Professor Salil Kumar Biswas
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Academic qualifications :
K. N. College, Baharampur, Murshidabad, WB, India B.Sc. (Hons in Physics)
University of Calcutta, Physics Department. M.Sc. (Physics)
University of Calcutta, Radio Physics & Electronics Dept. Ph. D. (Tech.)

Positions held/ holding:
(i) Lecturer, Department of Physics, C.U. 06.02.1989 to 16.12.1994
(ii) Sr. Lecturer, (-do-) 17.12.1994 to 23.12.1997
(iii) Reader, (-do-) 24.12.1997 to 23.12.2005
(iv) Professor (-do-) 24.12.2005 to 'continuing'.

Research interests:
(i) Microwave measurement and characterization of dielectric materials.
(ii) Studies on electronic properties of compound semiconductors and dielectric materials.

Research guidance:
Number of researchers awarded M.Phil/ Ph.D degrees: 04.
Number of researchers pursuing M.Phil/ Ph.D: 02.

Projects :
Completed projects : Impact of High-K Gate Dielectrics on III-V Semiconductors for future nano MOSFET Applications.- supported by CRNN, C.U. (seed money- 2 Lacs only) 2011- 2013.

Select list of publications:
Journals:
i) "Thermo Power, Large Magnetic Field, Quantized Structure and All That.", S. K. Biswas, M. Mitra and K. P. Ghatak, Journal of Nanoengineering and Nanomanufacturing, Vol. 6 pp 1-23, May 2016.
ii) "A Novel Technique to Measure Small Dielectric Losses Using Cylindrical Cavity Resonator at X Band"; S. Mondal, S. K. Biswas, Journal of Microwave Power and Electromagnetic Energy, 49 (4), 2015, pp. 207-214.
iii) "Broadening of Tunable Range of Resonant Frequency of Cylindrical Cavity Resonator of a Particular Mode Avoiding Mode Overlapping"; P. Banerjee, S. Mondal, S. K. Biswas, American Research Journal of Physics, Volume 1, Issue1, Feb-2015, pp 1-8.
iv) "Amendment of cavity perturbation method for measuring dielectric properties of medium loss samples at microwave frequencies". Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, Journal of Optoelectronics and Advanced Materials Vol - 6, No. 5-6, pp 623 - 626, May- June 2012.
v) "Investigations on optical transitions in InAs / InP quantum dash structures".- S. Kabi, A. Biswas, D. Biswas and S. K. Biswas,Appl. Nanoscience (doi. 10.1007/s13204-012-0105-9) April,2012
vi) "A simple method to determine the dielectric constant of small sized medium loss samples at X-band frequencies". - Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, International Journal of

