EVALUATIVE REPORT OF THE PHYSICS DEPARTMENT

1. Name of the Department : **PHYSICS**
2. Year of establishment : **1916**
3. Is the Department part of a School/ Faculty of the University? : **Physics Department Faculty of Science, BHU**
4. Names of Programmes/ Courses offered *(UG, PG, M.Phil, Ph.D, Integrated, Masters, Integrated Ph.D. etc.)* : **B.Sc.(Hons.), M.Sc** (there are six specializations at M.Sc.level) **Ph.D & P.G. Diploma in Spectroscopy**
5. Interdisciplinary courses and departments involved :
   - At UG Level all non Physics students study physics (or any other subjects other than their combination) and Physics students study non Physics subject also, while at PG level, Physics Students study non physics elective courses while non Physics students study Physics as minor elective.
6. Courses in collaboration with other universities, Industries, forgien institutions, etc. : **NIL**
7. Details of programmes/ courses discontinued, if any, with reasons : **NIL**
8. Annual/Semester/ Choice Based Credit System. : **Semester System and Choice based Credit System at UG & PG levels**
9. Participation of the department in the courses offered by: other departments : **Some faculty member take classes in other Departments also such as Faculty of Dental Science, MMV.**
10. Number of teaching posts sanctioned and filled (Professor/Associate Professors/ Asst. Professors)

	Sanctioned	Filled
Professor	11	03
Associate Professors	16	08 (01+07*)
Ass. Professors	36	20 (13+07**)
Total	**63**	**31**

* Seven position earmarked for Professor under CAS
** Seven position earmarked for Professor under MPS

11. Faculty profile with name, qualification, designation and specialization (D.Sc./D.Litt./ Ph.D./M.Phil., etc.)

Sl. No.	Designation and Name of Faculty Members	Qualification	Specialization	No. of Years of Experience	No. of Ph.D. students guided for the last 4 years
EMERITUS PROFESSOR					
1.	Prof. T.V. Ramakrishnan	Ph.D.	Theoretical Condensed Matter Physics.		-
2.	Prof. O.N. Srivastava	Ph.D.	Carbon, Nano & Hydrogen Energy		12
3.	Prof. Y.Singh	Ph.D.	Conduced Matter Theory: Soft matter and Biological Physics		02
4.	Prof. C.P.Singh	Ph.D.	High energy physics (phenomenology), cosmology and astrophysics		01
5.	Prof. Shri Singh	Ph.D.	Theoretical Soft Condensed State		04
6.	Prof. P.C. Mishra	Ph.D.	Molecular Biophysics		04
7.	Prof. R.Shanker	Ph.D.	High Resolution Spectroscopy of Diatomic Molecules		
HONORARY RETIRED PROFESSOR					
8.	Prof. S. Chandra (NASI Senior Scientist)	Ph.D.	Solid State Ionics		-
PROFESSOR					
9.	Prof. J. Ram	Ph.D.	Soft Condensed Matter		01
10.	Prof. S.B. Rai	Ph.D.	Laser Spectroscopy, Optical properties of rare earth doped glass ceramic phosphor and composites		8
11.	Prof. D.P. Singh	Ph.D.			-
12.	Prof.. P.N. Gupta	Ph.D.	Ion Conducting Polymer Electrolytes		01
13.	Prof. R. S. Tiwari	Ph.D.	Synthesis, growth and characterization of materials: nanomaterials, quasicrystals, metallic glasses, high temperature superconductor. Growth, structure and transformation studies of layered polytypic materials.		03
14.	Prof. P.C. Srivastava	Ph.D.	Interfacial Nanomagnetism for Spintronics Material modifications by swift heavy ion irradiation Magnetism in Semiconducting Materials		05
15.	Prof. R.P. Malik	Ph.D.	BRST Symmetries and Supersymmetries		01
16.	Prof. R.D.S. Yadava	Ph.D.	Electronic Nose Research Semiconductor materials and devices, infrared sensors, surface acoustic wave devices and sensors, radar signal processing and chemical agent sensors		01
17.	Prof. R.A. Yadav	Ph.D.	Spectroscopy Non-linear Optical Properties of Photorefractive Materials: Electromagnetics and Fibre Optics		03
18.	Prof. S. Kumar	Ph.D.	Statistical Physics, Phase transition in polymeric systems, Force induced transitions in Biopolymers		02
19.	Prof. Rajendra Kr. Singh	Ph.D.	Ionic liquids , in confined geometry, ultrasonic's, Ionic Liquid based polymer electrolytes for electro chemical applications		03
20.	Prof. Debanand Sa	Ph.D.	Theoretical Condensed Matter Physics.		02
21.	Prof. B.P. Mandal	Ph.D.			01
22.	Prof. Ranjan Kr. Singh	Ph.D.	Application of Raman spectroscopy and density functional theory to study the liquid crystalline materials, strongly interacting liquid mixtures and biological systems		03
23.	Prof. Abhay Kr. Singh	Ph.D.	Space Weather Studies of Upper Atmosphere. Study of Ionospheric Irregularities using VHF & GPS scintillations. GPS based Total Electron Content (TEC) & Water Vapor content measurements and their variability. Study of VLF Whistler-Mode waves and their generation and propagation mechanisms.		03

