

# DR. BAL CHANDRA YADAV

Ph.D., M.N.A.Sc., Brain Pool Fellow

## Associate Professor & Ex-Head

Department of Applied Physics,  
School for Physical Sciences, Babasaheb  
Bhimrao Ambedkar University (A Central  
University) Lucknow-226025, U.P., India  
Email: balchandra\_yadav@rediffmail.com, Mob. No. : +91 9450094590



### PRESENT STATUS:

- Working at Babasaheb Bhimrao Ambedkar University (A Central University) Lucknow, UP, India, as an **Associate Professor & Ex-Head** in the Department of Applied Physics, School for Physical Science.

### TEACHING EXPERIENCE:

- More than **Nineteen Years** of teaching and Research experience.

### Ph. D. TITLE:

**Design and Fabrication of Opto-Electronic Humidity Sensors Based on Titania Films**

### MAJOR Ph. D. CONTRIBUTIONS:

- Sol-gel processed Titania films on prism substrates as an Optical Moisture Sensors
- Titania Films Deposited by Thermal Evaporation as humidity sensor,
- Sol-Gel Processed TiO<sub>2</sub> films on U-shaped glass-rods as optical humidity sensor
- Improved version of optical humidity sensor with incident light in the form of a conical beam

### EDUCATIONAL QUALIFICATION:

- **M. Sc. (Physics)** from Dr. R.M.L. Awadh University, Faizabad (1993)
- **B. Sc. (Physics - Hons.)** from Dr. R.M.L. Awadh University, Faizabad (1991)
- **Intermediate** from U.P. Board (1988)
- **High School** from U.P. (1986)

### DOCTORAL DEGREE:

- **Ph.D.** from University of Lucknow, Lucknow, U.P., India under the supervision of **Prof. L.M. Bali**, Adjunct Professor, Department of Physics, Miami University, Oxford, Ohio, USA.

### AREA OF RESEARCH:

- Nanomaterials, Organometallic nanocomposite, Physical and Chemical Sensors

### PAPERS TAUGHT:

- Mechanics
- Electronics
- Digital Electronics
- Thermal Physics

- Microprocessor
- Electromagnetic Theory
- Condensed Matter Physics
- Materials Science
- Nanoscience & Nanotechnology

#### **COURSES TAUGHT:**

- Ph.D.
- M.Phil.
- M. Sc. (Physics/Electronics)
- B.Sc. (Computer Science)
- B.Sc. (Electronics)
- B.Sc. (Physics)

#### **❖ COURSES DESIGNED:**

- Nanotechnology for under graduate classes
- M. Tech. Nano-Optoelectronics

#### **BOOKS PUBLISHED**

- **“Tapiya Bhautiki”** ISBN: 978-81-89989-30-9

By Human Resource Ministry & Uttar Pradesh Hindi Sansthan, Lucknow

#### **BOOK CHAPTER(S)**

- **Biodegradable Nanocomposites for Energy Harvesting, Self-healing, and Shape Memory**, Deepu Thomas, John-John Cabibihan, Sasi Kumar, SK Khadheer Pasha, Dipankar Mandal, Meena Laad, [Bal Chandra Yadav](#), SI Patil, Anil Ghule, Payal Mazumdar, Sunita Rattan, Kishor Kumar Sadasivuni, 2017, **Smart Polymer Nanocomposites**, 377-397, Springer International Publishing.
- **Development in Metal Oxide Nanomaterial-based Solar Cells**, [B. C. Yadav](#), P. Kumar, S. Singh and R. Kothari, TERI Press, **Emerging energy alternatives for sustainable environment**, ISBN: **9788179934111**.
- **Policy Reforms in Indian Energy Sector to Achieve Energy Security and Sustainability**, Vinayak V. Pathak, Richa Kothari, Vineet V. Tyagi, and [Balchandra Yadav](#), September 2, 2016, Reference - 422 Pages-49, **Energy Security and Sustainability**, Edited by Amritanshu Shukla, Atul Sharma, ISBN 9781498754439 - CAT# K27407, CRC Press, Taylor & Francis Group.
- **Chief Editor** : Proceeding of National Workshop on Nanomaterials & Nanotechnology (NWNNT-2007)

- **Chief Editor :** Proceeding of International Conference on Nanoscience & Nanotechnology (ICNN-2013)
- **Guest Editor:** *Special Issue of Journal of Advance Science Letter, APS, USA, Impact Factor: 1.25*

## ❖ RESEARCH PROJECTS

- **List of Completed Projects:**

Sl. No.	Title	Date of start & Date of completion	Cost (Rs.)	Agency
1.	“To design and fabricate Opto-electronic humidity sensor-----and other materials” (P.I.)	7 <sup>th</sup> May 2007- May 2010	Rs.5,00,000/-	Council of Science & Technology, Uttar Pradesh
2.	“Multimetallic nanoparticles in polymer matrix as precursors of magnetic sensor materials” (Co P.I./Participant)	Jan. 2009 – Jan. 2012	Rs.30,00,000/- Approx.	Department of Science & Technology, New Delhi <b>INDORUSSIAN PROJECT</b>
3.	“Synthesis and characterization of nanostructured metal oxides and their applications as Liquefied Petroleum Gas (LPG) Sensors” (P.I.)	June 2009 - December 2012	Rs. 8,03,000/-	University Grants Commission (U.G.C.), Delhi
4.	“Synthesis of semiconductor metaloxide based nanocomposites using Sol-Gel and Hydrothermal/solvothermal techniques for the development of humidity and CO <sub>2</sub> gas sensors” (P.I.)	2010 – 2014	Rs. 22,14,000/-	Department of Science & Technology
5.	“Synthesis and Characterization of Thin and Thick Film Opto-Electronic Humidity Sensor Based on Metal Oxide Nanocomposites”	2013 – 2016	Rs. 26,84,500/-	Department of Science & Technology (Indo-Russian)

- **List of ongoing S & T projects:**

S.No.	Title	Date of start & Date of completion	Cost (Rs.)	Agency
1.	“Preparation and properties of Nanosized spinel and Orthoferite Oxides and their Relevance as Gas Sensor’ (P.I.)	2014 -2018	Rs.24,74,750/-	Board of Research Nuclear Research (BRNS), DAE

