



Brief PROFILE of Prof Ravindra Kumar Sinha

Prof. R. K. Sinha received M. Sc. degree in Physics from the Indian Institute of Technology (IIT), Kharagpur, India, in 1984, and Ph.D. degree in the area of Fiber Optics and Optical Communication Technology from the IIT, Delhi, India, in 1990. He had held various research and academic positions at **Indian Institute of Science (IISc)**, Bangalore during 1991, Birla Institute of Technology and Science (BITS) Pilani during 1992-1994, REC (now NIT) Hamirpur during 1994-1998 and at Delhi College of Engineering-DCE (now Delhi Technological University-DTU), University of Delhi during December 1998 to till date. He is currently working as Professor of Applied Physics and Chief Coordinator of TIFAC-Center of Relevance and Excellence in Fiber Optics and Optical Communications (Mission REACH Program of Technology Vision 2020, Govt. of India) at Delhi Technological University Delhi since October 2002.

Prof Sinha has served as (i)**Director** of CSIR-Central Scientific Instruments Organization (CSIO) Chandigarh during July 02, 2015 to February 29, 2020 (ii) **Director** (Additional Charge) of **CSIR-CEERI Pilani** during November 2015-March 2016 and (iii) **Director** (Additional Charge) **CSIR-IMTECH Chandigarh** during the year 2016-2017. He has also served as (i) **Dean** (Academic-UG) during January 2015-June 2015 (ii) **Dean** (Industrial Research and Development) during 2008-2010, (iii) **Head**, Applied Physics Department during March 2009 to July 2012 and (iv) **Chief Warden** during 2003-2006 at DCE/DTU Delhi. Prof. Sinha has also served as **Honorary Outstanding Professor** in Engineering Sciences of Academy of Scientific and Innovative Research (**AcSIR**), CSIR, Govt. of India.

He is the author / co-author of over **350 research publications** in the leading national and international journals (**157**) and conference proceedings (**193**), **06 Book chapters**, **02 Books** and filed **05 patents**. He has supervised **17 Ph.D. thesis** and **22 R&D projects** sponsored from Government and Private Organizations.

Prof. Sinha is a **Fulbright Scholar** – recipient of Fulbright-Nehru Fellowship to acquire firsthand knowledge of Higher Education Systems and Practices of USA covering over a dozen US universities and higher educational institution as an **International Educational Administrator** in 2013. He was **Keynote Speaker** in International Conference –**NOPT in Singapore** in February 2010. He has also been awarded (i) **National Science Council Taiwan Fellowship-2009** to pursue research in the area of Nano photonic Devices (ii) **Indo Swiss Bilateral Research fellowship-2009** to initiate collaborative research in the area of Nano photonic Devices with **EPFL Switzerland** and **DTU, Delhi, India** (iii) **Royal Academy of Engineering (U.K) Fellowship-2008** to carry out research on Photonic Crystal Waveguides and Devices at Glasgow University, UK (iv) the **Japan Society for Promotion of Science (JSPS) Invited Fellowship- 2007** to carryout research work on Multicore Photonic Crystal Fibers at **Hokkaido University, Sapporo, Japan** (v) Prof. Sinha is awarded **UKIERI fellowship** from **British Council of India** to initiate collaborative research between leading university of UK and his organization in the year 2006

(vi) He was academic visitor of **Stanford University** in 2002 and academic visitor of **MIT, Harvard and Boston University** in 2005 (vii) **ICTP-Visiting Scientist fellowship-1991** at ICTP Trieste, Italy, **IROST Fellowship 1992** and **Visiting Scientist position** at University of Campinas in Brazil in 1995 (viii) a recipient of **Japanese Govt. Scholarship in 1989-1991** to work at Osaka and Kobe University in Japan.

He is a **Fellow** of SPIE- The International Society of Optical Engineering, **Fellow** of the IETE (India), and a **Fellow** of Optical Society of India, a **member** of the Optical Society (OSA, USA), a member of IEEE and a Member of The Photonics Society, IEEE. Professor Sinha is also Faculty Adviser of SPIE-DCE Chapter and OSA-DCE Chapter at DTU, Delhi. In addition, Professor Sinha has been actively involved in supervising several **innovative projects** on the design and development of unmanned and autonomous vehicles and in the establishment of **Knowledge and Innovation Park** with focus on student led innovation and product development. In the recent past, he has successfully mentored technology development and technology transfer of **38 technologies for Commercialisation** to industries and over **25 MoUs** during his stint as Director, CSIR-CSIO Chandigarh.

Prof. R. K. Sinha has been awarded (i) Gold Skoch Award 2020 for defense technology (ii) CSIR-Technology Award 2018 (iii) Institution of Electronics and Telecommunication Engineers (**IETE**) **Biman-Behari Sen memorial award** for outstanding research in the area of **Telecom Grade Optical Fibers and Optoelectronic Devices Optics in 2012** (iv) **Emerging Optoelectronics Technology Award [(CEOT-IETE, India)]-2006** for outstanding research work in the area of **Nano-photonics**, (v) **S. K. Mitra Memorial Award for in Best Research Paper in IETE Technical Review 2002 on Nanostructure Electron Waveguides and Devices** and (vi) his coauthored research papers have won several Best Research Paper Awards for his students which includes **Swarna Jayanti Puraskar** (Gold Medal) from the National Academy of Science in the area of Nano-scale Optical Devices for the year 2001, **Reliance Technology Awards 2010**, **SPIE 2014** and **OSI 2014** best research presentation award.