Electromagnetics and Applications, USA, Vol.- 1, Issue- 1, pp 12- 15, Nov 2011.
vii) "Dielectric properties of EVA rubber composites at microwave frequencies - theory, instrumentation and measurement".- Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, Journal of Microwave Power and Electromagnetic Energy (JMPEE), Vol- 45, Issue- 1, pp 24-29, 2011.
viii) "Measurement of dielectric properties of medium loss samples at X-band frequencies". - Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, Journal of Optoelectronics and Advanced Materials, Vol - 12, No. 6, pp 1367 - 71, June, 2010.
ix) "Influence of external light waves on the thermoelectric power under strong magnetic field in ultra thin films, quantum wires and quantum dots of optoelectronic materials".- S. Bhattacharya, D. De, S. Ghosh, P. Banerjee, M. Mitra, S.K. Biswas and K.P. Ghatak, Journal Computational and Theoretical Nanoscience, American Scientific Publisher (ASP) Vol-7, No.-6, pp 1066-84, 2010.
x) "Influence of quantum confinement on the photoemission from superlattices of optoelectronic materials".- D. De, A. Kumar, S.M. Adhikari, S. Pahari, N. Islam, S. K. Biswas, S. Bhattacharya and K. P. Ghatak, Journal of Superlattices and Microstructures, Elsevier, Vol-47, Issue-3, pp 377-410, 2010
xi) "Measurement of dielectric properties of medium loss samples at X-band frequencies". - Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, Journal of Metallurgy and Materials Science, Vol-52, Issue-3, pp 247-255, 2010.
xii) "Einstein relation in carbon nanotubes and quantum wires of nonlinear optical, optoelectronic and related materials; simplified theory, relative comparision and suggestion for an experimental determination".- S. Choudhury, D. De, S. Mukherjee, A. Neogy, A. Sinha, M. Pal, S. K. Biswas, S. Pahari, S. Bhattacharya and K. P. Ghatak, Journal of Computational and Theoretical Nanoscience, U.S.A.Vol-5, pp 375-400, 2008.
xiii) "A simple technique for the measurement of the permittivity of medium loss samples using cavity perturbation method".- Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, IEEE Applied Electromagnetic Conference (AEMC), December 19 - 20, 2007.
xiv) "The carrier contribution to the elastic constants in cylindrical quantum dot of optoelectronic materials in the presence of crossed electric and magnetic fields: simplified theory and a suggestion for experimental determination",- S. Bhattacharya, S. Chowdhury, S. Ghosal, S.K. Biswas, D. De and K.P. Ghatak, Journal Computational and Theoretical Nanoscience, Vol-3, No.-3, pp 423-430, 2006.
xv) "Simple theoretical analysis of the thermoelectric power in quantum dot superlattices of nonparabolic heavily doped semiconductors with graded interfaces under strong magnetic field".- S.K. Biswas, A.R. Ghatak, S. Bhattacharya and K.P. Ghatak, Physica- E, doi: 10.1016/j.physe.2006.10.005.
xvi) "The carrier contribution to the elastic constants in quantum wire superlattices of compound semiconductors with graded structures: simplified theory and suggestion for experimental determination", K.P. Ghatak, S. Karmakar, D. De, S. Pahari, S.K. Chakraborty, S.K. Biswas and S. Chowdhury,Journal of Computational and Theoretical Nanoscience, Vol-3, No.-1, pp 153-165, 2006.
xvii) "On the Einstein relation in non-linear optical, optoelectronic and the related materials: simplified theory and a suggestion for experimental determination: Part-I", K.P. Ghatak, D.K. Basu, S. Bhattacharya, S. Ghosal, S.K. Biswas, A. Mallik and G. Majumdar, Non-Linear Optics, Quantum Optics, Vol-33, pp 221- 262, 2005.
xviii) "Electronic contribution to the elastic constants in strained layer quantum dot superlattices of non-parabolic semiconductors with graded interfaces", L.J. Singh, S. Chowdhury, S.K. Biswas, S. Pahari and K. P. Ghatak, Journal of Computational and Theoretical Nanoscience, V 2, pp 1-12, 2005.
xix) "The Einstein relation in quantum wells and wires of heavily doped optical and optoelectronic

materials: simplified theory and suggestion for experimental determination.", K.P. Ghatak, P.K. Bose , A.R. Ghatak, D. De, S. Pahari, S.K. Chakraborty and S.K. Biswas." Journal of Computational and Theoretical Nanoscience, V 2, pp 423-437, 2005.

xx) " Simple theoretical analysis of the thermoelectric power under strong magnetic quantization in superlattices of nonparabolic semiconductors with graded interfaces", L.J. Singh, S. Choudhury, D. Baruah, S.K. Biswas, S. Pahari and K.P. Ghatak, Physica B: Condensed Matter, Vol-368, Issue-1/4, 1 November 2005, pp 188-203.

xxi) "On the Einstein relation in non-linear optical, optoelectronic and the related materials: simplified theory and a suggestion for experimental determination: Part-II", K.P. Ghatak, D.K. Basu, D. De, S.K. Biswas and S. Chowdhury, Journal of Non-Linear Optics, V 46, P 203, 2004.

xxii) "The carrier contribution to the elastic constants in superlattices of non-parabolic semiconductors with graded interfaces under magnetic quantization: Simplified theory and suggestion for experimental determination", K.P. Ghatak, S.K. Biswas, D. De, S. Ghosal, S. Chatterjee, Physica B, Vol-353, pp 127-149, 2004.

xxiii) "On the modification of the Fermi-Dirac distribution function in degenerate semiconductors", P.K. Chakraborty, S.K. Biswas and K.P. Ghatak, Physica B, Vol-352, pp 111-117, 2004.

xxiv) "On the effective electron mass in non-parabolic materials under different physical conditions", K.P. Ghatak, A. Mallik, S.K. Biswas and S. Bhattacharya, Nouvo Cimento, V 42, P 510, 2000.

xxv) "Cavity stabilized Gunn oscillator at 35 GHz", B.R. Nag, P.K. Saha, G. Ghosh and S.K. Biswas, Microwave and optical technology letters, Vol-7, No-5, pp236-9, April-1994.