2,	“Study of policies and mechanisms that could facilitate delivery of STI outputs to diverse stakeholders including innovation for social inclusion with special reference to Energy” (Co P.I.)	2014 - 2019	Rs.5,00,00000/-	DST, Gov. of India
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### ❖ Awards/honours: 11

- **Awarded for publishing papers in high Impact Factor Journal by BBA University, Rs. 2.00 lac incentive grant, 10<sup>th</sup> June 2014.**
- **Travel Grant Award-2014 from Department of Science & Technology, Government of India, Delhi for visiting Kuala Lumpur, Malaysia.**
- **Most downloaded Paper Award-2012 for Optics and Laser Technology, 57 (2014) 181-188 by Elsevier, USA.**
- **International Brainpool Fellowship-2010, The Korean Federation of Science and Technology Societies (KOFST), Government of South Korea.**
- **Travel Grant Award-2010 from DST, Delhi for visiting University of South-West Australia, Perth, Australia.**
- **Research Grant Award-2010 for Young Scientists from DST, Delhi under SERC scheme.**
- **Best Poster Prize: October 2008, International Conference on Biomedical Engineering and Nanotechnology (ICBENT) at D.Y. Patil University, Kolhapur, M.H., India.**
- **Research Grant Award-2007 from International Center for Theoretical Physics, Italy for visiting ICTP, Trieste, Italy.**
- **Best Poster Award: 2006, International Conference on Nanomaterials for Electronics (ICNME) at C-MET, Pune.**
- **Young Scientist Award: 2004-2005 by Uttar Pradesh Council of Science and Technology.**
- **ISCA Best Poster Presentation Award: 2002 by Indian Science Congress Association.**

### ❖ **ABROAD VISITS**

- Institute of Problems on Chemical Physics, Chernogoloka, Moscow Region, **Russia.** 25<sup>th</sup> Feb.-7<sup>th</sup> March 2016
- Institute of Problems on Chemical Physics, Chernogoloka, Moscow Region, **Russia.** 25<sup>th</sup> July -7<sup>th</sup> August 2014
- Institute of Materials, Malaysia, Kuala Lumpur, **Malaysia.** 13-16<sup>th</sup> May, 2014

- Korean Research Institute of Chemical Technology, Daejeon, **South Korea**, 25<sup>th</sup> March, 2011 (Brain Pool Scientist)
- Institute of Problems on Chemical Physics, Chernogolovka, Moscow Region, **Russia**. 6<sup>th</sup>-17<sup>th</sup> November 2010
- University of Western Australia, Perth, **Australia**. 11<sup>th</sup> - 14<sup>th</sup> July 2010
- National University, **Singapore**. 30<sup>th</sup> June - 7<sup>th</sup> July 2007
- ICTP, Trieste, **Italy**. 30<sup>th</sup> March 2007-1<sup>st</sup> May 2007
- Tribhuwan University, Kathmandu, **Nepal**. 9<sup>th</sup> Feb. 1994.
- Tribhuwan University, Kathmandu, **Nepal**. 25<sup>th</sup> Jan. 1994.

## ❖ No. of Ph. D. Thesis supervised : 14

- **Dr. Richa Srivastava** "*Design and Fabrication of undoped and doped ZnO as humidity sensors*" (**BEST THESIS AWARD, MRSI**) August 2008
- **Dr. Amit Kumar Srivastava**, "*Design and Fabrication of Solid – state Resistive type humidity sensors using Titanium Dioxide*" Jan. 2009
- **Dr. Anil Kumar Yadav**, "*Design and fabrication of Humidity and temperature sensors using sucrose and cuprous oxide*" September 2009
- **Dr. Preeti Sharma**, "*Design and fabrication of Solid-state Resistive type Humidity and Gas sensors based on SnO<sub>2</sub> and other additives*", January 2010
- **Dr. Monika Singh**, "*Experimental Investigations on Solid-state Humidity sensing properties of Lanthanum, Praseodymium and Neodymium oxides*", August 2010
- **Dr. Ritesh Kumar**, "*Synthesis and characterizations of nanostructured titanium, niobium and tantalum oxides and their applications as Humidity Sensors*", December 2010
- **Dr. Anuradha Yadav**, "*Experimental Investigations on Design and Fabrication of Liquefied Petroleum Gas Sensor using Nanostructured Zinc Oxide and its Composites*", December 2012
- **Dr. Rajeev Singh**, "*A New Approach to Oxygen Related Donor in Czochralski (Cz) Silicon*" 27 February 2013
- **Dr. Satyendra Singh**, "*Synthesis and characterizations of nanostructured ferrite composites and their applications as L.P.G. Sensors*", 30 December, 2013
- **Dr. Nidhi Verma**, "*Synthesis and characterizations of metal oxide nanocomposites and their applications as Humidity and L.P.G. Sensors*" 9, September 2014
- **Dr. Rama Singh**, "*Synthesis and characterization of tin oxide based nanocomposites and their application as Humidity Sensors*" 26<sup>th</sup> May 2015
- **Dr. Rakesh K. Sonker**, "*Synthesis and characterization of metal oxide based nanocomposites and their application as NO<sub>2</sub> Sensors*", 21<sup>th</sup> Sept. 2016
- **Dr. Ravindra Kumar**, "*Synthesis and characterization of Polymer nanocomposites and their application as Humidity Sensors*" 21<sup>th</sup> Nov. 2016
- **Dr. Satyendra Kumar**, "*Synthesis and characterization of nanocomposite Polymer films*"

April 18, 2017 (As Co-supervisor)

❖ **Ph.D. Student Registered:** 06

❖ **No. of M. Phil. Thesis supervised : 02**

- **Mr. Dhiraj K Maurya**, "Synthesis and characterization of CZTS (Copper, zinc, tin and sulfur) thin film and its opto-electronic humidity sensing capability" 10<sup>th</sup> June, 2016
- **Ms. Priyanka Chaudhary**, "Investigation and characterization of Copper (II) Nitrate Acryl Amide complex film and its application as humidity sensor" 10<sup>th</sup> June, 2016