Detailed Academic and Research Profile (CV)

of

Prof. Ravindra Kumar Sinha
Professor of Applied Physics,
&

**Chief Coordinator: TIFAC-Center Of Relevance & Excellence (CORE) in Fiber Optics
& Optical Communications (Mission REACH, Technology Vision 2020, Govt. of India)**

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Profile of Prof. Ravindra Kumar Sinha, Director, CSIR – CSIO Chandigarh

1. Name: **Ravindra Kumar Sinha**
2. Date of Birth: February 15, 1960
3. Present Address: (a) **Official:** Professor of Applied Physics
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Mobile: 8847570624 & 9953051499
- (b) **Residence:** B-304, Type-V
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Delhi-110078

4. Position(s)/responsibility held:

- **Present Position:** Professor of Applied Physics, Department of Applied Physics, Delhi Technological University, Delhi since October 18, 2002 & **Chief Coordinator**-TIFAC-Center of Relevance and Excellence in Fiber Optics and Optical Communication at DCE/DTU, Mission REACH, Technology Vision 2020, Govt. of India.
- **Positons/Responsibility held in recent past:**
- **Director, CSIR-** Central Scientific Instruments Organisation(**CSIO**), Sector 30C, Chandigarh during Julu 01, 2015 to February 29, 2020, maintaining lien from the post of Professor of Applied Physics, Delhi Technological University, Delhi.
- **Director, CSIR**-Central Electronics Engineering Research Institute (CEERI), Pilani during November 06, 2015 to March 09, 2016
- **Outstanding Professor**-Engineering Sciences: AcSIR, CSIR, Govt. of India
- **Director (Additional Charge), CSIR**-Institute of Microbial Technology (**IMTECH**), Chandigarh during April 11, 2016 to January 22, 2017
- **Chairman:** Institution of Electronics and Telecommunication Engineers (IETE), Chandigarh Region, Chandigarh (now Immediate Past Chaiman 2018-2020)
- **Member:** Board of Governors, Punjab Engineering College (Deemed to be University), Chandigarh
- **Member:** Advisory Board of Council of Scientific and Industrial Research(CSIR)

- **Member:** Research Council, DRDO-LASTECH, Delhi
- **Member:** Research Council, DRDO-TBRL, Chandigarh
- **Member:** Research Council, CSIR- Central Electronics Engineering Research Institute (CEERI), Pilani
- **Member:** Executive Board, High Power Fiber Laser Research Program of LASTECH/DRDO
- **Chairman:** Review Meetings of R&D on High Power Fiber Laser, LASTECH since 2015 onwards
- **Member:** Research Council (as DG-CSIR Nominee), CSIR-National Institute of Science, Technology and Development Studies, New Delhi
- **Member:** Research Council, CSIR-National Institute of Science Communication and Information Resources, New Delhi
- **Member:** Board of Governors, MRS Punjab Technical University, Bathinda
- **Member:** Board of Governors, Punjab State Council for Science and Technology, Chandigarh
- **Member:** Board of Governors, Pushpa Gujral Science City, Jalandhar
- **Member:** State Higher Educational Council, Union Territory Chandigarh
- **Member:** Skill Development Initiative, CSIR, Govt. of India
- **Member:** Skill Development Program and Indian Industry Conclave committee of IETE (India)
- **Member:** Technology Systems Development Board, Department of Science and Technology, Govt. of India with effect from December 2016 for a period of three years.
- **Member:** Publication Committee of IETE Journal of Research and IETE Technical Review Journal, IETE (India) Delhi since 2016
- **Member:** Governing Council, Center for Consultancy in Engineering, Punjab Engineering College (Deemed to be University), Chandigarh
- **Member:** CII National Committee on Higher Education
- **Chief Coordinator:** TePP (Technopreneur Promotion Program) Outreach cum Cluster Innovation Center at CSIO Chandigarh, DSIR, Govt. of India
- **Member:** Management Council, CSIR-National Physical Laboratory (NPL), Delhi
- **Member:** Management Council, CSIR-Central Electro-Chemical Research Institute (CECRI), Karaikudi, Tamilnadu (2015-2017)
- **Member:** Management Council of CSIR-Central Glass and Ceramic Research Institute (CGCRI), Kolkata (2015-2017)

- **Member:** Management Council, CSIR - Institute of Microbial Technology (IMTech), Chandigarh (2015-2017)
- **Member:** Management Council, CSIR - Central Electronics Engineering Research Institute (CEERI), Pilani, Rajasthan
- **Member:** Board of Studies, School of Basic and Applied Sciences, GGS Indraprastha University, Delhi
- **Member:** Steering Committee, Scientific Research Infrastructure and Maintenance Network (SRIMAN), Department of Science and Technology, Govt. of India (2018-2019)
- **Chairman:** Dispute Resolution Committee, Institute of Nan Science and Technology, Mohali for its campus construction
- **Principal Investigator/Co PI:**
 - i. BRICS project: “All Dielectric and Hybrid Nano-Antennas for multifunctional Sensors” (ITMO University, Russia, College of Optical Science and Engineering, Zhejiang University, China and CSIR-CSIO, Chandigarh, India) through DST, Govt. of India, for the year 2017-2020
 - ii. Indo-Russia under DST-RMES program during 2015-2018 on Optical Nano Antenna
 - iii. “Solid tumor targeting using homing peptides and plasmonic photothermal technique” sponsored by Department of Biotechnology, Ministry of Science and Technology, Govt. of India, for the period 2018-2021 as Co-PI
- **Chairman:** Organization of Training Program on Management of Scientific Research for Value Creation, CSIR, Delhi, India
- **Expert Member:** Formation of National System on Safety Regulatory Authority/Board, DRDO, Govt. of India
- **Expert Member:** Faculty of Science, University of Kurukshetra University, Kurukshetra
- **Member:** Governing Council of National Research and Technology Consortium, Parwanoo, Govt. Of H.P.
- **Member:** Scientific Research and Infrastructure Maintenance and Network (SRIMAN), DST, Govt. Of India
- **Chairman:** Grievnace Redressel Committee, Institute of Nanoscience and Technology (INST) and Agency for construction of its main campus in Mohali.