Other publications: International & National Conference Papers:

i) "Measurement of dielectric properties of granular or powdered materials using microwave technique at X-band"; S. Mondal, S. K. Biswas, Condensed matter days 2014 (CMDAYS14), Aug 27-29, 2014, Kolkata, India.

ii) "A simple method to avoid interference of unwanted mode during tuning of a cavity resonator"; S. Mondal, S. K. Biswas, 5th International conference on computer and devices for communication (CODEC); Dec 17-19, 2012, Kolkata, India.

iii) "Investigations on optical transitions in InAs / InP quantum dash structures".- S. Kabi, A. Biswas, D. Biswas and S. K. Biswas, International Conference on Nanophotonics and Nanoelectronics (ICANN-2011), C-1225, IIT Guwahati, December 08-10, 2011.

iv) "A system to measure dielectric constant and loss of liquids at microwave frequencies".- Prasun Banerjee, Goutam Ghosh and Salil K. Biswas, IEEE Applied Electromagnetic Conference, (AEMC) / EMM-8, December 14 - 16, 2009.

v) "Dielectric properties of polymer biomaterials - instrumentation, processing and measurements".- P.Banerjee, G. Ghosh and S. K. Biswas, CMDAYS 09, Jadavpur, Kolkata, India. http://www.iopb.res.in/~cmdays/2009/talk_list_09.html

vi) "Measurement of dielectric loss of p-type silicon at X-Band frequency".- P. Banerjee, G. Ghosh and S. K. Biswas, International Symposium on Microwave and Millimeter wave (ISOMM), January 14 - 16, 2009, Kolkata, India.

vii) "measurement of dielectric constant of medium loss cylindrical-shsped samples using cavity perturbation method" . - P. Banerjee, G. Ghosh and S. K. Biswas, Recent advances in microwave theory and application (Microwave - 08), November 21-24, Jaipur, India.

viii) " On a simple experimental technique for the microwave measurement of complex dielectric constant of some carbon filled polymer blends", S.K. Biswas, A. Mallik, S. Chatterjee and P.

Chatterjee,International Conference on Electronic and Photonic Materials, Devices and Systems (EPMDS -2006), January 4 - 6, 2006.
ix) "The Einstein relation in quantum wires of heavily doped nonlinear optical and optoelectronic materials: Simplified theory and suggestion for experimental determination", S.N. Banerjee, D. De, S.K. Biswas, A. Mallik, and K.P. Ghatak, Proceedings of the International Conference on Nanomaterials, NANO 2005, July 13-15, P 739.
x) "The simple theoretical analysis of the electronic contribution to the elastic constants in strained layer quantum dot superlattices of non-parabolic semiconductors with graded interfaces under large magnetic field", S.N. Banerjee, D. De, S.K. Biswas, A. Mallik, and K.P. Ghatak, Proceedings of the International Conference of Nanomaterials, NANO 2005, July 13-15, P 755.
xi) "Simple analysis of the photoemission from quantum wells, wires and dots of non-linear optical materials", K.P. Ghatak, S.N. Banerjee, D. De, S.K. Biswas and A. Mallik, XXVIII th General assembly of International Union of Radio Science (URSI), COM 4, P-0437, 2005.
xii) "The Einstein reletion in quantum wires of heavily doped non-linear optical and optoelectronic materials: Simplified theory and suggestion for experimental determination", S.N. Banerjee, D. De, S.K. Biswas, A. Mallik, and K.P. Ghatak, XXVIII th General assembly of International Union of Radio Science (URSI), COM 4, P-0455, 2005.
xiii) "Low temperature dependence of D.C. electrical conductivity of EPDM-EVA composites", S.K. Biswas and A. Mallik, International conference on computers and devices for communication, CODEC-04, January 1-3, 2004.
xiv) "D.C. Electrical conductivity of some carbon filled polymers", S.K. Biswas and A. Mallik, Conference on Horizons of telecommunication, (Paper Id. BOQS1.B2), P-70, HOT-2003.
xv) "A model for the explanation of Temperature dependence of d.c. electrical conductivity of carbon filled polymers", S.K. Biswas and S. Sen, Conference on Horizons of telecommunication, (Paper Id. SPEC1.B4),P-108, HOT-2003.
xvi) "Complex electrical conductivity of Carbon-filled polymer composites in X-band",G. Ghosh, S.K. Biswas, A. Chakraborty, P.K. Saha and P. Ghosh, International Conference on Computers and Devices for Communication, (Paper No. 1/E/3-CODEC-1998), January 13-17,1998.
xvii) "Eight diode power combiner",B.R. Nag, P.K. Saha, G. Ghosh, S.K. De, K. Bhattacharya and S.K. Biswas, J.N.Bhar International Symposium on Radio Physics and Electronics. (Paper No.- RPE-1/3E) P-119, November 1987.
xviii) " Ku-Band IMPATT Oscillator" B.R. Nag, P.K. Saha, G. Ghosh, S.K. De and S.K. Biswas S.K.Mitra Commemoration International Conference on Radio Science. (Paper No. SCICRS-4E/4) P-79, December 1986.