			Electrodynamics of the Atmosphere-Ionosphere-Magnetosphere. Seismo-electromagnetics to study Earthquake Precursors. Atmospheric studies involving aerosols, dust storms, winter fog, and their radiative and climate effects mainly in Indo-Gangetic basin.		
24.	Prof. Anup Kumar Ghosh	Ph.D.	Multiferroics; Diluted Magnetic Semiconductors (DMS)		01
25.	Prof. B.K. Singh	Ph.D.	Experimental Nuclear & Particle Physics Research Theoretical High Energy Physics research: Advanced Detector Technology Research & Development:		-
ASSOCIATE PROFESSOR					
26.	Dr. H.P. Sharma	Ph.D.	Experimental Nuclear Physics		-
ASSISTANT PROFESSOR					
27.	Dr. A. Srivastava	Ph.D.	Synthesis of larger sized graphene and its optical, structural and Electrical/electronic characterization Synthesis and characterization of carbon nanotubes Functionalization of carbon nanotubes their applications f-CNTs based chemical and biosensors Bio-mimetic and Physical/chemical synthesis of Nanomaterials and its applications Synthesis and formation of monolithic free standing CNT-bulk structures and their innovative applications in bio- and chemical filtration, analyte concentration and electrochemical reactions CNT-polymer composites, their mechanical and electrical properties and related applications Low Weight Hydrogen storage materials Carbon based super Capacitor & Batteries		02
28.	Dr. Kedar Singh	Ph.D.	Synthesis and characterization of Dilute Magnetic Quantum Dot, Thermoelectric Nanomaterials and Chalcogenide glasses		02
29.	Dr. V.S. Subrahmanyam	Ph.D.			-
30.	Dr. M.A. Shaz	Ph.D.	Strongly correlated electron system. Quasicrystals and incommensurate crystals. Hydrogen storage materials. Bulk Metallic Glasses		01
31.	Mr. Surendra Prasad	M.Sc.			-
32.	Dr. Vivek Singh	Ph.D.	Fiber Optics, Optoelectronics and Photonics		01
33.	Dr. Venktesh Singh	Ph.D.	Experimental Research in Nuclear and Astroparticle Physics and ii) Detector Technology Research and Development.		02
34.	Dr. Ajay Kumar	Ph.D.	Experimental nuclear physics		-
35.	Mr. Amresh Bahadur	M.Sc.	Laser Spectroscopy of glassy materials		-
36.	Mr. Achhe Lal Saroj	M.Sc.	Ionic Polymers		-
37.	Dr. Neeraj Mehta	Ph.D.	Effect of radiation on crystallization kinetics of chalcogenide glasses Effect of composition on crystallization kinetics of Se based binary and ternary chalcogenide glasses for a particular additive element Effect of additives on crystallization kinetics of Se based binary and ternary chalcogenide glasses for a particular composition Dielectric relaxation studies in chalcogenide glasses		-
38.	Dr. Sanjay Siwach	Ph.D.	String Theory (Black Holes, Gauge-gravity duality)		-
39.	Mr. Horesh Kumar	M.Sc.	Electronics		-
SCIENTIEST					
40.	Dr. T.P.Yadav	Ph.D.	Condense Matter Physics (Exp.)		-