❖ **No. of M. Tech. Thesis supervised : 08**

- **Ms. Roshni Yadav**, "Synthesis and characteriazation of nanostructured copper ferrite and its application as LPG sensor" 29<sup>th</sup> June, 2015
- **Ms. Priyanka Raj**, "A case study on the effect of varrying doping density for the optimization of quantum efficiency of silicon based nanowire solar cell" 29<sup>th</sup> June, 2015
- **Ms. Shivani Rastogi**, "TCAD based simulation of quantum well infrared Photo detector" 29<sup>th</sup> June, 2015
- **Ms. Ekta Singh**, "Catalytic growth of carbon nanotubes via CVD techniques and its application as opto-electronic humidity sensor", 9<sup>th</sup> June, 2016
- **Ms. Anamika Katheria**, "Synthesis of Copper Acrylamide complex and its application as opto-electronic humidity sensor", 9<sup>th</sup> June, 2016
- **Mr. Satyendra Singh**, "Investigation on loaded microbend and linear fiber optic sensor for crack detection", 9<sup>th</sup> June, 2016
- **Ms. Ruchita**, "Nanostructured Lanthanum doped zinc ferrite as LPG and humidity sensor" 9<sup>th</sup> June, 2016
- **Mr. Ravi Kumar Rawat**, "Preparation of nanostructured Nickel Oxide and its application as LPG sensor", 9<sup>th</sup> June, 2016

❖ **WORKSHOPS/CONFERENCES ORGANIZED**

- **Convener:** *National Workshop on Nanomaterials & Nanotechnology* 24-25<sup>th</sup> March 2007.
- **Convener:** *International Conference on Nanoscience & Nanotechnology, ICNN-2013*, 18-20, Nov. 2013, BBAU, Lucknow, U.P., India.
- **Convener:** *International Symposium on Advances in Materials Characterization (ISAMC)* July 14, 2014, BBAU, Lucknow, U.P., India.

- **Coordinator (session):** Jan. 12-13, 2014, North Zone VC meet at BBA University, Lucknow, U.P., India
- **Coordinator:** PROF. VISHWA NATH SYMPOSIUM-XXIII: Advances in Physical Sciences on 6<sup>th</sup> February 2014, "The 101<sup>st</sup> Session of Indian Science Congress" held at the University of Jammu, Jammu, during 3-7 Feb. 2014.

❖ **Session Chaired in various national/international conferences:**

- International Conference On Renewable Energy for Sustainable Environment: Challenges and Remedies, 20-21 March, 2017, Department of Energy SHRI MATA VAISHNO DEVI UNIVERSITY Kakrayal, Katra, Jammu & Kashmir -182320 (INDIA)
- National Conference on "Recent Advances and Innovations in Chemical and Materials Science" Scheduled on 23-24 Feb. 2017 organised at Sri Jai Narain (PG) College, Lucknow, U.P., India
- International Conference on Science and Engineering of Materials for future needs SR& BGNR Arts & Science College, Khammam-507002, Telangana, India, 21-22<sup>nd</sup> December, 2015.
- International Conference on Science and Engineering of Materials for future needs SR& BGNR Arts & Science College, Khammam-507002, Telangana, India, 21-22<sup>nd</sup> December, 2015.
- INTERNATIONAL WORKSHOP: Bridging Development Divide for Inclusive Growth through Science, Technology and Innovation, January 16-17, 2015, Babasaheb Bhimrao Ambedkar University (A Central University) Vidya Vihar, Raebareli Road, Lucknow-226025, U.P., India.
- National Conference on "Emerging Trends in Nanoscience and Nanotechnology" On 23 - 24, December 2014, Department of Physics, Arts, Sci. and Comm. College, Ozar (Mig), Nasik, MH, India.
- International Symposium on Role of Dendrimers in Nano drug delivery, June 14-15, 2014, CDRI New Campus, Lucknow-26021, U.P., India.
- 2<sup>nd</sup> Lucknow Science Congress, 27-28 March 2014, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.



- International Conference on Advancements of Science & Technology: Health and Social Issues, Feb. 18-19, 2014, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.

❖ **Jury Member:**

- National Children Science Congress, Uttar Pradesh  
Sagar Institute of Technology and Management, Faizabad Road, Barabanki, Nov. 22-24, 2012.

❖ **Member of Local Organizing Committees:**

- International Conference on Chemistry and Materials: Prospects and perspectives (IC-MPP-2012), Dec. 14-16, 2012, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.
- International Conference on Radiation Environment- Assessment, Measurement and its Impact, 12-14 April, 2012, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.
- 16<sup>th</sup> National Seminar on Physics and Technology of Sensors, Lucknow University, U.P., India, 2011.
- 3<sup>rd</sup> National Conference on Nanomaterials and Nanotechnology, 21<sup>st</sup>-23<sup>rd</sup> December 2010, Vol.-1, Issue-1, Nov.-Dec 2010.
- 2<sup>nd</sup> National Conference on Nanomaterials & Nanotechnology, **Lucknow University**, Lucknow, U.P., India December 21-23, 2009.
- Seminar on Frontiers of Spectroscopy (SFS) November 11-12, 2008, **University of Lucknow**, Lucknow, India.
- 16<sup>th</sup> Polychar: World forum on Advanced Materials, World Unity Convention Centre, Lucknow, India, February 17-21, 2008.
- National Conference on Nanomaterials and Nanotechnology, Dec.8-11, 2007, **University of Lucknow**, Lucknow, India.
- National Symposium on Advances in Chemical and Materials Sciences, May11-12, 2007, **University of Lucknow**, Lucknow, India.
- 17<sup>th</sup> AGM of Material Research Society of India, **University of Lucknow, Lucknow**, U.P., India, Feb.13-15 (2006).



## ❖ ADMINISTRATIVE DUTIES:

- **Assistant Provost** : 2008-09, University of Lucknow, Lucknow.
- **Assistant Proctor** : 2008-09, University of Lucknow, Lucknow.
- **Assistant OSD Exam: Conduct and Dispatch:** 2007-2009, University of Lucknow, Lucknow.
- **Assistant Director, Admission:** 1998-2009, 2010-2011, University of Lucknow, Lucknow.
- **Co-coordinator:** B.Sc. Nanotechnology, University of Lucknow, India (2008-2010)
- **Executive Member:** Advisory committee for National/International conferences being held at University of Lucknow, Lucknow-226007, 2006-2008.
- **Co-ordinator:** M. Tech. Nano-Optoelectronics, Department of Applied Physics, BBAU, Lucknow, U.P., India. (2013-2016)
- **Co-ordinator:** B. Tech. Electrical, UIET, BBAU, Lucknow, U.P., India (2015-2016)
- **Head,** Department of Applied Physics, SPS, BBAU, Lucknow, U.P., India (2013-2016)
- **Assistant Proctor:** 2016, B B A University, Lucknow.