5. Qualification:

- Ph.D. (**Fiber Optics & Optical Communication**) **Indian Institute of Technology (IIT)** Delhi: 1989-90. Topic: “A Study of the Propagation Characteristics of Rectangular Core Optical Waveguides and Devices”. Thesis

supervisor: Professor B.P. Pal and Professor Arun Kumar, Fiber Optics Group headed by Professor A. K. Ghatak during the period 1984-1989

- M.Sc. (**Physics**) with electives in Advanced Electronics, X-ray and Crystallography, Electromagnetic Theory and Quantum Electronics etc., **Indian Institute of Technology (IIT)** Kharagpur-1984 (equivalent to First Division)
- B.Sc. (Hon) in **Physics** from Ranchi University-1982 (First Division)
- I.Sc. from Ranchi University –1978 (First Division)
- Secondary School Examination from Bihar School of Examination Board, Patna-1976 (First Division)

6. Experience - (Academic & Research Position held):

- **Director, CSIR-Central Scientific Instruments Organisation (CSIO)**, Chandigarh since July 02, 2015 to February 29, 2020
- **Director, CSIR-Institute of Microbial Technology (IMTECH)**, Chandigarh from April 11, 2016 to January 22, 2017 (additional charge)
- **Director, CSIR-Central Electronics Engineering Research Institute (CEERI)**, Pilani from November 06, 2015 to March 08, 2016 (additional charge)
- **Professor** of Applied Physics at Delhi College of Engineering (Faculty of Technology, University of Delhi), now Delhi Technological University-DTU since October 18, 2002
- **Head of Department** of Applied Physics Department at Delhi Technological University, from March 2009 to July 2012
- **Dean (Industrial Research & Development) at DCE/DTU** since August 07, 2008 to August 31, 2010
- **Dean (Academic-UG)** from January 01, 2015 to July 01, 2015
- **Chief Coordinator:** TIFAC-Centre of Relevance & Excellence (CORE) in Fiber Optics & Optical Communication at Delhi College of Engineering” under the program “Mission Reach”, Technology Vision 2020, **T**echnology **I**nformation **F**orecasting and **A**ssessment **C**ouncil, Department of Science & Technology, Govt. of India (www.tifaccore.dce.edu) since its inception in year 2004 to July 01, 2015
- **Assistant Professor** at Delhi College of Engineering-DCE (Faculty of Technology, University of Delhi) from December 31, 1998 to October 17, 2002
- **Assistant Professor** at Regional Engineering College, now known as National Institute of Technology (NIT) at Hamirpur (H.P.), India, from October 17, 1994 to December 30, 1998
- **Lecturer**, Birla Institute of Technology and Science (**BITS**) Pilani during January 1992-September 1994

- **Research Associate**, Electrical Communication Engineering Department, Indian Institute of Science (IISc), Bangalore during April 1991- January 1992
- **Japanese Govt. Scholar** (as Post Doctoral Research student) at Electronics Engineering Department, Kobe University, **Japan** during October 1989- March 1991
- **JRF and SRF** (CSIR, Govt. of India) Indian Institute of Technology (IIT), Delhi during August 1984-September 1989

7. Research Work/Experience:

(a) Present Research Activities from 1999 onwards

- Fabrication and characterization of metamaterials and structures with tunable negative and zero refractive index. Development of Theory and Experiments on Characterization of Photonic Crystal Fibers. Estimation of Spectral response of Splice Loss and Bend Loss in Photonic Crystal Fibers (PCF). Analysis and simulation of propagation characteristics of PCF and Photonic Crystal Waveguides. Development of experimental techniques to characterize PCF from far field measurements. Slow light in PCF and its application, Design of Large Mode PCF and PCF for broad band super continuum generation -**Specialty Optical Fiber**
- Numerical Simulation and Analysis for estimation of Photonic Band gap in Photonic Crystal (PhC) and their application in realizing functional devices like ultra-compact photonic crystal couplers, polarizer, multiplexures and switches, Optical Logic Gates, Slow Light generation & formation of Solitons at low power, Negative refraction in Photonic Crystal, Photonic Bandgap structures for design and development of ultra small scale optical devices, Nonlinear Photonic Crystal waveguides, Design and Analysis of PhC based Optical Logic Gates- **Nano-Photonics**
- Development of new concept “Plasmonic Band Gap Engineering” and its application in design of Plasmonic Waveguides and Devices, Plasmonic Sensors, Terra Hertz Propagation in Plasmonic Structure and Fano Resonance, Design of Plasmonic sensor for classification of cancer cells, Theory and Experiments on Photo thermal effects -**Plasmonics**
- Optical fiber biosensor based on single mode-tapered multimode-single mode (SMS) structure for label-free bacteria detection has been developed. Design and develop the molybdenum disulfide (MoS₂) assisted biofunctionalized optical fiber-based surface plasmon resonance (SPR) sensor for *Escherichia coli* and *Salmonella typhimurium* detection. Fiber grating biosensors based on cascaded chirped Long period grating with inter grating space designed and experimentally demonstrated for the detection of bacteria- **Bio-Photonics**
- Development of coupled mode theory for Electron Waveguide and their application in the design of high speed **Quantum Size Devices** (Electron Waveguide **Couplers, Switches and Filters**) based on electron wave

propagation in multiple quantum well semiconductors at Nano-scale, Field Emission characteristics of Carbon Nano Tube - **Nano electronics**

- Multiple Access techniques in Optical Fiber Communication systems- Development of 3-D Optical Code sequences. Optical CDMA and Optical Turbo Codes and their performance evaluation in terms of SNR, BER and ISI in multiple Communication system- **Optical Fiber Communication Systems & Networks**
- Design and Development of Optical Sensors for measurement of high DC voltage and current. Design and packaging of ITU grade Opto- Transceiver: **Sensor**

(b) Research work undertaken during 1984-1999

- Development of new methods/techniques (**Theory & Experiment**) for characterization of Integrated Optical Waveguides and Polarization Maintaining Optical Fibers from Far Field measurements
- Development of analytical techniques and analysis of 4x4 optical fiber/waveguide couplers and their application in PSK homodyne receiver
- Basic studies on waveguiding action in Semiconductor Laser with Quantum Well Structure and estimation of lifetime of carriers in such structures
- Dispersion compensation using differential time delay technique incorporating the effect of higher orders terms in propagation constant of modes in optical fiber/waveguides
- Development of a scheme for bit delay correction for WDM based Optical Communication System

8. Courses taught & Laboratory classes taken at

- i. Electrical Communication Engineering Department- **Indian Institute of Science (IISc), Bangalore**
- ii. Physics & Electrical and Electronics Engineering Groups, **Birla Institute of Technology & Science (BITS), Pilani**
- iii. Applied Physics (also associated for teaching courses from Electronics & Communication Engineering Department) at REC, now known as **NITHamirpur, HP**
- iv. Applied Physics (also associated with teaching courses from Electronics & Communication Engineering Departments) Department, **Delhi College of Engineering, Faculty of Technology, Delhi University and Delhi Technological University**