12. List of senior Visiting Fellows, faculty, adjunct faculty, emeritus professors

	Emeritus	Adjunct	Visiting
Number	**07+01** (NASI Senior Scientist)	-	**01**

13. Percentage of classes taken by temporary faculty – programme-wise information : **NIL**

14. Programme-wise Student Teacher Ratio : **B.Sc.(H) Physics = 40:01**
M.Sc. (Physics) = 06:01
Ph.D = 05:01

15. Number of academic support staff (technical) and administrative staff: sanctioned and filled

	Sanctioned	**Filled**
Administrative Staff	-	-
Academic Support Staff (Technical) Staff	**50**	**40**
Non-Teaching	**14**	**8**

16. Research thrust areas recognized by funding agencies : Physics of Materials experiment and theory, Experimental and Theoretical Nuclear Physics and Space Physics.

17. Number of faculty with ongoing projects from :

a) national
b) international funding agencies and : 03
c) Total grants received.

Give the names of the funding agencies and grants received project-wise.

Name of the Investigator	**Title of the project**	**Amount sanctioned (Rs. in Lacs)**	**Funding Agency & Duration**
Prof. J. Ram Co-ordinator	C.A.S. Programme "Physics of Materials including Condensed Matter Theory"	100.00	UGC 2008-2013
HEAD Department of Physics	Networking Resources Centre in Science	509.90	UGC 2009-2014
Prof. O.N. Srivastava	Nano Science (UNANST)	500.00	DST 2005-2010
	Support to Hydrogen Energy Centre	93.00	MNRE 2007-2012
	Superconductivity Programe	50.00	UGC 2004-2009
	Production of [60] [70] Fullerenes Hetrofullerences and Carbon Nanotubes from Coal-CFRI Dhanbad and Deptt. Of Physics	29.00	Ministry of Coal 2007-2010
	Development & Demonstration of Hydrogen Catalytic Combustion Cookers	30.00	MNRE 2006-2009
	Syntheis Characterization and Properties of Single Walled Carbon Nanotubes	120.00	DRDO 2009-2012
Prof. Y.Singh	Statistical Theory of Biological Systems and Soft Condensed Matter	39.75	DST 2007-2010

Prof. P.C. Mishra	Base level damage and repair of DNA study of DNA-protein and other intermolecular interactions and reactions	10.56	CSIR 2008-2011
	Study of intermolecular interaction and reactions involving DNA bases and amino acids: Causes, repair and prevention of DNA damage	6.29	UGC 2010-2013
Prof. Shri Singh	Properties of Liquid Crystals	17.35	DST 2007-2010
	Structure and Properties of Liquid Crystalline Materials	18.00	DST 2012-2015
	Theory and Computer Simulation for the Phase Transition in Liquid Crystals	6.00	UGC 2011-2014
Prof. S.B. Rai	Laser Spectroscopy of Atoms, Molecules and Rare-earth ions/ Trahsition Metals in Glasses/ Crystals	60.27	DST 2007-2010
	Upconversion based white light generation in lanthanide doped materials for advanced photonic application.	8.75	UGC 2010-2013
Prof. R. Shanker	Study on ionization mechanism and fragmentation dynamics of some molecules of atomospheric interest under impact of high energy (8-30KeV) electrons	39.45	DST 2007-2010
	Correlation studies on ionic fragments of some atmospheric molecules induced by KeV electron impact.	38.13	DST 2007-2010
	Study of fragmentation of molecules in edge-plasma relevant ion-surface interaction	70.16	IPR-BRFST 2010-2013
Prof. P.C. Srivastava	A study on nano granular magnetic phase embedded in semiconductor for spintronics	34.20	DST 2007-2010
Prof. R.P. Malik	BRST symmetries and persymmetries	12.43	DST 2007-2010
Prof. R.D.S. Yadava	Development of Data fusion models and algorithms for molecular recognition in polymeric multisensory platforms	40.11	DRDO 2008-2011
	"Feasibility study for development of electronic nose technology"	24.12	DST 2007 -2010
Prof. Sanjay Kumar	Statistical Mechanics of force induced transitions in bio-polymers.	21.63	DST 2007-2010
	Modeling of force induced transition of bio polymers in cellular environment	33.44	DST 2012-2015
Dr. Debanand Sa	A theoretical study of the thermoelectric material Na_xCoO_2	19.00	DST 2007-2010
Dr. B.P.Mandal	Generalized BRST Transformation and its applications to Gauge theories	9.36	DST 2008-2012
Dr. Ranjan Kr. Singh	Surface enhanced Raman scattering using metal colloids nanoparticles application t · Raman studies of single molecules	35.56	DST 2008-2011
	Vibrational (Raman and IR spectroscopic IR) study of biologically important associated systems.	6.17	UGC 2006-2009
	Spectroscopic study of molecular dynamics at phase transition of thermotropic liquid crystals	15.22	CSIR 2008-2011
Dr. Rajendra Kr. Singh	Relaxational Processes and Chemical Kinetic Studies in Ionic Liquids by Ultrasonic Absorption Measurement	11.03	UGC 2007-2010
	Electrical and Viscoelastic Characterization of Some recently Discovered Materials viz. Organic Ionic Liquids and Their Composites.	35.86	DST 2009-2012
	Conductivity studies of ionic liquids constrained in · porous silica gel by impedance spectroscopy for development of humidity sensor	33.00	DAE-BRNS 2010-2013
	Synthesis of characterization of ionic liquid based gel nano composite for application in electrochemical devices	7.84	UGC 2011-2014

