

## Achievements of the Department

### RESEARCH PROJECTS (From 1995):

- "Spectroscopic Investigation of Mechanism of Ribosome Inactivating Protein- Gelonin" Council of Scientific and Industrial Research , New Delhi, Dr. P. K. Bajpai (1992-1997)
- Lichen eradication from temples of southern India (CI), DST, New Delhi( Dr. P. K Bajpai with Dr. Ajay Singh from NICCP, Lucknow as Principal investigator) (1994-1996)
- "Composition dependence of physical properties of High Temperature Superconductors" Madhya Pradesh Council of Science & Technology (MAPCOST), Bhopal, Dr. R. K. Singh (1996-1999)
- Vibrational & Dielectric studies of microscopic mechanism of structural phase transitions and role of dopants in some ferroelectric crystals. Department of Science & Technology , Dr. P.K. Bajpai ( 1997-2000)
- "High Pressure Phase-Transition and mechanical Properties of Diluted Magnetic Semiconductors" Department of Science & Technology (DST), New Delhi , Dr. R. K. Singh (1995-1997, 1997-2000)
- "Study of Dielectric and Structural changes induced due to doping and irradiation in some ferroelectric Crystal" UFUP, New Delhi (Dr. P. K. Bajpai)
- "Effect of Doping and Irradiation on structural, dielectric and pyroelectric properties of some ferroelectric materials for IR imaging" UFUP, Nuclear Science Centre, New Delhi Dr. P. K. Bajpai (2003-2007)
- "Preparation, Characterization and Electrical Properties of Some Electronic Ceramic Materials" CCOST, Raipur , Dr. H. S. Tewari (2004- 2006)
- "Investigation of Ferroelectric relaxor properties of  $M(A_1/3B_2/3)O_3$  (M=Pb, Ba, Sr; A= divalentions)" UGC MRP, New Delhi, Dr. P. K. Bajpai (2005-2008)

- "Fund For Improvement of S&T Infrastructure in Universities and Higher Educational Institutions", FIST - Level - I DST, Govt. of India, Co-ordinator Dr. P. K. Bajpai ( 2005)
- "Effect of excess oxides and additives on the Pyrochlore phase formation in relaxors: structural and electrical properties in bulk and spin coated films" CCOST, Raipur, Dr. P. K. Bajpai ( 2009 - 2012)
- "Search for highly deformed structures in the 130 region" DAE-UGC Consortium, Kolkata, Dr. Lakshman Chaturvedi ( 2009- 2010)
- "Nuclear Spectroscopy and proton decay using recoil mass separator (HYRA) and alpha tagging" IUAC, UFR project, IUAC, New Delhi, Dr. I.M. Govil (2010-2012)

### **Projects sanctioned during – 2012:**

- UGC Special grant to establish 3 MV accelerator Based research facilities.
- Relaxor behaviour and dielectric relaxation in Bismuth Sodium Niobate based nonlead relaxor solid solutions with perovskite, columbite and tungsten bronze phases (Prof. P.K. Bajpai ) – Sanctioned
- Synthesis and development of double mixed Perovskite oxide based lead free piezoceramics (Dr. H.S.Tewari) – Sanctioned
- Density functional study of magneto - opto - electronic properties of transparent conducting oxides (Dr. M.N. Tripathi) – Sanctioned
- Departmental Research Support in Physics For Fresh Induction Under Special Assistance Program (SAP) to UGC, New Delhi.
- UGC start-up project (to Dr. Krishichayan)

- Proposal submitted for Establishment of Low Energy (3 MV) particle Accelerator based Interdisciplinary Research Centre Submitted to DEPARTMENT OF ATOMIC ENERGY (DAE) BOARD OF RESEARCH IN NUCLEAR SCIENCES (BRNS) \*Presentation made, formal sanction awaited



## **Collaborative Programmes:**

- **Inter University Accelerator Center, New Delhi**

With Dr. Kanjilal & Dr. D.K.Awasthi, on SHI irradiation under UFUP project, one student awarded Ph.D. On the work done at IUAC

- **Bose Institute, Kolkatta**

With Dr. T.P.Sinha on semiconductor sensors based on stagnate ceramics

- **Department of Physics, Assam University, Silchar**

Proposal for collaboration is received in the field of student and Faculty exchange, joint collaborative research and accelerator based programs in Material Science (Under Consideration)