Major courses taught are:

- **Graduate Level (M.E./M.Tech and M.Sc. level):** Optical Communication, Fiber Optics & Optoelectronic Devices, Optoelectronic Devices Circuits and Systems, Electromagnetic field theory, Quantum Mechanics and Optical Electronics, Photonic Devices & Circuits, and Quantum Electronics

- **Undergraduate level (B.E./B.Tech level):** Optical Fiber, Material Science & Engineering, Modern Physics, Applied Physics, Electrical Engineering Materials, Communication Systems & Electromagnetic Theory, etc.
- **Laboratory classes:** Fiber Optics and Optical Communications at REC Hamirpur and DCE Delhi. Advanced Optics Lab including Optical Fiber Communication lab for M.Sc./M.E./B.E. students at DCE Delhi

9. Thesis supervised/ being conducted:

- **Seventeen (17) Ph.D.** thesis awarded in the area of Optical Fiber Communication, Photonic Crystal Fibers, Photonic Crystals, Metamaterials, Carbon Nano Tube (CNT) and Nano-Bio Sensors and **Seven (07) Candidates** are continuing their Ph.D. Thesis in my supervision:
 - i. **"Broadband Optical Communication Systems and Networks"** (Ajay K. Sharma, July 1999, REC Kurkshetra, Kurkshetra University)
 - ii. **"Coupling Characteristics of Electron Waveguides and Devices for Multichannel Optical Communication Systems"** (Shalini Garg, 2004, University of Delhi)
 - iii. **"Propagation Characteristics of Photonic Crystal Fibers and Waveguides"** (S.K. Varshney 2004, University of Delhi)
 - iv. **"Multiple Access Schemes in Optical Communication Systems"** (M. Kulakarni, 2006, JMI University, Delhi)
 - v. **"Photonic Band-gap Materials: Theory and device applications"** (Yogita Kalra, 2007, University of Delhi)
 - vi. **"Analytical and Numerical studies on Photonic Crystal Waveguides and Devices"** (Anshu D Varshney, 2010, University of Delhi)
 - vii. **"Photonic Crystal Waveguides and Devices"** (Swati Rawal, 2011, University of Delhi)
 - viii. **"Devices and Components based on Negative Refraction: Theory and Design"** (Monika Rajput, 2013, University of Delhi)
 - ix. **"Linear and Non-Linear Propagation Characteristics of Photonic Crystal Fiber"** (Bhawana Dabas, 2014, University of Delhi)
 - x. **"Design and development of Planar Waveguide Devices for Optical Communication and Sensors"** (Shruti, 2014, University of Delhi)
 - xi. **"Growth and Characterization of Carbon Nanotubes for Improved Field Emission"**, (Srividya Sridhar, 2015, University of Delhi)
 - xii. **"Preparation, Characterization and Tailoring Nanostructured Films of Metals and Metal Oxides for Application to Biosensor"** (Rachna Sharma, 2015, Delhi Technological University)
 - xiii. **"Characterization of Photonic Crystal Fibers and Metamaterials: Theory and Experiment"** (Kamal Kishor, 2016, University of Delhi)

- xiv. **“Integrated Plasmonic Waveguides and Devices”**, (Venus Dillu, Delhi Technological University, 2016)
- xv. **“Application Specific Specialty Optical Fibers & Waveguides”**, (Than Singh Saini, 2016, Delhi Technological University)
- xvi. **“Photonic Crystal based Optical Logic Gate”** (Preeti Rani, 2017, Delhi Technological University)
- xvii. **“Application Specific Photonic Crystal Fibers, Waveguides and Devices”** (Jiten Boruah, 2019, University of Delhi)
- **Seven (07) Ph.D.** students are working in the areas of (i) Photonic Band-gap Materials, Photonic Crystal Fibers and Devices-**Nano-Photonics** (ii) Simulation of Pulse Dispersion in Linear and nonlinear optical fibers. (iii) Zero Refractive Index and devices (iv) Photonic Crystal Fiber Sensors (vi) Design of Photonic Crystal based logic Gates (vii) Nanoscale Plasmonic sensors.
- **Several theses (over 60)** in the various areas of Opto-electronic Devices, Fiber Optics & Optical Communication Systems and Networks at Master/UG level as minor/major project work.

10. Sponsored Project Supervision:

- Supervised/Supervising over **Twenty-Two (22)** Sponsored R & D Projects from various agencies of Government of India and Telecom Companies during last **25 Years in the area of Optical Fiber Communication Systems:**
 - i. “TIFAC-Centre of Relevance and Excellence (CORE) in Fiber Optics and Optical Communication” at Delhi College of Engineering under “**Mission Reach**” program of Technology Vision 2020, **T**echnology **I**nformation **F**orecasting and **A**ssessment **C**ouncil (TIFAC), Department of Science and Technology, Govt. of India in association with Govt. of NCT of Delhi, Telecom and Instrument Industries. Rs. 255.00 Lakh during 2004-2007 and is being continued
 - ii. “All Dielectric and Hybrid Nano-Antennas for multifunctional Sensors”- BRICS project (ITMO University, Russia, College of Optical Science and Engineering, Zhejiang University, China and CSIR-CSIO, Chandigarh, India) through DST, Govt. of India, Rs 40.125 Lakh, 2017-2020 as PI
 - iii. “Solid tumor targeting using homing peptides and plasmonic photothermal technique” sponsored by Department of Biotechnology, Ministry of Science and Technology, Govt. of India, Rs 201.00 Lakh for the period 2018-2021 as Co-PI
 - iv. “Design and Development of Autonomous Under Water Vehicle” at DCE Delhi with Financial and Technical support from Ministry of Earth Science, Govt. of India and National Institute of Ocean Technologies, Chennai and few industries. Rs 60.00 Lakh + instruments from Industry +Grant from ONGC during the period 2007-2013 and continued till date