Dr. Abhay Kumar Singh	Space Science Activities at Indian University (BHU, Varanasi)	200.00	ISRO 2009-2014
	Space Climatology of Upper Atmosphere using VHF Scintillations and VLF Whistler-Mode Waves	4.6	ISRO 2007-2012
	Running / Maintenance Cost of GPS Measurements at the Rajiv Gandhi South Campus, B.H.U., Barkachha	27.0	MoES 2007-12
	Space Weather Studies of Upper Atmosphere using VHF scintillations and VLF whistler modes waves	4.1	UGC 2007-2010
	Role of Space Weather Events on VHF scintillations and VLF Waves" funded by DST	16.8	DST 2006-2009
	GPS based TEC measurements and ionosopheric perturbations due to Earthquakes	14.5	DST 2008-2012
	Ionospheric/Magnetospheric Electromagnetic Phenomena using Ground based VLF Waves Observations	28.00	2006-2011 in collaboration with I.I.G. Mumbai and Stanford Univ., USA
	Coordinated Study of VLF Waves in India: "Remove Sensing of Ionosphere and Magnetosphere using ELF/VLF Waves at Low Latitudes" under CAWSES-INDIA PHASE-II, funded by	13.3	ISRO 2010-2013
Dr. B.K.Singh	Pre-operative Programme for Indian participation in the FAIR project at GSI (Darmstadt, Germany): Accelerator and detector related R & D and Prototyping	67.0	DST, New Delhi 2009- 2011
	Space Science Activities at Indian Universities	133.00	ISRO 2009-2014
	An experimental study of Quark-Gluon Plasma in PHENIX experiment at RHIC (BNL, USA)	47.00	DST, New Delhi 2008- 2011
	"Search for novel photocathode materials for VUV gaseous photon detectors" (P.I)	9.3	CSIR 2007- 2010
Dr. A.K.Ghosh	Multiferroic composites of perovskite magnetostrictive manganites and piezoelectrics: a particle size dependence study	26.89	DST 2009-2012
	Studies on Ferroic Materials	19.52	C.S.I.R.
	Effect of particle size on magnetoelectric properties of multiferroic composites	33.00	DAE-BRNS
Dr. H.P.Sharma	Structure of $h^{11/2}$ bands in ^{125,127}I	6.25	IUAC-UGC
Dr. Kedar Singh	Synthesis and characterization of mutli-component chalcogenide glasses	11.82	UGC 2008-2011
	Study of Structural relaxation of chalcogenide glasses.	7.15	CSIR 2006-2009
	Synthesis and Characterization of Carbon Nanotube Doped Chalcogenide Glassy Composites	15.00	CSIR 2011-2014
Dr. Vivek Singh	Design and study of optical waveguide biosensors of recent interest oriented to technological applications	7.62	DST 2008-2011
	Detection of Biogenic amines based on quartz crystal microbalance (QCM) and fibre optic chemical sensors (FOCS) for monitoring food safety against bacterial degradation.	14.12	DRDO 2008-2011
Dr. Venktesh Singh	Probing Quark-Gluon Plasma with Leptonic Observable with PHENIX Detector at RHIC	12.40	DAE 2009-2012
	Characterization of resistive plate chamber detectors	37.50	DST 2010-2013
	To study the ageing effects of Glass and Bakelite Resistive Plate Chamber Detectors	30.00	DST 2010- 2013
	Collaboration by Indian Physicist on Nutrino Projects	135.40	DST 2012-2015