## ❖ CURRICULUM DESIGNED:

- Nanotechnology for under graduate classes
- M. Tech. Nano-Optoelectronics
- M.Sc. (Nanoscience & Nanotechnology)

## ❖ Invited Lectures delivered:

- ❖ Special Invited Lecture, 22 March, 2017, Department of Electronics, Jammu University, Jammu & Kashmir -182320, INDIA.
- ❖ International Conference On Renewable Energy for Sustainable Environment: Challenges and Remedies, 20-21 March, 2017, Department of Energy SHRI MATA VAISHNO DEVI UNIVERSITY Kakrayal, Katra, Jammu & Kashmir -182320 (INDIA)
- ❖ 4<sup>th</sup> Lucknow Science Congress (LUSCON)” on Science Technology and Innovations for Sustainable Development, 3-4 March 2017, BBAU, Lucknow, U.P., India.
- ❖ National Seminar on “Nano Science and Biotechnology” on 25-26 February 2017, DAV PG College, Kanpur, U.P., India.

- ❖ National Conference On “Recent Advances and Innovations in Chemical and Materials Science (RAICMS)” on 23-24 February 2017, Shri Jai Narain PG College & DSMNRU, Lucknow, U.P., India.
- ❖ 6<sup>th</sup> International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS-2016) November 5-8, 2016, University of Lucknow, Lucknow, U.P., India.
- Application of Physical Sciences in Engineering & Technology (STCAPSET-16), 02-08 July, 2016, Department of Applied Science, M.M.M. University of Technology, Gorakhpur, U.P., India.
- International Conference on "Environmental systems and sustainable development", Tarachand Bora College, Shirur, Pune, MS, India, 15-16<sup>th</sup> January, 2016.
- International Conference on Science and Engineering of Materials for future needs SR & BGNR Arts & Science College, Khammam-507002, Telangana, India, 21-22<sup>nd</sup> December, 2015.
- National Conference on Physics and Industry Interfaces, Kurukshetra University, 30<sup>th</sup> July to 1<sup>st</sup> August, 2015, Kurukshetra, Hariyana, India.
- National Conference On “Emerging Trends in Nanoscience and Nanotechnology” On 23-24 December 2014, Department of Physics, Arts, Sci. and Comm. College, Ozar (Mig), Nasik, MS, India.
- DST-RFBR Project meeting at Metallopolymer Lab, Institute of Problems on Chemical Physics, Chernogoloka, Moscow Region, Russia. 25<sup>th</sup> July -7<sup>th</sup> August 2014.
- “International Conference on Materials Technologies and Exhibitions (ICMTE-2014), Institute of Materials, Malaysia, Kuala Lumpur, Malaysia. 13-16<sup>th</sup> May, 2014.
- “The 101<sup>st</sup> Session of Indian Science Congress” held at the University of Jammu, Jammu during 3-7 Feb. 2014.
- “National Conference on synthesis characterization and application of advanced nanomaterials (NCSCAAN 2014)” to be held from 17<sup>th</sup> Jan to 19<sup>th</sup> Jan, 2014 at Hindustan College of Science and Technology, Farah (**Mathura**) U.P., India.

- “National Conference on Materials Science: Trends & Future-2014 (NCMS-2014)” during 10, 11 January 2014, Bharatiya Mahavidyalaya, **Amravati**, M.H., India
  - "Workshop on Electroactive Materials" on 22-23<sup>rd</sup> April 2012, School of Materials Science and Technology, Institute of Technology, **Banaras Hindu University, Varanasi-221005**, U.P., India.
  - “Inspire Science Camp”, DST, 16<sup>th</sup> April to 20<sup>th</sup> April, 2012, BBS College of Engineering & Technology, Gaddo Pur, Phaphamau, **Allahabad-211013**, U.P., India.
  - International Conference on Radiation Environment-Assessment, Measurement and its Impact, RADENVIRON-2012 (April 12-14, 2012), Babasaheb Bhimrao Ambedkar University, **Lucknow-26025**, U.P., India.
  - Recent Trends in Nanotechnology and Materials Characterization "RTNMC-2012" January 12-13, 2012, Prasad Institute of Management and Technology (PIMT), Kanpur Road Banthara, **Lucknow-227101**, U.P., India.
  - Workshop on “Nano Sensors” 19-20 September 2011, Amaltas Hall, India Habitat Center, **New Delhi**, India.
  - National Conference on Advances on Nanomaterials and their Applications, 25-27 February, 2011, DAV College, **Kanpur**, U.P., India.
  - National Conference on Recent Advances in Materials Science 22-24 January, 2011, **Bhusawal**, M.S., India.
  - Indo-Russian Project, 6<sup>th</sup>-17<sup>th</sup> November 2010, Institute of Problems on Chemical Physics Chernogoloka, Moscow Region, **Russia**.
  - National Seminar on Preparation of Nanomaterials and their Applications (NSPNA-2010), Feb. 20-22, 2010, ACS College, **Nandgaon, Nasik, M.H.**, India.
  - Symposium on Current trends in Nanoscience and Nanotechnology (CTNT-09), Jan. 15-16, 2009, AVB Indian Institute of Information Technology and Management (**IITM**), **Gwalior, M.P.**, India.
  - “Environment: Assessment and Safety” Jan. 1-5, 2009, NCC Camp of Gramyanchal P.G. College, Haidergarh, **Barabanki**, U.P., India.
- ❖ **Referee of Journals:**