- v. "DST-FIST project grant for improvement of Science and Technology Infrastructure", Applied Physics Department, Delhi Technological University, Delhi, Rs. 125.00 Lakh, 2012-2016 (PI as Head of Department till July 2012)
- vi. "India –Tunisia, International Joint Project through DST and Ministry of Education, Republic of Tunisia on Design Modeling and Characterization of Highly Non-Linear Photonic Crystal Fibers for all Optical High Bit rate networks" as Co-PI along with PI Dr Ajit Kumar, Rs. 5.00 Lakh approx. 2013-2016
- vii. "DST-RMES (Indo-Russian) Joint Research Program of Cooperation Project on "All Dielectric, Plasmonic and Hybrid Photonic Nanostructures" as PI of Indian Team at DTU, Rs. 65.54 Lakh, 2014-2017, now it is at CSIO Chandigarh
- viii. Indo-Portuguese International Joint Research Project through DST and Foundation for Science and Technology, Portugal on "Graphene based Flexible, Transparent Electrodes for Organic Light Emitting Diodes and Photovoltaic's" as Co-PI, Rs 5.29 Lakh+hospitality, 2014-2017
- ix. "DST-RFBR (Indo-Russian) Joint Research Project on "From Plasmonic and Dielectric to Hybrid Nanoantennas: Novel approaches to control Electromagnetic waves and Light" as PI of Indian Team at DTU, Rs 22.56 Lakh, 2015-2017, now it is at CSIO Chandigarh
- x. "Characterization of Photonic Crystal fibers from Telecom and sensing Applications: Theory & Experiment", Major Research project of University Grants Commission, Govt. of India, Rs 10.428 Lakh during the period 2010-2013
- xi. "External electric field effect on the Photoinduced charge transfer dynamics" sponsored by BRNS, Department of Atomic Energy, Rs. 17.50,250/ during period 2012-2015, as Co-PI along with PI Dr M.S. Mehata.
- xii. "Modeling and Simulation of High Power Laser", CARS Project from LASTEC-Delhi, Defence Research and Development Organization, Govt. of India, Rs. 10.00 Lakh for the year 2015-2016
- xiii. "Photonic Design Center" under National Program on Micro and Smart Systems (NPMASS) towards establishment of National MEMS Design Centers Network. Coordinator of DCE/DTU Delhi initiated by Indian Institute of Science, Bangalore, as Coordinator since 2010-2015
- xiv. "Out-Reach project sponsored by International Society of Optical Engineering (SPIE) USA on "Propagation of Education and Research among teachers of Engineering Colleges" US \$ 3000/ 2011-2012
- xv. "Studies of Propagation Characteristics of Photonic Crystal Fibers and waveguides for Telecom and Sensing Applications", R&D Project sponsored by AICTE, 2003-2007, Rs. 5.00 Lakh

- xvi. "Design & Development of Wavelength Division Multiplexed (WDM) Optical Communication systems", R&D project sponsored by AICTE, 1997-2000, Rs. 5.00 Lakh
- xvii. "Characterization of Optical Fibers for Telecommunication & Sensor Systems", TAPTEC project sponsored by AICTE at REC Hamirpur, 1997-2000, Rs. 7.00 Lakh
- xviii. "Studies of Broadband Optical Communication Systems", R&D project sponsored by AICTE at REC Hamirpur during 1996-1998, Rs 7.00 Lakh.
- xix. "Design and Development of Fiber Optic Sensors", Sponsored by Centre of Excellence (COE) grant of MHRD, Govt. of India at REC Hamirpur during 1996-1997. Rs. 1.20 Lakh
- xx. "Design of self-supporting, nonmetallic aerial fiber optic cable for hilly regions & development of automated test setup for the measurement of optical characteristics vis-à-vis the environmental variations" - Development project supported by telecom-company HFCL at REC Hamirpur-1995-1996
- xxi. "Modeling of Erbium Doped Optical Fiber Amplifier", sponsored by UGC, Govt. of India at BITS Pilani-1993-1994
- xxii. "Experimental Characterization and Simulation of Optical Waveguides and Devices" sponsored by UGC, Govt. of India at BITS Pilani-1992-1993

11. Foreign Assignments:

- **Visiting Scientist:** College of Optical Science and Engineering, Zhejiang University China during October 03 to October 12, 2018 as Principal Investigator of BRICS Project (India-China and Russia) on Optical Nanoantenna
- **Visiting Scientist** at St. Petersburg University of Information Technology, Mechanics and Optics, **Russia** during March 18 to March 26, 2017 as PI on Indo-Russia (DST-RMES) joint project on "All Dielectric, Plasmonic and Hybrid Photonic Nanostructures".
- **Fulbright-Nehru Fellowship** (as **International Educational Administrator**) for acquiring firsthand knowledge and practices of emerging trends in Higher educational institutions (Chicago, Maryland, Nebraska, Northwestern, Illinois, Johns Hopkinson, Virginia University and many more) and university in USA, through International Institution of Education, Washington, USA and United States India Education Foundation (USIEF) in October-November, 2013
- **Keynote Speaker (Title: Photonic Crystal Based Nanophotonic Devices for Telecom and Sensing Applications)** in 2010 International Conference on Nanotechnology, Optoelectronics and Photonics Technology (NOPT-2010) held in **Singapore** during February 26-28, 2010
- Awarded **Visiting fellowship** from **National Science Council and NTHU, Taiwan** to explore joint research in the area of Photonic Crystal Waveguides and

Devices at Electrical Engineering Department, NTHU, Taiwan during December 04-December 16, 2009

