



July 2009 Vol. VIII (2)

News Letter

Microwave Application Society of India, New Delhi

From Editor's Desk



The MASI (Microwave Application Society of India) Newsletter is in its ninth year. We organized Symposium/workshop and related scientific activity. We specially cover Electromagnetic field effect research on human beings. In this issue we have discussed the application of nanotechnology.

We are connecting Electromagnetic field research with nanotechnology. The coming century will be nanotechnology based. The application of nanotechnology are useful in the field of Biomedical sciences, drug production, waste water treatment, osteoporosis treatment, bio physical sciences, and many more in biotechnology. We are going to organize a workshop cum symposium in the month of November 2009. The announcement for coming symposium is also printed in this issue. I am inviting scientists from all over the country to register and submit an abstract and come in for active participation. The theme of the conference will be explored by the application of nanotechnology in different field of research. This is an opportunity to share information in respective research areas. Please visit our website:

www.freewebs.com/masijnudelhi

An Invitation

Welcome to the Newsletter of Microwave Applications Society of India (MASI). MASI news letter is ninth of the year and we the member of the society are proud of its achievements. MASI is finding it financially difficult to print number of copies to reach all interested scientist in India and abroad. Thanks to all its members and others who supported this venture directly or indirectly. During this period MASI has organized several major events and is committed to do so in future also. For life membership, please contact Secretariat of MASI at Jawaharlal Nehru University, New Delhi. **For detail information, contact Kavindra Kr. Kesari (Co-Editor).**

MASI news letters (whole volume) are available on the website-

www.freewebs.com/masijnudelhi

New Step in Cancer Therapy

Silicon-substituted Hydroxyapatite nanoparticles (Hap) may be useful for cancer treatment. Experiments have shown that nanoparticle may increase the p53 expression in HeLa cells, which

is an indication of apoptosis. The work is now in progress. The group has already shown a positive effect of HAp on osteoporosis treatment and bone healing.

Adverse Effect of Mobile Phone

There has been a tremendous increase in the use of mobile phones in the past decade and concerns are growing about the possible hazardous effects of electromagnetic waves (EMW) emitted by these devices on human health. The research has indicated that the chronic exposure of mobile phone radiations may increase DNA strand break, apoptosis and decrease in viable sperm count.

Present research hypothesized that electromagnetic fields increases free radical activity in cells which may lead to cellular damage. It has been established that the enzymes play a major role to protect the cells by free radicals and works against antioxidant defense mechanism.

More recently, we have estimated Protein Kinase C and antioxidant enzyme activity in brain and sperm cells. PKC is a key regulatory enzyme in signal transduction mechanism governing cellular responses. It is present in hippocampus of brain, seminiferous tubules and leydig cells of male wistar rats. Results suggest that male rats exposed to mobile phone and microwave show significant antioxidant enzyme changes, and decrease in PKC level. These changes may occur due to electromagnetic emissions, resulting in tumor promotion.

Kavindra Kr. Kesari & J. Behari

Editorial Board

Prof. J. Behari
School of Environmental Sciences
Jawaharlal Nehru University
New Delhi- 110067

Prof. D. C. Dube
Department of Physics
Indian Institute of Technology
Hauz Khas, New Delhi-
110016

Prof. H.C. Gupta
Department of Physics
Indian Institute of Technology
Hauz Khas, New Delhi

Co-Editor

Mr. Kavindra Kumar Kesari
School of Environmental Sciences
Jawaharlal Nehru University
New Delhi-110067
E-mail: masijnudelhi@yahoo.in; masijnudelhi@gmail.com
Phone: 91-11-2670 4164

If the facts don't fit the theory, change the facts- *Albert Einstein*

Forth Coming Events

LOWRAD 2009 — 8th International Meeting on the Effects of Low Doses of Radiation on Human Health and Biotopes

28 Sep 2009 → 30 Sep 2009; Rio de Janeiro, Brazil

weblink: <http://www.wonuc.org>

55th Annual Meeting of the Radiation Research Society RRS

03 Nov 2009 → 07 Nov 2009; Savannah, GA, United States

contact: Radiation Research Society, PO Box 7050, Lawrence, KS

66044-8897, USA; phone: (+1 800 627-0326)

weblink: <http://www.radres.org>

Calling for Papers --- PIERS 2010 in Xi'an, CHINA, on 22-26 March, 2010

Online Abstract Submission, PIERS 2010 in Xi'an

[Abstract Submission Deadline: 7 September, 2009]