<ul style="list-style-type: none"> <li>• Sensors and Actuators-A</li> <li>• Philosophical magazine</li> <li>• Sensors and Actuators-B</li> <li>• Materials Letters</li> <li>• Sol-gel Science and Technology</li> <li>• Sensor Letters</li> <li>• Current Applied Physics</li> <li>• Measurement</li> <li>• Journal of Materials Science: Materials in Electronics</li> <li>• Journal of Alloy &amp; Compounds</li> <li>• Indian Journal of Pure &amp; Applied Physics</li> <li>• Materials Chemistry and Physics</li> </ul>	<ul style="list-style-type: none"> <li>• Journal of Materials Science &amp; Engineering B</li> <li>• Materials &amp; Nano-composite</li> <li>• Solid State Science</li> <li>• IEEE Sensors Journal</li> <li>• Sensors Review</li> <li>• Waste Management &amp; Research</li> <li>• Journal of Science Research &amp; Reviews</li> <li>• Materials &amp; Design</li> <li>• <i>Materials and Manufacturing Processes</i></li> <li>• <i>Photonics Sensors</i></li> </ul>
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❖ **Member of Editorial Board:**

- ❖ American Journal of Optics and Photonics, Science Publishing Group, USA.
- ❖ Lucknow Journal of Science, **Print ISSN:** 0974-8121, **Online ISSN:** 0974-813X, **Publisher:** Lucknow University Teacher's Academic Publication Society.
- ❖ International Journal of Scientific and Innovative Research 2013; 1(2):93-108, P-ISSN 2347-2189, E-ISSN 2347-4971.
- ❖ **GOOGLE SCHOLAR CITATION**

<u>Citation indices</u>	All	Since 2012
<u>Citations</u>	1580	1247
<u>h-index</u>	23	21
<u>i10-index</u>	52	45

**PUBLICATIONS IN NATIONAL/ INTERNATIONAL JOURNALS**

120. Design and development of lab model of piezo-optic sensor for Structural Health Monitoring, Samiksha Sikarwar, Shakti Singh, Satyendra, Richa Srivastava, [B.C. Yadav](#), V.V. Tyagi, Smart Materials and Structures, Springer, under minor revision. **IF= 2.79.**
119. Preparation of Polypyrrole Thin Film via Conventional Polymerization Method and its Humidity Sensing, Ravindra Kumar and [Bal Chandra Yadav](#), Bulletin of Materials Science, Springer, under minor revision. **IF= 0.8.**
118. Development of Fe<sub>2</sub>O<sub>3</sub>-PANI nanocomposite thin film based sensor for NO<sub>2</sub> detection, Rakesh K. Sonker, [B.C. Yadav](#), Journal of the Taiwan Institute of Chemical Engineers, PII: S1876-1070(17) 30226-2, DOI:10.1016/j.jtice.2017.04.042.
117. Electrical Behaviour of Chitosan-Silver Nanocomposite in Presence of Water Vapour, [B. C.](#)

- [Yadav](#), R. Kumar, Subhasis Chaudhuri and P. Pramanik, *J. Water Environ. Nanotechnol.*, 2(2): \*-\* Springer 2017.
116. Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film, Monika Singh, [B.C. Yadav](#), Ashok Ranjan, Rakesh K. Sonker, Manmeet Kaur, *Sensors and Actuators B:Chem.* 249 (2017) 96–104. **IF= 4.758.**
  115. Growth and characterization of sol-gel processed rectangular shaped nanostructured ferric oxide thin film followed by humidity and gas sensing, [B. C. Yadav](#), K. S. Chauhan, S. Singh, R.K. Sonker, S. Sikarwar and R. Kumar, *Journal of Materials Science: Materials in Electronics*, 2017, DOI:10.1007/s10854-016-5310, in press, **IF 1.56**
  114. Synthesis and characterization of perovskite barium titanate thin film and its application as LPG sensor, Monika Singh, [B. C. Yadav](#), Ashok Ranjan, Manmeet Kaur, S.K. Gupta, *Sensors & Actuators: B. Chemical*, Volume 233, (2017) 1170-1178, **IF= 4.758.**
  113. Preparation and Properties of Nanostructured PANI Thin Film and Its Application as Low Temperature NO<sub>2</sub> Sensor, Rakesh K. Sonker, [B. C. Yadav](#), G. I. Dzhardimalieva, *J Inorg Organomet Polym* (2016) 26:1428-1433, DOI 10.1007/s10904-016-0439-y. **IF = 1.308**
  112. A comparative LPG sensing study of bulk titanium oxide and nanostructured titanium oxide, Anuradha Yadav and [B. C. Yadav](#), *Science and Engineering Applications* 1(5) (2016) 58-63 **ISSN-2456-2793(Online).**
  111. MWCNT Doped ZnO Nanocomposite Thin Film as LPG Sensing, Rakesh K. Sonker, Monika Singh, Utkarsh Kumar, [B. C. Yadav](#), *J Inorg Organomet Polym* (2016) 26:1434-1440 DOI 10.1007/s10904-016-0442-3. **IF = 1.308**
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  109. Synthesis, characterization of Nickel Ferrite and its uses as Humidity & LPG sensors, Richa Srivastava, [B. C. Yadav](#), Monika Singh and T. P. Yadav, *Journal of Inorganic and Organometallic Polymers and Materials*, DOI 10.1007/s10904-016-0425-4, **IF = 1.308**
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12. Fibre Optic Pressure Sensor and monitoring of structural defects, N.K. Pandey, [B. C. Yadav](#), *Optica-Applicata*, 57-63, Vol. XXXVII, **2007**; ISSN: 0078-5466,(Institute of Physics, Wroclaw University of Technology, Poland). **IF= 1.1**
11. Sol-gel processed Titania films on prism substrates as an Optical Moisture Sensors, [B. C. Yadav](#), *Sensors & Transducers Journal*, 1217-1224, Vol.79, Issue 5, **2007**; (ISSN: 1726-5479, IFSA, Belgium). **IF=0.756**
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9. Study of Optical humidity sensor based on Titania Films fabricated by Sol-Gel and Thermal Evaporation Methods, [B. C. Yadav](#), N.K. Pandey, Amit K. Srivastava and Preeti Sharma, *Measurement in Science & Technology*, 1-5,18, **2007**. **IF= 1.492**
8. Monitoring of high pressure with Fiber Optic Sensor, N.K. Pandey, [B. C. Yadav](#), Anupam Tripathi, *Sensors & Transducers Journal*, 834-838, Vol.74, Issue12, **2006**; (ISSN: 1726-5479, IFSA, Belgium). **IF=0.756**
7. Embedded Fibre Optic Microbend Sensor for measurement of high pressure and crack detection, N.K. Pandey, [B. C. Yadav](#), *Sensors and Actuators A: Physical*, 33-36, Vol.128, Issue 1, **2006**; (ISSN:0924-4247153, Elsevier, U.S.A.). **IF=2.201**
8. Nano like Magnesium Oxide Films and its significance in optical fiber humidity sensor, S.K. Shukla, G.K. Parashar, Puneet Misra, [B. C. Yadav](#), R.K. Shukla, L.M. Bali and G.C. Dubey, *Sensors and Actuators B: Chemical*, 5-11, Vol.98 No.1, Issue 1, **2004**; ISSN:0925-4005(ISSN: 0925-4005, Elsevier, U.S.A.). **IF=4.758**
5. Improved version of optical humidity sensor with incident light in the form of a conical beam, [B. C. Yadav](#), Anchal Srivastava, R.K. ShuklaandG.C. Dubey, *Indian Journal of Pure and Ap-*