- Awarded “**EPFL-Switzerland/India Bilateral Invited Fellowship**” to carry out joint research project in the area of Vertical Cavity Surface Emitting Laser at Physics Department, EPFL Switzerland during September 29-October 13, 2009
- **Invited Participant** in “Engineering Challenges of Solar Energy research in India” at Royal Society London organized by **Royal Academy of Engineering, UK** during September 25-27, 2009
- Awarded “**Royal Academy of Engineering (RAEngg.) Fellowship**” under its Exchange program to carry out joint research project on the fabrication and characterization of Photonic Crystal Based waveguides and devices during June/July 2008 at Optoelectronic Research Group, **Glasgow University, U.K.**
- **Invited Fellowship** from **Japan Society for Promotion of Science (JSPS)** to carry out research in the area of “Multicore Photonic Crystal Fiber” for a period of three weeks in the month of January 2008 at **Hokkaido University, Japan**
- Recipient of “Project Formulation Grant” as **UKIERI Fellowship** from British Council, India to formulate research proposal with first hand interaction with professors at **Glasgow University, Cambridge University, University of Southampton, University of Bath and City University London, U.K.** in the area of “Fabrication of Photonic Crystal Waveguides for Telecom and Sensing Applications” for the year 2007. Visited these university and project proposal is prepared in the Month of May 2007 and availed in the year 2008 and 2009
- Visited **MIT, Harvard and Boston University** (mainly labs related to the activities of Nano Photonics) in October 2005 for delivering invited talks and research collaboration as Academic Visitor in October 2005 including participation in International Conference “SPIE Symposium-Optic East 2005, held at Boston, **USA**
- Visited **Stanford University** (mainly their labs in the area related to Optical Fiber Communication) in **USA, as academic visitor** in January 2002 during international conference “Photonic West-2002” at San Jose, CA
- Visiting Scientist at **University of Campinas and at Telebrass** (Telecom Company of Brazil) in Campinas, Sao Palo, **Brazil** in the area of Semiconductor Microstructure Devices during January/February 1995
- Participant and Speaker on Short-term courses on **Telematics** at Iranian Organization for Science and Technology & **Iranian Telecom Research center** at Tehran, **Iran** during November/December 1992
- **Visiting Scientist** during Short-term course on Materials for Electronics: Growth Properties and Applications in November/December 1991 at International Centre for Science & High Technology c/**ICTP-Trieste, Italy**

- **Researcher**, at Electronics Engineering Department, **Kobe University, Japan** for research assignment in the area of Nano Scale Optoelectronic Devices during April 1990-March 1991
- Japanese Govt. Scholar at **Osaka University for Foreign Studies, Osaka, Japan** for six months course on Japanese Language, Culture and Business Practice, Visit of Opto-electronic Industries and acquaintance of R& D work in the area of Optical Communication during October 1989-March 1990

12. Award/Prizes/Certificate/Fellowship:

- **Gold Skoch Award 2020** for the technology development and its commercialization for Defence Sector of “NVG Compatible Helicopter Visual Landing Aid Solutions for Indian Naval Ships Enabling Night Operations during Critical Missions” on January 11, 2020
- **CSIR-Technology Award** (Certificate of Merit) for Technology development and Commercialization on “Avoinic Head Up Display Test Validation Platform” in Physical Sciences and Engineering, as a member of team, by CSIR on September 26, 2018
- **Fellow of SPIE** (The International Society for Optics and Photonics) for achievement of **distinguished research on Photonic Crystal Fiber and devices**, 2015.
- **Fulbright-Nehru Fellowship 2013** from United States of India Education Foundation for serving as **International Educational Administrator** and visit of over dozen universities and higher educational institutions in USA
- Institution of Electronics and Telecommunication Engineers (**IETE**)-**BimanBehari SenMemorial** award for “**Outstanding Research on characterization of specialty optical fibers and optical waveguides for telecom and sensing applications leading to establishment of advanced R&D center with strong institute-industrial linkages**” for the year 2012. The award was presented in Annual Technical Convention of IETE in Bangalore on September 30, 2012
- Emerging Optoelectronics Technology Award **{IETE-CEOT(94)}** in “**Recognition of distinguished contribution for outstanding research in the area of Nano-Photonics leading to establishment of TIFAC-Center of Relevance and Excellence in Fiber Optics and Optical Communication**” at DCE Delhi for the year 2006 by the Institution of Electronics and Telecommunication Engineers, India
- **IETEBest Research Paper Award – “S. K. Mitra Memorial Award”** from Institution of Electronics and Telecommunication Engineering for a paper “**Nanostructure Electron Waveguide Devices**” appeared in the journal of IETE Technical Review Award received on September 27, 2004 in the Annual Technical Convention of IETE at Ahmadabad

- Coauthored research paper is selected for “**Swarna Jayanti Puruskar (Gold Medal Award)**” for **best research paper** in the category of Physical Sciences in seventy first symposium of National Academy of Science held at Allahabad in 2001 on “Switching Characteristics of Voltage Controlled Electron Waveguides”
- Coauthored research paper is selected for “**Best Research Paper Award**” in International conference ICOP-2009 International Conference on Optics and Photonics held at Chandigarh, India during 30th October to 1st November, 2009 for the research paper entitled “Slow Light Devices in Silicon-on-Insulator Photonic Crystal”
- Coauthored research paper entitled “Blue light emission through second harmonic generation in Left-handed Plasmonic Nano-antenna” is selected for “**Sterlite Technology Innovation Award**” in International conference in Fiber Optics and Photonics -PHOTONICS-2010, at IIT Guwahati during December 11-15, 2010
- Coauthored research paper in the area of super continuum generation in Photonic Crystal Fiber is selected for “**SPIE Best Presentation Award**” and **OSI second Best Poster Presentation award**” in the area of Plasmonics, in International conference on Lasers (ICOL) at IRDE Dehradun during March 3-7, 2014
- **Keynote Speaker** in International Conference (NOPT-2010) in Singapore during February 26-28, 2010
- **National Science Council, Taiwan and NTHU Taiwan** Invited Fellowship during December 05-December 16, 2009
- **EPFL Switzerland Invited Fellowship** for joint research during September 29-October 13, 2009
- **Royal Academy of Engineering, UK** Invitation for participation in workshop on “Solar Energy Research in India”, at Royal Society London in September 2009
- **Royal Academy of Engineering Fellowship** to carry out joint R&D projects at Glasgow University, UK during June/July -2008
- **British Council’s Project Formulation Grant** to Visit Seven Universities in UK including **Cambridge University, Southampton University and Glasgow University** in May 2007
- **Invited JSPS Fellowship** to visit Japan and carry out research for short term during winter vacation in 2007
- Travel Support from TIFAC-CORE Project at DCE to visit **MIT, Harvard and Boston University** in October 2005
- Visited **Stanford University, USA** in 2002 and present research paper in SPIE Conference at San Jose, CA, USA with the support of Govt. of Delhi
- Fellowship from ICTP and Travel Grant from TELEBRAS-UNICAMP, **BRAZIL**, 1995
- Fellowship from ICTP and Travel Grant from IROST-Tehran, **IRAN** in 1992