Dr. Ajay Kumar	Multi-nucleon transfer effect on fusion cross-section around coulomb barrier	6.25	IUAC (UGC)
Dr. Sanjay Siwach	Young Scientist Project "Dynamics of QCD via Gauge-gravity duality"	17.00	DST 2010-2013
Dr. Neeraj Mehta	Investigation of Laser Induced Crystallization in Thin Films of Some Selenium Based Glassy Alloys	1.08	CSIR
	Synthesis and Thermal Characterization of Some Selenium-Tellurium based Glassy Alloys for Optical Memory Applications	1.26	BRNS
	Effect of Silver Incorporation on Electrical and Photoelectrical Properties of Some Se-Te and Se-Ge based Glassy Alloys	9.98	UGC
	Study of Laser-induced Effects on Dielectric relaxation in Some Multicomponent Chalcogenide	27.54	DST
	Total (~)	**3070.00**	

18. Inter-institutional collaborative projects and grants received

    a) All India collaboration : 05
    b) International : 03

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, etc.; total grants received.

Departments having special status	**Budget Received (Rs. In Crores)**
CAS-Phase IV	1.00
UGC Networking Programme	5.09 + 2.00 *(for constructing the Networking hostel)*
DST-FIST Level – I	2.08 (1.85+0.23)
DST-FIST Level – II	6.2

20. Research facility / centre with

- state recognition
- national recognition : Hydrogen
- international recognition : Nano

21. Special research laboratories sponsored by / created by industry or corporate bodies :

22. **Publications:**

* Number of papers published in peer reviewed journals (national / international) : **604** **(last five years)**
* Monographs : NIL
* Chapters in Books : 10
* Edited Books : 03

1. Synthesis and Characterization of Multifunctional Material, S.B.Rai and Y.Dwivedi, Nova Publisher, USA, 2011.
2. Ion Induced Nanostructures in Si and GaAs, O.P. Sinha and P.C. Srivastava, LAMBERT Academic Publication, 2010.
3. A. Srivastava, D. Sa and **S. Singh,** Physical Properties of Achiral Liquid Crystals- Phase transition and elastic properties, LAMBERT Academic Publication, 2011

* Books with ISBN with details of publishers:
* Number listed in International Database (For *e.g.* Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)

: **Web of Science**

* Citation Index – range / average : **5417**
* SNIP
* SJR
* Impact Factor – range / average : **2.03**
* h-index : **63**

23. Details of patents and income generated : **03**

24. Areas of consultancy and income generated : **NIL**

25. Faculty selected nationally/ internationally to visit other laboratories in India and abroad : **16**

26. Faculty serving in

a) National committees : 07

b) International committees : 02

c) Editorial Boards : 05

d) any other (please specify) :

27. Faculty recharging strategies :

28. Student projects

- percentage of students who have done in-house projects including inter-departmental projects :– **All M.Sc. (Final) Students have to carry out projects and submit dissertation.**
- percentage of students doing projects in collaboration with other universities / industry / institute :– **Some students go for summer project at different institutes laboratories**

29. Awards / recognitions received at the national and international level by

- **Faculty**

Faculty Members	Awards/ Recognitions received	
Prof. T.V. Ramakrishnan	F.R.S.	01
Prof. T.V. Ramakrishnan, Prof. O.N. Srivastava	S S Bhatnagar Prize	02
Prof. T.V. Ramakrishnan, Prof. Y. Singh	F.A.Sc. Bangalore	02
Prof. T.V. Ramakrishnan, Prof. O.N.Srivastava, Prof. Y. Singh	F.N.A., Delhi	03
Prof. O.N. Srivastava,	FNASc, Allahabad	05