*plied Physics*, 694-699, Vol.44, **2006**; ISSN: 0019-5596(The Council of Scientific & Industrial Research, New Delhi, India). **IF=0.739**

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3. Fiber Optical humidity sensor, [B.C. Yadav](#), R.K. Shukla and L.M. Bali, *Lucknow Journal of Science*, India, 21-23, Vol.1, No.2 January-March, **2004**; Print ISSN: 0974-8121 Online, ISSN: 0974-813X (Lucknow University Teacher's Academic Publication Society, India).
2. An Opto-Electronic Sensor to monitor Glucose concentration in water, [B. C. Yadav](#) and R.K. Shukla, *Journal of Optics*, 13-17, Vol.32 No.1, **2003**;ISSN: 0972-8821, (Optical Society of India). **IF=0.40**
1. Titania Films Deposited by Thermal Evaporation as humidity sensor, [B. C. Yadav](#) and R.K. Shukla, *Indian Journal of Pure and Applied Physics*, 13-15, Vol.32, No.1, **2003**; ISSN: 0019-5596 (The Council of Scientific & Industrial Research, New Delhi, India). **IF=0.739**

## (A) List of Review Papers/Articles

16. A Review on Pressure Sensor for Structural Health Monitoring, Samiksha Sikarwar, Satyendra, Shakti Singh, R. Srivastava, [B. C. Yadav](#), *Photonic Sensors: Springer, under minor revision*
15. Preparation and Properties of Transparent Conducting Oxide (TCOs) Thin Films: A Review, Raksha Dixit, Sushant Gupta, Praveen Kumar, Samiksha Sikarwar, [B.C. Yadav](#), *International Journal of Innovative Research in Science, Engineering and Technology*, Vol. 6, Issue 2, February 2017, 1944-1959.
14. Carbon Nanotube: Synthesis and Application in Solar Cell, Utkarsh Kumar, Samiksha Sikarwar, Rakesh K. Sonker, [B. C. Yadav](#), *J Inorg. Organomet. Polym.* (2016) 26: 1231–1242, DOI:10.1007/s10904-016-0401-z **IF=1.309**
13. Recent Developments in Drug Delivery System via Nanotechnology, Ekta Singh, Anamika Devi Katheria, Richa Srivastava, Utkarsh Kumar, [B. C. Yadav](#), *Imperial Journal of Interdisciplinary Research (IJIR)*, Vol-2, Issue-6, 2016, 366-372.
12. Nanolithography: Processing Methods for Nanofabrication Development, Ruchita, Richa Srivastava and [B. C. Yadav](#), *Imperial Journal of Interdisciplinary Research (IJIR)*, ISSN: 2454-1362, 2, 6, 2016, 275-284.
11. Polymer Nanocomposite: An Overview, Anamika D. Katheria, Ekta Singh, Ravindra Kumar, Richa Srivastava, [B. C. Yadav](#), *International Journal of Innovative Research in Science, Engineering and Technology*, Vol. 5, Issue 2, 2016, 1960-1968.
10. Developments in Bioenergy and Sustainable Agriculture Sectors for Climate Change Mitigation in Indian Context: A State of Art, R Kothari, VV Pathak, AK Chopra, S Ahmad, T Allen, [B C Yadav](#), *Climate Change and Environmental Sustainability* 3 (2), 93-103, 2016.
9. Conducting Polymers: Synthesis, Properties and Applications, Ravindra Kumar, Satyendra Singh and [B.C. Yadav](#), *International Advanced Research Journal in Science, Engineering and Technology*, Volume 2, Issue 11, November 2015, pp.110-124.



8. Opto-electronic humidity sensor: A review, S. Sikarwar, [B C Yadav](#), *Sensors and Actuators A: Physical*, 233, 54-70, 2015. **IF=2.201**
7. A Review Report on Nanostructured Ferrites as Liquefied Petroleum Gas Sensor, Singh, S., [Yadav, B.C.](#), Singh, M. and Kothari, R., *International Journal of Science, Technology & Society*, **Vol.1, No.1, Jan-June, 2015.**
6. A review on synthesis, fabrication and properties of nanostructured pure and doped tin oxide films, [B.C. Yadav](#), Raksha Dixit and Satyendra Singh, *International Journal of Scientific and Innovative Research* 2014; 2(1): 41-57, P-ISSN 2347-2189, E- ISSN 2347-4971.
5. Nanocomposite material for packaging of electronic goods, S Sikarwar, SB Yadav, AK Yadav, [B C Yadav](#), *International Journal of Scientific and Innovative Research* 2013; 1(2):93-108, P-ISSN 2347-2189, E- ISSN 2347-4971.
4. Ferrite Materials: Introduction, Synthesis Techniques, and Applications as Sensors, Richa Srivastava and [B.C. Yadav](#), *International Journal of Green Nanotechnology: Physics & Chemistry*, Special Issue: New Advances in Phytochemicals-Mediated Green Nanotechnology: Part I, Volume 4, Issue 2, 2012, 1–14.
3. Introduction to nanomaterials and their applications, [B.C. Yadav](#), *Lucknow Journal of Science*, **Vol.4, No.3, 2008, Print ISSN: 0974-8121 Online, ISSN: 0974-813X.**
2. Structure, properties and applications of fullerenes, [B.C. Yadav](#) and Ritesh Kumar, *International Journal of Nanotechnology and Applications*, 15-24, Volume 2, Number 1, 2008, ISSN: 0973-631X.
1. Water: An unique matter, [B. C. Yadav](#), Amit K. Srivastava and N.K. Pandey, *Lucknow Journal of Science* 15-23, Vol.2, No.2, 2005; Print ISSN: 0974-8121 Online, ISSN: 0974-813X.