- Fellowship and Travel Grant from ICTP-Trieste, **ITALY** in 1991
- Research Associate ship, Electronics & Communication Engineering Dept., **Indian Institute of Science**, Bangalore during 1991-1992
- **Japanese Government Scholarship** from Ministry of Education, Govt. of Japan during 1989-1991
- **JRF & SRF** (Junior Research Fellowship & Senior Research Fellowship) from CSIR, Govt. of India during January 1985 to July 1989

13. Industrial Consultancy & Experience/Technology Transferred:

- **Worked as a Consultant** (as a member of consulting team of Electronics Engg. Deptt.) for fabrication of Wavelength Flattened Optical fiber coupler with Kyocera Inc. – Kobe University, JAPAN.
- **Associated** with Himachal Futuristic Communication Limited (HFCL) towards manpower development and R & D work in the area of Aerial Optical Fiber Communication, during 1994-1998.
- **Initiated Institute (DCE) & Industry** (Aksh Optifiber Ltd., HFCL, Sterlite Optical Technologies Ltd.& Reliance Infocom Ltd) interactions towards creation of Centre of Excellence in the area of Fiber optics under Technology Vision 2020 (MISSION REACH), Govt. of India. Served as consultant of Information Technology Innovation Center, Reliance Infocomm Ltd for the design of SFP Compliant Opto Transceiver.
- **Consultant** for Technology Development for Fabrication of Photonic Crystal Fibers of Sterlite Optical Technologies Ltd during the year 2005-2007. Consultant of host of other industries like Bench Mark Electronics Ltd, MTNL, BSNL, Trinity Microsystems Lt, Falcon Ltd. and M/S Fibronics India and thesea industries with a view of their association with TIFAC-CORE@DCE for generating financial, technical and service support.
- **Developed of Educational Kits** for (i) measurement of numerical aperture of optical fiber experiment in association with Optochem International (ii) Measurement of Speed of light using Optical fiber in association with Trinity Microsystems Ltd. and (iii) currently working on the development of WDM based Optical Communication Systems and general experiments on Optical fiber communication system in association with group of instrument manufacturing organization.(iv) Consultancy for making manuals for characterization of telecom grade optical fibers from far field measurements from Benchmark Electronics Pvt. Limited, Chennai during 2011-2012.
- **Played key role, as Director** of CSIO Chandigarh and CEERI Pilani, in Transfer of 39 technologies for commercialization to Indian Industry in the areas of Biomedical Engineering, Energy, Health/Food products and Avionics during July 02, 2015 to February 29, 2020

Technologies Transferred as Mentor/Co-Inventor/Director of CSIR-CSIO

S. No.	Name of the Technology	Date	Name of the Firm
1.	Head Up Display Modernised	28.02.2020	Bharat Electronics Ltd
2.	Divya Nayan-a reading machine for visually challenged person	10.02.2020	Central Electronics Ltd
3.	Dynamic Postural Stability Assessment System	24.01.2020	M/s Oceanic Fitness Pvt. Ltd., Mohali
4.	3-D Printed Patient-Specific Medical Implants	17.01.2020	M/s Forbes & Company Ltd., Mumbai
5.	Electrostatic Dust Mitigation and Smog Control Device	10.01.2020	M/s Cloud Technologies Pvt. Ltd. Yamuna Nagar
6.	Electrostatic Disinfection Machine	18.12.2019	M/s Jhosna Corporation, Raichur
7.	Marine Bearing Sight for Indian Navy Ships and Submarines	14.09.2019	M/s Elcome Integrated Systems Pvt. Ltd., Navi Mumbai
8.	Portable Multiview Smart Microscope	12.08.2019	M/s Inventigen Technologies Pvt. Ltd. (Onward Health), Telangana
9.	Low Cost Air-Conditioner Efficiency Meter (ACE Meter)	05.08.2019	M/s Harivansh Consulting OPC Pvt Ltd, Lucknow
10.	Postural Stability Assessment System	02.08.2019	M/s Bio-Med Pvt. Ltd., New Delhi
11.	Rice Grain Analysis Software	01.03.2019	M/s Ambala Associates, Ambala
12.	NVG Compatible LED Lights for Helo Deck Visual Landing Aid System on Indian Navy Ships	10.12.2018	M/s Elcome Integrated Systems Pvt. Ltd., Mumbai
13.	Pump Efficiency Monitoring System	28.09.2018	M/s Hexmoto Controls Pvt. Ltd., Mysore
14.	Energy Meter with Digital Communication	30.04.2018	M/s Atsuya Technologies Pvt Ltd, Thane West
15.	Sensor System for Fluoride, Nitrate & Arsenic	24.04.2018	M/s Ambtek Innovations Pvt. Ltd., Saha (Ambala Cantt)
16.	Portable Harness Ambulatory System	10.02.2018	M/s Oceanic Fitness P Ltd, Mohali
17.	Avionics Head-up Display Test Rig	16.12.2017	M/s Bharat Electronics Limited (BEL)
18.	Precision Iodine Value Analyser	17.11.2017	M/s Comfax Systems, India
19.	Postural Stability Assessment System	12.09.2017	M/s Oceanic Fitness P Ltd, Mohali
20.	Impedance based Grain Moisture Analyser	27.05.2017	M/s R L Wason & Co., Jalandhar