Full-length Paper Submission, PIERS 2010 in Xi'an

[Full-length Paper Submission Deadline: 7 December, 2009]

Web page: <http://piers.mit.edu/piers>

National Radio Science Meeting

This open scientific meeting is sponsored by the U.S. National Committee (USNC) of the International Union of Radio Science (URSI). January 6-9, 2010

University of Colorado at Boulder

USNC-URSI website: www.usnc-ursi.org

Nanotechnology in 21st Century

Nanotechnology is the emerging technology that deals with processing, manipulating and manufacturing devices and products at the microscopic scale, with structures smaller than 100 nanometers. At the nano scale, it is possible to combine material science with biological sciences and even bionics, thus offering very attractive possibilities in electronics, medicine and across many technologies that could have innovative applications for human development. At present stage, nanoparticles are used in different areas of research such as biomedical sciences, waste water treatment, space sciences, physical sciences and many more.

Biomedical Applications: Fracture Healing and Osteoporosis is now widely recognized as a public health problem. Worldwide, lifetime risk for postmenopausal osteoporotic fractures and disuse osteoporotic fractures are quite high. It is a major public health concern and second after cardiovascular disease. Osteoporosis is highly prevalent in India also. According to WHO, 1 out of 8 males and 1 out of 3 females in India suffers from osteoporosis, making India one of the largest affected countries in the world. Recent report from our group has also shown that the Hydroxyapatite nanoparticles (HAp) have good impact on many aspects of bone formation and healing. This induces endothelial cell proliferation and capillary formation, which are integral to angiogenesis in the revascularization of healing bone fractures. Scientists have pointed out a significant increase in bone mineral density, Ca and P content in Femur and Tibia in hindlimb bone in treated rats as compared to sham exposed. Previously, we have also demonstrated that Capacitive Coupling of pulsed electromagnetic field (CC-PEMF) are useful to prevent and to promote restoration of the bone loss in ovariectomized wistar rats.

Environmental Applications: Research is underway to use advance nanotechnology in water purification for safe drinking. Advances in nanoscale science and engineering suggest that many of the current problems involving water quality could be resolved or greatly diminished by using nonabsorbent, nanocatalysts, bioactive nanoparticles, nanostructured catalytic membranes, submicron, nanopowder, nanotubes, magnetic nanoparticles, granules, flake, high surface area metal particle supramolecular assemblies with characteristic length scales of 9-10 nm including clusters, micromolecules, Nanoparticles and colloids have a significant impact on water quality in natural environment. Nanotechnology used for detection of pesticides, chemicals and biological substances including metals (e.g. Cadmium, copper, lead, mercury, nickel), Nutrients (e.g. Phosphate, ammonia, nitrate, nitrite), Cyanide Organics, Algae (e.g. Cyanobacterial toxins) Viruses, Bacteria, Parasites, antibiotics and Biological agents are used for terrorism. Our research group has shown the positive effect of Ag nanoparticle in degradation of microbial (*E-coli*) treatment in water samples. We have also established experiments on ultrasonication for waste water treatment. We observed that combined treatment is more effective than resonated treatment.

Society Publications

The book entitled “**Biophysical Bone Behavior: Principles and Applications**” is culmination of an effort to bring biophysical phenomena in bone, relating to growth and its relation to electrical behavior. The book is primarily intended to lay down a bridge between physics and biology of bone leading to its clinical applications: electro stimulations in fracture healing and osteoporosis. The book has seven chapters and is intended to be a reference for beginners, researchers in the area of Biophysics and Biomedical Engineering, those involved in teaching in universities, medical institutions (biomechanics) and in hospitals (orthopedic surgeons). It is intended to provide a smooth journey from basics to clinical applications, adjusted for scientists from various backgrounds. The book is available online (ISBN 978-0-470-82400-9). For more information visit www.wiley.com, John Wiley & Sons Pte Ltd, Singapore, email: enquiry@wiley.com.