#### Current research interests:

We have designed and fabricated opto-electronic and electrical humidity sensors based on Titania, MgO and ZnO nanomaterials in our laboratory. Also we have developed an opto-electronic sensor for monitoring glucose at low levels and this technology can be used for direct measurement of glucose levels in sugar cane crop. Another sensor, Embedded Fibre Optic Microbend Sensor for measurement of high pressure and crack detection has also been developed. Our basic interest is to synthesize nanomaterials using solvothermal /hydrothermal methods, soft chemical route, traditional precipitation method, aerosol method, low temperature combustion synthesis method etc. in our laboratory in powder form as well as in the form of gel. Powder can be used to form pellet and gel can be used to deposit film on different substrates eg. glass or alumina substrate, U-shaped bend fiber, spiral shaped fiber etc through sol-gel spin method by using Photo resist spinner and dipping and drain

method.

Currently we are involved to develop metalnanoparticles reinforced Nanocomposites and Carbon nanofibres reinforced Polymer Nanocomposites as new structural, electronic and functional materials and new series of Optical and sensor materials of metal nanoparticles embedded in insulator ceramics polymers and Nanofluids. We are making investigations on characterizations of synthesized nanomaterials using Scanning Electron Microscopy, Transmission Electron Microscopy, Atomic Force Microscopy, X-Ray Diffraction, Fourier Transform Infrared Spectroscopy, UV-visible Spectroscopy, Raman Spectroscopy, Differential Thermal Analysis-Thermal Gravimetric Analysis for the determination of particle size, morphology, particle distribution, elastic properties, thermal properties, microstructure, microstructure phenomena etc. along with the modeling of modified phase stability and metastable phase transformation in the nanocomposites developing the final sensing mechanism to moisture, CO<sub>2</sub>, LPG and other gases. For this purpose we are fabricating thin films of synthesized materials on various substrates using various up-to-date techniques. This is the pioneer work in India to couple the science/techniques of sensing with the Nanoscience/ Technology in the thrust area of nanosensors.

#### **Life Member:**

- Indian Science Congress Association(**ISCA**) ---10370
- Optical Society of India (**OSI**) --- L432
- Materials Research Society of India (**MRSI**) ---- Not issued
- Lucknow University Teachers Academic Publication Society(**LUTAPS**)--852
- Lucknow University Physics Alumni Association (**LUPAA**) --- Not issued
- National Academy of Sciences, India (NASI)

#### **International Conference/Workshop/Meeting/Symposia Attended**

1. DST-RFBR Project meeting at Metallopolymer Lab, Institute of Problems on Chemical Physics Chernogoloka, Moscow Region, Russia. 25<sup>th</sup> July -7<sup>th</sup> August 2014.

2. “International Conference on Materials Technologies and Exhibitions (ICMTE-2014), Institute of Materials, Malasia, Kuala Lumpur, Malaysia.13-16th May, 2014.
3. International Conference on Advancements of Science & Technology: Health and Social Issues, Feb. 18-19, 2014, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.
4. International Conference on Chemistry and Materials: Prospects and perspectives (ICMPP-2012), Dec. 14-16, 2012, Babasaheb Bhimrao Ambedkar University, Lucknow-26025, U.P., India.
5. International Workshop on Physics of Semiconductor Devices, IIT, **Kanpur**, 19-22, December 2011.
6. 5<sup>th</sup> Australia-Korea Joint Symposium: Resource Recycling-Green and Clean Environment, Korean University of Science and Technology, **Seoul, Korea**,12-13 May 2011.
7. International Meeting on Chemical Sensors (IMCS-13), 11-14 July 2010, University of Western Australia, **Perth, Australia**.
8. International Conference on advanced nanomaterials and nanotechnology, IIT, **Guwahati, Aasam**, India, December 9-11 2009, page 132.
9. International Conference on Biomedical Engineering and Nanotechnology (ICBENT), October 21-23, 2008, **Dr. D.Y. Patil University**, Kolhapur, M.H., India.
10. International Conference on Materials and Advance Technologies (ICMAT) 1<sup>st</sup>-6<sup>th</sup>, 2007, Suntec Exhibition Centre, **Singapore**.
11. Workshop on Scientific Instruments and Sensors on the Grid, **ICTP, Trieste, Italy**, 23<sup>rd</sup> to 28<sup>th</sup> April 2007.
12. Spring College on Water in Physics, Chemistry and Biology, **ICTP, Trieste, Italy**, 10<sup>th</sup> to 20<sup>th</sup> April 2007.
13. International Conference on Recent Trends on Nanotechnology (ICRTNT), **Jadavpur University, West Bengal**, India, Dec.7<sup>th</sup> to 9<sup>th</sup> 2006.
14. International Conference on Lasers and Nanomaterials (ICLAN), **University of Calcutta, West Bengal**, India Nov.30<sup>th</sup> to Dec.2<sup>nd</sup> 2006.
15. International Conference on MEMS and Semiconductor Nanotechnology, **I.I.T., Kharagpur**, West Bengal, India Dec.20-22 (2005).

16. XI<sup>th</sup> International Workshop on the Physics of Semiconductor devices, **I.I.T. Delhi**. India.  
Dec. 11-15 (2001).

