - the NANO sorbent, The method of production of the NANO sorbent, used in the filters was recognized as a scientific discovery - "Phenomenon of formation of nano-structural carbon complexes" - Diploma 163. The discovery was high appreciated by a international science society and widely used in Russia, Europe, United States of America. There are number of scientific inventions and discoveries in the name of Prof. Petrik which are patented internationally.

Acknowledgement

"Indian Scientific Delegation" 22nd July to 29th July 2013' led by Dr. Vijay Bhatkar acknowledges the following people…

1. **Prof. V. I. Petrik,** Academician of the Russian Academy of Sciences (Doctor of Technical Science)
2. Ambassador of the India to the Russian Federation H.E. **Mr. Ajai Malhotra**
3. **Mr. Nilesh Neel,** Founder President of WFR & O21CD (Poet, Entrepreneur and Coordinator)
4. **Mrs. Alpana Neel,** CEO & Director, WFR (MBA Oxford Brookes UK, BCSE Oxford UK, PGPBM Western Michigan USA)
5. **Mr. Praphull Thakkar,** Director, WFR
6. **Mr. Sunill Lall,** Director, WFR
7. **Dr. Rama Bansal,** Counsellor, CSNT, Embassy of India, Moscow
8. **Mr. Sanjay Vedi,** Dy. Director, JNCC, Embassy of India, Moscow
9. **Mrs. Lyudmila Kornaukhova,** Deputy Director General of RISTC
10. **Ms. Lyubov Kulikova,** President "Kremlin Fond"
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12. **Ms. Anastasia,** for her day-to-day interpretation assisting to delegates
13. **'Itar Tass' Office** for press conference, St. Petersburg, Russia
14. **Golden Formula Office** for cooperation, information and updates
15. **Mr. Akash Lall,** for internal cooperation on documents and materials
16. **Mr. Vikrant Jamkhindikar,** ETH, Pune, for internal cooperation communication on emails

Album
of
“India Scientific Delegation”
Russia Visit
22nd July - 29th July 2013













































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HRCM “Bucket” Water Filter









“Indian scientific delegation” Russia visit 22nd July 29th July 2013