Prof. Suresh Chandra, Prof. C.P.Singh, Prof. P.C. Mishra		
Prof. O.N. Srivastava	FICCI Award	01
Prof. Y.Singh Prof. J. Ram Prof. Shri Singh	Visiting Professor Abroad	03
Prof. P.C.Mishra Prof. D.K.Rai Prof. S.B.Rai, Prof. R.S.Tiwari, Prof. B.P.Asthana, Dr. Ranjan Kr. Singh,	Humboldt Fellows	06
Dr. A.K.Ghosh Dr. Kedar Singh	JSPS Fellows	03
Prof. Sanjay Kumar	INSA Young Scientist Medal	01
Dr. Kedar Singh, Dr. Anchal Srivastava Dr. T.P.Yadav	BOYSCAST Fellows	05
Prof. Suresh Chandra, Prof. S.B.Rai	Sectional President Indian Science Congress	02
Prof. C.P.Singh Prof. R.P.Malik	ICTP Regular Associate	02
Prof. O.N. Srivastava	H.J. Bhabha, Goel, MRSI and KS Rao Memorial Awards	01 (each)

- Doctoral / post doctoral fellows : 05
- Students :

30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any

Sr. No.	Faculty Members	Conference/Seminar/Workshops
1	**Prof. O.N Srivastava**	1. In MRSI Award Lecture at MRSI-AGM Conference at Sardar Patel University, 8-11 Feb. 2010 (Gujrat). 2. Invited Lecture on "Use of Nanomaterials in Hydrogen Energy & Climate Change, H.E. Conference on 30th Aug. 2010 at BHU. 3. Special Lecture in the Conference "Nano Science and Technology" SN Bose Institute (Kolkata), 13-15 March 2010.

2	**Prof. P.C. Mishra**	1. Ab-initio Quantum Theoretical Methods and Density Functional Theory: Application to Molecular Mechanisms of Cancer, Summer School on Theoretical Condensed State in Biological Systems, UGC Networking Program, Department of Physics, BHU, Varanasi, July 28, 2010. 2. Quantum Theoretical Study of Molecular Mechanisms of Cancer, Workshop on Physics of DNA, UGC Networking Program, Department of Physics, BHU, Varanasi, August 13, 2010. 3. Chaired a session in the International Conference and Humboldt-Kolleg on Interface Between Chemistry and Biology: A Perspective, Organized by the Indian Institute Of Chemical Technology, Hyderabad- 500 607 and Humboldt Academy, Hyderabad on Sept. 21-24, 2010. 4. Delivered two talks at the Winter School on Recent Trends in Physics of Atoms, Molecules and Lasers organized under the UGC Networking program, Dept. of Physics, BHU (9th and 10th January, 2011). 5. Chaired a session in the Asian Biophysics Association and Indian Biophysical Society Symposium held at India Habitat Centre, Lodi Road, New Delhi (Jan. 30-Feb. 2, 2011) on Jan. 30, 2011. 6. Delivered a talk on, "DNA Damage: A Quantum Theoretical Study of Mechanisms, Repair and Prevention", on April 14, 2011 during a National Conference on Computational Chemistry – Current Perspectives, held in the Department of Chemistry, Gorakhpur University. 7. Delivered a talk at the Winter School on Recent Trends in Nuclear and Particle Physics organized under the UGC Networking program, Dept. of Physics, BHU (12th March, 2011). 8. Delivered a talk at the Lectures/Hands-on Training in Life Sciences and Biotechnology, Organized by Bioinformatics/Physics Section, MMV, BHU, March 26, 2011.
3	**Professor P.C. Srivastava**	1. **Invited Speaker** at "International Conference of AUMS" (ICAUMS2010) held **at Jeju Island, Korea** during December 05-08, 2010 2. **Invited Speaker** at "National Conference on Spintronic Materials" (SMND-2011) held at Kongu Engineering College, Tamilnadu during March 03-04, 2011 3. **Speaker** at workshop on "Electronic and Ionic Materials & Devices" held at Department of Physics, BHU during March 26-28, 2011 4. **DST project presentation** in August 2010 at IIT Delhi, New Delhi
4	**Professor P.N. Gupta**	1. Effect of Lithium ion Irradiation on Nanocomposite Polymer Electrolyte G.K. Prajapati and **P.N. Gupta,** Presented at the 61st Annual Meeting of the International society of Electrochemistry during Sept 26-01st Oct'2010, *Nice*, **France.**
5	**Dr. Debanand Sa**	1. Workshop on physics of strong correlations, 12-14 Nov, 2010, HRI, Allahabad. 2. New trends in field theories, 07-12 Feb, 2011, Dept of Physiics, BHU, Varanasi.
6	**Dr. Rajendra Kr. Singh**	**Invited Talks:** 1. Fourth International Conference on Electroactive Polymers, held at Surajkund, Delhi, India Nov. 21-26, 2010 2. Eighteenth National Symposium on Ultrasonics, NSU-XVIII, VIT University, Vellore- 632 014, Tamil Nadu, India Dec. 21-23, 2009