- **Variable Energy Cyclotron Centre, Kolkatta**

The initial discussion for submitting the joint collaborative proposal for DAE funding is already done. The proposal is under preparation in collaboration with Dr. S.K.Bandopadhyaya group at VECC, Kolkatta

- **INGA Project**

"Studies of exotic nuclei under extreme conditions using an Indian National Gamma Array facility (INGA)"with Scientists of BARC, TIFR, IUAC, VECC, UGC – DAE-CSR, SINP, University of Delhi, Mumbai University and I.I.T Roorkee

- **Department of Physics, SPEC - Lab, University of Peurtorico, San Huan, USA**

A collaborative research program in the field of Ferro-electric nanostructures in thin film is going on. Prof Bajpai visited the lab, recently and Prof R.S.Katiyar is planning to visit GGV in the coming session.

- **Department of Physics, Vanderbilt University, USA**

The Department is finalizing the proposal received from Nuclear Physics group of Vanderbilt University for training the Ph.D. students registered at Guru Ghasidas Vishwavidyalaya. The fellowship during the visit to Vanderbilt University will be borne by them

## Faculty Achievements



**Falicitation of Dr. P.K. Bajpai by His Excellency Governor of Chhatisgarh on his receiving the Fellow of International Academy of Physical Sciences at Dehradun**

## Student Achievements 2010-11

- **Following of our students are in top 10% of National Graduate Physics Examination 2010-2011, organized by Indian Association of Physics Teachers**

**Maruti Nandan**

**Satkumar Kurre**

**Preeti Kaushik**

**Ramesh Kumar Ware**

**Kumari Shivangi Gupta**

- **Dr.Pubali Majumdar is postdoctoral fellow in Germany.**
- **Ms. P. Kavita has been engaged in research in USA.**
- **Dr. K. N. Singh received an offer of lectureship at TUSKEGEE University, Alabama, USA.**
- **Mr. Santosh Kumar has been selected in One year post M. Sc. Diploma Programme in Radiological Physics (BARC, Mumbai).**

- **Mr. Saikat one of our M.Sc. students attended summer training programme at Physics Research Laboratory, Ahmedabad.**

## Conferences/Symposiums/Seminars/Workshops Organized

- National Conference on High Pressure Science and Technology (Nov. 11-14, 1995) inaugurated by Prof. S. K. Joshi, D. G. CSIR, New Delhi
- 2<sup>nd</sup> Conference of International Academic Physical Sciences (Feb 25-27, 1997)
- 12th MP Young Scientist Congress (Feb. 28 - March 2, 1997)
- National Seminar on Physics Teaching and National Conversions of IAPT (Oct. 10-12, 1997)
- National Seminar on Advances in Electronic Materials (March 20-21-2000)
- Condensed Matter Days (Aug 29-31, 2000)
- Area Identification Workshop of NGO's (Sept. 2000)
- 43<sup>rd</sup> DAE symposium on Solid State Physics (Dec. 27-31, 2000) inaugurated by PadmaVibhushan Dr. R. Chidambaram, Chairman of Atomic Energy Commission, GOI
- National Seminar on Advanced Electronic Materials and Information Technology (April 18-20, 2003)
- National Conference on Advances in Electronic Materials and Devices (March 05-06, 2006)
- Appreciating Physics in Everyday Life, Sponsored by: RVEPSP-DST, Govt. of India (January 08, 2007)
- Workshop on Laboratory Maintenance & Electronic Instrumentation (Feb.26 -March 03, 2007)
- National Workshop on Low Energy Accelerators and Their Applications to Research and Industry (March 12-13, 2010)
- National Conference on Advances in Electronic Materials and Devices (March 25-26, 2007)
- Silver Jubilee International Conference of International Academy of Physical Sciences ( Jan 12-14, 2008)
- Chattisgarh Young Scientist Congress ( Feb 28-March 01, 2008)
- XVI-National Seminar on Ferroelectrics & Dielectrics (NSFD-XVI) ( December 2-4, 2010)
- Research methodology in Science - managing quality in research and identification of thrust areas 21 Felicitation of Dr. P.K. Bajpai by His Excellency Governor of Chhatisgarh on his receiving the **Fellow of International Academy of Physical Sciences at Dehradun**



## Recently organized activities

- Two Day National workshop cum theme meeting on accelerator based interdisciplinary research in basic sciences (March 28 - 29, 2012)
  
- National sciences day celebration 2012 theme “ Clean Energy Options & Nuclear safety” ( February 28 - March 27, 2012)