Other notable activities:

P.G. Level

Takes a major portion of the course content namely.-Electrical Laboratory (90) in M.Sc. Semester-I, Solid State Physics (22) Electrical Laboratory (90) Semester-III, Microwave (27), Solid State Electronics (10) Electronics Advance Laboratory (90) in Semester-IV syllabus.
Class tests , mock tests and internal viva voce are taken through out the year.
Actively involved in the examination system and coordinates all the papers concerned.
Laboratory experiments are developed and modified regularly, syllabi are also updated and revised in due course.

U.G. Level

Actively involved in the B.Sc. (Honours & General in Physics) examination system as question setter, examiner, moderator and head examiner.

Took part in preparation of model question in Physics for both Honours and General courses.

Engaged in the syllabus revision process and incorporated new experiments theoretical components in the U.G. courses.

Extends cooperation and help to U.G. teachers and conducted a 1-week preparatory course " Workshop on Microprocessor for College Teachers" in December 2005.

3. SERVICE TO ACADEMIC STAFF COLLEGE, C.U.

As Course Coordinator of Refresher Courses in Physics.

1. 7th Refresher Course in Physics March 08 - March 30, 2000
2. 10th Refresher Course in Physics November 26 - December 17, 2002
3. 11th Refresher Course in Physics January 01 - January 21, 2004
4. 13th Refresher Course in Physics July 08 - July 28, 2005
5. 21st Refresher Course in Physics June 18 - July 09, 2013

b) As Course Coordinator of Orientation Programs

1. 40th Orientation Program December 21, 2000 - January 19, 2001
2. 44th Orientation Program May 22 - June 19, 2001
3. 50th Orientation Program February 25 - March 23, 2002
4. 65th Orientation Program February 10 - March 09, 2006
5. 73rd Orientation Program March 03 - March 31, 2008

As Course Coordinator of Workshops

1. Workshop on Microprocessor for College Teachers December 26 - December 31, 2005

Acted as a member of the Academic Advisory Committee of Academic Staff College, Calcutta University.

SERVICE TO THE OFFICE OF THE INSPECTOR OF COLLEGE, C.U.

As member of the Inspection team for the increase of intake in U.G. Physics Courses and opening of new Courses related to Physics, visited a large number of Colleges (approximately 25 colleges during 2001-2011)

As member of the selection committee for the promotion of the Graduate Laboratory Instructors.

As member of the selection committee for the promotion of Lecturers and Senior Lecturers to their next higher scale.

As member of the selection committee for the appointment of part time and full time (contractual) teachers in different Colleges.

As member of the Sub-committee for the Board of Discipline, Calcutta University from 2006- 2011.

OTHER ACADEMIC ACTIVITIES.

Acted as a member of the Expert committee for the opening of Post Graduate Physics course in Under Graduate Colleges.
As member of selection committee for the appointment of Lecturers in different Private Engineering Colleges.
As external expert for Ph.D. viva-voce examination in J. U., K.U., V.U. and N.B.U.
As examiner and paper setter in Vidyasagar University, Tripura University, Jadavpur University, Mizoram University.
Associated with the School Service Commission from its inception and acts as Question Setter and subject expert in Physics.
Acted as Paper Setter and Moderator for the Joint Entrance Examination, West Bengal.
Acted as Paper Setter, Moderator and Coordinator/ Head Examiner for the Joint Entrance Examination, Tripura.
Acted as an Observer in the "State Level Eligibility Test" examination.
Associated with the UGC-NET, CSIR, USC (Bangalore) etc. examinations.
Associated with the Staff Selection Commission, Eastern Region as observer / expert.

ADMINISTRATIVE DUTIES

a) UG BOARD IN PHYSICS
Served as member of UG Board in Physics 2002-08.
Acting as the Chairman, UG Board in Physics from 2008 till date.
b) PH.D. COMMITTEE IN PHYSICS (EXPERIMENTAL)
Served as a member of the Ph.D. Committee in Physics (Experimental) 2005-2008
Acting as the Convener of the Ph.D. Committee in Physics (Experimental) from March 2008 till date.

OTHER IMPORTANT ACTIVITIES

As treasurer of the Calcutta University Physics Alumni Association from 2003-05
As secretary of the Calcutta University Physics Alumni Association from 2005-09
As secretary of the Physics Department Staff Cooperative Society of the Department of Physics, Calcutta University from 2008 till date.
As member of the SC/ST/OBC cell, Calcutta University from 1998 to 2011
As the Deputy Coordinator of the UGC sponsored Coaching facilities for SC, ST, OBC & Minoritiy students from 2007 to 2011.