## **International/National Conference/Workshop/Meeting/Symposia**

### **Attended**

1. International Conference On Renewable Energy for Sustainable Environment: Challenges and Remedies, 20-21 March, 2017, Department of Energy Shri Mata Vaishno Devi University, Kakrayal, Katra, Jammu & Kashmir -182320 (INDIA)
2. 4<sup>th</sup> Lucknow Science Congress (LUSCON)” on Science Technology and Innovations for Sustainable Development, 3-4 March 2017, BBAU, Lucknow, U.P., India.
3. National Seminar on “Nano Science and Biotechnology” on 25-26 February 2017, DAV PG College, Kanpur, U.P., India.
4. National Conference on “Recent Advances and Innovations in Chemical and Materials Science (RAICMS)” on 23-24 February 2017, Shri Jai Narain PG College & DSMNRU, Lucknow, U.P., India.
5. 6<sup>th</sup> International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS-2016) November 5-8, 2016, University of Lucknow, Lucknow, U.P., India.
6. Application of Physical Sciences in Engineering & Technology (STCAPSET-16), 02-08 July, 2016, Department of Applied Science, M.M.M. University of Technology, Gorakhpur, U.P., India.
7. International Conference on "Environmental systems and sustainable development", Tarachand Bora College, Shirur, Pune, MS, India, 15-16<sup>th</sup> January, 2016.
8. International Conference on Science and Engineering of Materials for future needs SR & BGNR Arts & Science College, Khammam-507002, Telangana, India, 21-22<sup>nd</sup> December, 2015.
9. National Conference on Physics and Industry Interfaces, Kurukshetra University, 30<sup>th</sup> July to 1<sup>st</sup> August, 2015, Kurukshetra, Hariyana, India.
10. National Conference On “Emerging Trends in Nanoscience and Nanotechnology” On 23-24 December 2014, Department of Physics, Arts, Sci. and Comm. College, Ozar (Mig), Nasik, MS, India.

11. DST-RFBR Project meeting at Metallopolymer Lab, Institute of Problems on Chemical Physics, Chernogoloka, Moscow Region, Russia. 25<sup>th</sup> July -7<sup>th</sup> August 2014.
12. “International Conference on Materials Technologies and Exhibitions (ICMTE-2014), Institute of Materials, Malaysia, Kuala Lumpur, Malaysia.13-16<sup>th</sup> May, 2014.
13. The 101<sup>st</sup> Session of Indian Science Congress, University of Jammu, Jammu during 3-7 Feb. 2014.
14. National Conference on synthesis characterization and application of advanced nano-materials (NCSCAAN 2014) to be held from 17<sup>th</sup> Jan to 19<sup>th</sup> Jan, 2014 at Hindustan College of Science and Technology, Farah (Mathura) U P, India.
15. National Conference on Materials Science: Trends &Future-2014 (NCMS-2014)” during 10, 11 January 2014, Bharatiya Mahavidyalaya, Amravati, M.H., India
16. Advance Technologies Committee –Technical Program Discussion Meeting (ATC-TPDM), July 8-10, 2013, BARC, **Mumbai**, India.
17. Seminar on “Environment, Education & Society” 05<sup>th</sup> June, 2013, Babasaheb Bhimrao Ambedkar University, **Lucknow**-26025, U.P., India.
18. One day Workshop on “Enhancing Communication Skills of Students in Higher Education: Role of Libraries” 22<sup>nd</sup> May 2013, Babasaheb Bhimrao Ambedkar University, **Lucknow**-26025, U.P., India.
19. Placement and Employment Prospects in Indian Patent Offices and Hands-on Training for Patenting the research work, 18<sup>th</sup> March, 2013, Babasaheb Bhimrao Ambedkar University, **Lucknow**-26025, U.P., India.
20. National Workshop on Recent Advances in Materials, 14-15 March, 2013, Department of Physics, University of Lucknow, **Lucknow**-226007, I.P., India.
21. Group Monitoring Workshop (GMW) Jan.11-12, 2013 at Davgiri College, **Calicut**, Kerala, India.
22. National Conference on Science of climate change and Earth’s Sustainability; Issues and challenges, 12-14 Sept. 2011, **Lucknow**, U.P., India.
23. 16<sup>th</sup> National Seminar on Physics and Technology of Sensors, Lucknow University, **Lucknow**, U.P., India, 2011.
24. 3<sup>rd</sup> National Conference on Nanomaterials and Nanotechnology, Amity University, **Lucknow**, 21<sup>st</sup> -23<sup>rd</sup>December 2010.

25. 2<sup>nd</sup> National Conference on Nanomaterials & Nanotechnology, Lucknow University, Lucknow, U.P., India, December 21-23, 2009.
26. Seminar on Frontiers of Spectroscopy (SFS) November 11-12, 2008, **University of Lucknow**, Lucknow, India.
27. DST-PAC Meeting, 7<sup>th</sup> May to 9<sup>th</sup> May, 2008, **Sikkim Manipal Institute of Technology**, Majitar, Sikkim, India.
28. National Work shop on Physics and Technology of Sensors, 1-2 March, 2008, **University of Pune**, India.
29. 13<sup>th</sup> National Seminar on Physics and Technology of Sensors, 3-5 March, 2008, **University of Pune**, India.
30. Workshop for Senior Academicians, February 28-29, 2008, UGC-Academic Staff College, University of Lucknow, **Lucknow-26007**, India.
31. National Conference on Nanomaterials and Nanotechnology, Dec.8-11, 2007, **University of Lucknow**, Lucknow, India.
32. National Symposium on Advances in Chemical and Materials Sciences, May11-12, 2007, **University of Lucknow**, Lucknow, India.
33. National Workshop in Nanomaterials and Nanotechnology, University of Lucknow, **Lucknow**, India, March 24-25, 2007.
34. 94<sup>th</sup> Session of Indian Science Congress, Annamalai University, **Chidamberam, Tamilnadu**, India, Jan.37 (2007).
35. "Lecture Course on Quantum Mechanics" Department of Physics, University of Lucknow, Lucknow-226007, U.P., India, Nov.18<sup>th</sup> to 19<sup>th</sup>, 2006.
36. 17<sup>th</sup> AGM of Material Research Society of India, **University of Lucknow, Lucknow**, U.P., India, Feb.13-15(2006).
37. Current Trends on Materials Characterization, **I.I.T, Kanpur**, U.P., India, Dec. 5-7(2005).
38. 90<sup>th</sup> Session of Indian Science Congress, **Bangalore University**, Bangalore, India Jan.37 (2003). (I.S.C.A. Young scientist award programme).
39. National Seminar on scientific and technological words in Hindi, Department of Physics, **University of Lucknow**, Lucknow, U.P., INDIA. Octo. 4-6 (2002).
40. 89<sup>th</sup> Indian Science Congress, University of Lucknow, Lucknow, India. Jan. 37 (2002).

41. 7<sup>th</sup> National Laser Symposium, **I.I.T. Kanpur**, India. Dec. 14-16 (1998).
42. 5<sup>th</sup> National Seminar on Physics and Technology of Sensors, **University of Pune, Pune**, India. Feb.2-4 (1998).