		3. Charles Gherald Institute of Chemistry, **Montpellier, France** 2010 4. **TU Clausthal, Germany**, 2010 5. Institute of Exp. Physics II, **Leipzeig, Germany**, 2010 6. Institute of Theoretical Chem., **Leipzeig, Germany**, 7. Summer School on Condensed Matter, Organized by the Department of Physics, BHU, Aug. 2010
7	**Dr. Abhay Kr. Singh**	1. Seventh Annual Meeting of Asia Oceania Society (AOGS-2010) 5-9 July, 2010 at Hyderabad, Convener of session ST-14 and conducted a full session. 2. International Conference on Geophysical Sciences – Energy, Climate Change and Evolution of Human Society (ICON GSECCES-2010) and Diamond Jubilee Celebrations, Department of Geophysics, Banaras Hindu University, Varanasi, December 21-23, 2010. 3. Group Monitoring Workshop of Department of Science and Technology (DST) Funded Projects, Cochin University, Cochin, 11-12, Jan, 2011. 4. Winter School on Recent Trends in Physics of Atoms, Molecules and Lasers, 9-31 January, 2011, BHU, Varanasi. 5. Scientific and Technical Vocabulary Committee Meeting, 16-17, February, 2011, BHU, Varanasi. 6. Meeting of Ministry of Earth Sciences (MoES), New Delhi, 03 March, 2011.
8	**Dr. H.P. Sharma**	1. X-ray Fluorescence Spectroscopy (XRF) setup at BHU, National Workshop on Nuclear and Atomic Techniques Based Pure and Applied Sciences (NATPAS-2011), Tezpur University, Tezpur.
9	**Dr. Sanjay Siwach**	1. Indian Strings Meeting (International conference), 4-9th January, 2011, Puri. 2. Physics Olympiad Exposure Camp, 16-18th March, 2011, Homi Bhabha Centre for Science Education, Mumbai
10	**Dr. Bhabani Prasad Mandal**	1. Workshop in recent trends in particle and nuclear physics, "Pseudo-Hermitian Quantum mechanics: Recent developments", on March, 11, 2011, BHU-Varanasi 2. International conference in QFT-2011, "Finite Field Dependent BRST transformation and Gribov-Zwanziger theory", February 26, 2011, IISER-Pune. 3. Conference in memeory of S. D. Joglekar, "Finite BRS transformation: An overview", February, 18, 2011, IIT-Kanpur. 4. Internatioanl conference on Recent Trends in Field theory, "Finite Nilpotent Symmetry in Batalin-Vilkovisky formulation", February 9, 2011, BHU- Varanasi. 5. XIX DAE-BRNS-Symposium in High Energy Physics, "Equivalency between different method of calculating Positive Definite Metric", 13-18 December, 2008, LNMIIT-Jaipur. 6. XIX DAE-BRNS-Symposium in High Energy Physics, "Finite Nilpotent Symmetry in Field/anti-Field Formulation", 13-18 December, 2008, LNMIIT- Jaipur.

Funding to organize these events was received from DST, CSIR, MOES, DBT, BRNS, UPCST, ICMR, NAMS, ISRO etc.

31. Code of ethics for research followed by the departments : **Ethical guide lines are followed**

32. Student profile course-wise:

Name of the Course (refer to question no. 4)	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
P.G.	1686	69	22		
Ph.D.	18	13	05		
P.G. Diploma	11	7	2		

33. Diversity of students

Name of the Course (refer to question no. 4)	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
P.G.	38.46%	23.08%	31.87%	06.59%
Ph.D.	50.00%	33.33%	16.67%	-
P.G. Diploma	22.22%	33.33%	33.33%	11.11%

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

NET QUALIFIED :

Year		Number of Students*
2007	-	06
2008	-	08
2009	-	10
2010	-	10
2011	-	12
2012	-	12

(* many students qualify NET after one or more years of passing M.Sc. also. This number is not included in it.)