Deep Sense of Sorrow to Professor

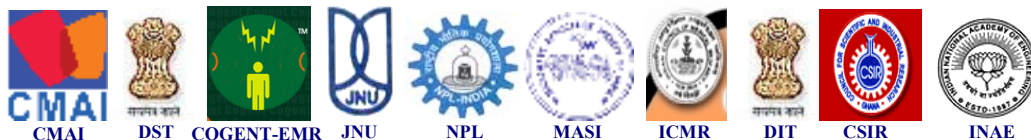
We announce with deep sorrow the passing away of Prof. A.L. Bhatia, Department of Zoology, University of Rajasthan, Jaipur. He was member of executive of MASI and has immensely contributed to the growth of its activities. The entire MASI community expresses its deep sense of sorrow and shock by untimely passing away of Prof. Bhatia. He is survived by his wife, daughter and two sons. May his soul rest in peace.

Use nanotechnology research to:

- ...Help clean up past environmental damage
- ...Correct present environmental problems
- ...Prevent future environmental impacts
- ...Help sustain the planet for future generations

National Symposium
On
Nano-Science: Theory and Applications
November 6-7, 2009

Preceded by Workshop
On
Microwaves: Principles and Applications
November 5, 2009



(NASTA-MAP-2009)

Venue
School of Environmental Sciences
Jawaharlal Nehru University, New Delhi

Organized and Sponsored by
Jawaharlal Nehru University and Microwave Applications Society of India (MASI), New Delhi

For sponsorship and further information please contact

Prof. J. Behari
School of Environmental Sciences, Jawaharlal Nehru University
New Delhi- 110067

Tel: +91-011-2670 4323 (O), +91-011-2617 5857 (R) Fax: +91-011-2616 5856
Email: masijnudelhi@gmail.com, masijnudelhi@yahoo.in

About Symposium

The workshop on “*Nano-Science: Theory and Application*” is based on nanotechnology in Bio Medical, Biophysical and Environmental issues. A number of medical researchers have launched laboratory based studies incorporating nanoparticle as drug dosage. Presently, nanoparticle are used as a tool for waste water treatment technology. On the other hand Electric and magnetic field (EMF) have always remained a part of our environment, although their roles in controlling life process still remains a deep-rooted mystery. More over microwaves at 2.45 GHz and mobile radiation at 900 MHz are a source of pollution in different established environment and as well as at domestic level. It has been often reported that there are a variety of biological effects caused to the population living in the vicinity of such sources. Emphasis will be laid to use the nanoparticle for such purposes to protect against hazardous effect. The coming workshop will point out the Electromagnetic field radiation (especially mobile phone and microwave oven and many more appliances) effect in living beings and their solution by using nanoparticle application. It is therefore imperative that its implications must be fully explored and safety criteria be understood and implemented. Keeping this in view, it is planned to organize a two days National symposium to discuss the issue in detail Preceded by a one day workshop on Microwave: Principles and Applications. A limited number of participants will be offered financial assistance for travel and local hospitality. Those interested, may send their request along with demand draft (DD) (as mentioned on page 4) 2009. The topics to be covered will include but not limited to the following:-

- | | |
|--|---|
| 1. Principle of Nanoscience | 5. Radiation hazards and safety Standards |
| 2. Electromagnetic Fields and Environment | 6. Shields from electromagnetic fields. |
| 3. Nanotechnology in waste water treatment | 7. Electromagnetic Fields-Bio-interactions and solution |
| 4. Nanoparticle in Medical and biological issues | 8. Nanotechnology in Environmental Science |

Authors are requested to submit one page abstract (E-mail submission accepted).

Submission of one page abstract 15th September, 2009

Abstract Acceptance 05th October, 2009

Submission of Full Paper 15th October, 2009

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For further details and Life Membership contact Prof. J. Behari, Secretary, Microwave Applications Society of India, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi- 110067. Phone: +91-011-2670 4323, Fax: +91-011-26717586, 26717502, E-mail : masijnudelhi@gmail.com.

REGISTRATION FORM

National Symposium
On

Nano-Science: Theory and Applications

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Preceded by Workshop
On

Microwave: Principles and Applications

November 5, 2009

(NASTA-MAP-2009)

School of Environmental Sciences, Jawaharlal Nehru University
New Delhi-110067, India

Name:

Organization:

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I am interested in attending the workshop cum symposium as a registered delegate.

Date

Signature

Signature and seal of Sponsoring Authority

Registration Fees: Registration Fees may be paid by **Demand Drafts** drawn in favour of **Microwave Applications Society of India**, payable at **New Delhi**. Cheques will not be accepted.

Corporate	:	Rs. 10000/- (both event)
University/Research Institute	:	Rs 4,000/- (2000/- for each event)
Student	:	Rs. 500/- (for each event)

Note:- 1. Photocopy of the registration forms also acceptable.

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