Number of GATE (more than 90% percentile) qualified Student in M Tech Program in the department. : More than 50 in the last five year

Some students qualified defense services examination. Most of the students prefer scientific career.

35. Student progression

Student progression	Percentage against enrolled
UG to PG	**20%**
PG to M.Phil.	**-**
PG to Ph.D. .	**10%**
Ph.D. to Post-Doctoral	**5%**
Employed • Campus selection • Other than campus recruitment	**5%**
Entrepreneurs	

36. Diversity of staff

Percentage of faculty who are graduates	
of the same university	**20%**
from other universities within the State	**30%**
from universities from other States	**50%**
from universities outside the country	**NIL**

37. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period : **None**

38. Present details of infrastructural facilities with regard to

a) Library : **Departmental Library**

b) Internet facilities for staff and students : **Yes**

c) Total number of class rooms : **7**

d) Class rooms with ICT facility : Audio facility is installed, Power Point Presentation can be used

e) Students' laboratories : **12**

f) Research laboratories : **20**

39. List of doctoral, post-doctoral students and Research Associates

a) from the host university : 04 [Dr. Mahe Talat, Dr. Abdul Karim Paracher, Dr. Vineet Gupta, Dr. Krishna Kr. Singh]

b) from other universities

40. Number of post graduate students getting financial assistance from the university. : **05**
(ISRO Fellow)

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

42. Does the department obtain feedback from

a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback? : **YES** (Feedback received a used in improving/modifying curriculum etc.)

b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback? : **NIL**

c. alumni and employers on the programmes offered and how does the department utilize the feedback? : **NIL**

43. List the distinguished alumni of the department (maximum 10)

- TVR (FRS)
- ARM
- G.S. Agrawal (FRS)
- C.R. Tata (Chief secretary Govt. of India)
- U.R. Rao
- D.Lal

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

- **We organize special lectures in IPA and TPSC every week by inviting people from the university or outside the University and workshop under Networking program.**

45. List the teaching methods adopted by the faculty for different programmes.

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

- **We monitor it by having feedback from our ex-students and other monitoring agencies.**

47. Highlight the participation of students and faculty in extension activities. : **NIL**

48. Give details of "beyond syllabus scholarly activities" of the department. : **Lecture & Seminar are Regular feature**

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. : **YES, Hydrogen Energy**

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

- **Under Networking Programme training is imported to students/faculty members from nearby states/regions in many areas of theoretical and experimental physics.**

51. **Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.**

Strength:

- Department's research activity spans over frontier areas of Physics, Condensed Matter, (Soft and Hard), Materials Science (including Nano Materials, Energy Storage Materials, Advanced functional Materials), Optical Properties of Materials, Space Physics, Nuclear and Particle Physics etc.
- Strong National & International Collaboration.
- Qualified experienced & Young energetic faculty members with specialization is diverse fields.
- Up-to-date and modern syllabi of UG & PG courses & research activity in frontier areas using good infrastructural facility.
- State of art equipments and computational facilities resulting quality publication.

Weakness:

- Large number of existing vacancies for faculty positions are hindering teaching/research to some extent.

Opportunities:

- To keep pace with innovative developments in teaching and research.
- To enhance multidisciplinary research.

Challenges:

- To strive hard for achieving excellence.

52. **Future plans of the department.**

- Department proposes to introduce some innovative methods in UG & PG teachings. It is proposed that some new experiments based on basic concepts will be introduced at U.G. level and laboratories will be renovated. At P.G. level some fund has been sanctioned under DST-FIST Level II sanctioned to the Department for setting up some state of art experiments. Utilizing this fund these experiments will be set-up.

- DST-FIST Level II has been sanctioned to the Department in which Rs. 5.1 Crore has been sanctioned for procuring state of art equipments for central facility. After installation of these equipments, research activity in the Department will boost further quality publications are expected. Research in new & frontier areas will also boost up.

Head of the Department