21.	Advanced Spraying Technology: Air-Assisted Electrostatic Sprayer	27.02.2017	M/s Dashmesh Industries, Alwar
22.	Process Technology for Separation of Phosphor from CFL Waste	22.02.2017	M/s Exigo Recycling Pvt. Ltd., New Delhi
23.	Electronic Knee	02.02.2017	M/s Walnut Medical Pvt.Ltd, Ambala City
24.	Control Module for Touch based Finger Gesture Controlled Intelligent Patient Vehicle	24.01.2017	M/s Pentagon Rugged Systems (India) Pvt. Ltd., Hyderabad
25.	Exoskeleton Devices	24.01.2017	M/s Pentagon Rugged Systems (India) Pvt. Ltd., Hyderabad
26.	Energy Management System based on Lonworks Technology	25.11.2016	M/s Vantedge IT Solutions, Bengaluru
27.	Virtual Intelligent Technique for Rehabilitation of Persons with Motor Disability	03.10.2016	M/s Walnut Medical Pvt.Ltd, Ambala City
28.	Foot Controlled Water Tap	29.09.2016	M/s Aqua Systems Pvt. Ltd., Mohali
29.	Economical Production of Highly Porus Metal Organic Framework (MOF) from Zinc Scraps	20.09.2016	M/s Intelligent Materials Pvt. Ltd., Chandigarh
30.	Energy Management System based on MODBUS Technology	17.06.2016	M/s Industrial Controls & Drives (India) Pvt Ltd, Chennai
31.	Induction Motor Efficiency Monitoring System (IMEMS)	17.06.2016	M/s Industrial Controls & Drives (India) Pvt Ltd, Chennai
32.	Energy Management System	28.03.2016	M/s Smart Metering Energy Solutions LLP, Panchkula
33.	Myo-Meter	28.03.2016	M/s LM Health Care, Panchkula
34.	Induction Motor Efficiency Monitoring System (IMEMS)	11.02.2016	M/s Beta Technologies India Pvt Ltd, Coimbatore
35.	Postural Stability System	08.02.2016	M/s Medicaid Systems, Chandigarh
36.	Diffraction Lloyd Mirror Interferometer	01.01.2016	M/s Maffick Instruments, Ambala City
37.	Air-Assisted Electrostatic Sprayer for Crops	16.10.2015	M/s Jagatsukh Industries, Ludhiana
38.	Electronic Stethoscope	17.09.2015	M/s Security Defence System,

			Baddi (HP)
39.	Digital Grain Moisture Analyser	21.05.2015	M/s KC Engineers, Ambala Cantt

14. Administrative Experience: Major Administrative Responsibility and institutional development within the area of innovations in academic and research activities held:

- **Director, CSIR-Central Scientific Instruments Organisation (CSIO)** Chandigarh since July 02, 2015 to February 29, 2020. Director is the Executive Head of the Laboratory. The responsibilities of director are 1. Creating an environment in CSIO conducive to nurturing of innovation and productive research in support of the mission of the institute. 2. Managing the affairs of the institute as per the decisions of the Management Council and Research Council. 3. Director, in all matters have powers delegated to him by the Governing Body of CSIR. 4. Conceive, plan, initiate and execute research that is consistent with the mission of CSIO. 5. Support industries and other organisations (government and non-government) through consultancy and contract research in the research areas of CSIO. 6. Participate in the professional activities that promote sciences in general, including creations and dissemination of knowledge, creations and protection of IPR, etc. 7. Attend to the tasks as assigned in support of the mission of the institute. 8. Create healthy and ethical atmosphere that promotes research in the areas related to the mission of CSIO. Accordingly recruitment of over 50 scientists and supporting staff, enhancement of External Cash Flow and number of sponsored projects, establishment of new labs, guest house and dispensary building, enhancement of number of doctoral students and phenomenal rise in transfer of CSIO Technology to industries were done during last four years.
- **Director (Additional Charge), CSIR-Institute of Microbial Technology (IMTECH),** Chandigarh from April 11, 2016 to January 22, 2017 : Significant Job done- Arrangement of visit of Minister of S & T, Inauguration of Building, Organization of two international conference, Evaluation and promotion of over 07 scientists and staff, organization of Management Council Meeting, Presentation of FTT projects and planning of future R&D projects in addition to routine job of Directors of National Research lab in CSIR System
- **Director (Additional Charge), CSIR-Central Electronics Engineering Research Institute (CEERI),** Pilani from November 06, 2015 to March 08, 2016, Significant Job done- Issue of offer letter to 31 Scientists, Technology Transfer of Milk Scanner, assessment of scientists, receiving grants of projects in the area of Chip Design as coordinating institute etc. in addition to routine job of Director of National Research lab in CSIR system
- **Dean (Industrial Research & Development) during August 2008 to August 2010:** Responsible for managing R&D projects, Research profile of institution, Consultancy work and its execution, Organizing and execution of a series of Innovative projects on design and development of maneuvered Vehicles

and autonomous vehicles at DCE, now DTU Delhi. Successful in mentoring team of innovators for participating and winning awards at International Competitions and submission of over dozen proposals for Sponsored Projects to funding agency. Formulation of MOU with IOL and Alstom Inc with DCE/DTU and many foreign universities, national and international labs during August 2008 to August 2010

- Involved in enhancement of R&D Culture, execution of Industrial and Govt. Sponsored Research projects (Over a dozen in numbers) and administration of Consultancy assignment (over Rs.300 lakh per annum) in DCE (now DTU) Delhi including a series of Innovative projects (over 15 in number) winning international visibility and awards for DCE Delhi in the area of Autonomous and Unmanned vehicle (Like DCE Autonomous Under Water vehicle, DCE Unmanned Aerial Vehicle etc.) and design and development of series of innovative automobile (DCE Super mileage vehicle, DCE Hybrid Car, DCE All terrain Vehicle etc.) solutions
- **Head of Department during March 2009 to July 2012:** As Head of Department, Department of Applied Physics, introduced new academic programs (i) B.Tech. in Engineering Physics, a Four years academic program at undergraduate level with special focus on Photonics, Material Science and Instrumentations from the academic year 2009-2010 (ii) Two Year M.Tech.- Nano Science and Nano Technology with special focus on Nano Photonics and Design, fabrication of a nano scale materials and devices. (iii) Two Year M.Tech. - Microwave and Optical Communication jointly with ECE Department with special focus on Optical Fiber Communications System and Network. Overall management of research activities of the department with current focus of Material Science and Engineering, Optoelectronics and Optical Communication covering all aspects of interaction of light with matter under broad name "Photonics"
- **Dean (Academic-UG) during Jan 2015 to July 2015:** Involved with academic administration including rules and regulation, curriculum design and innovation, examination systems and their implementation of 15 regular B.Tech program and 05 B.Tech (Evening Program) for working professionals. Formulation of new scheme of teaching, learning and evaluation scheme for all B.Tech Programs with effect from Academic Year 2015-2016. Design of teaching feedback and policy of effective implementation of over 300 faculty members, support and hand holding mechanisms of students of over 6000 students pursuing B. Tech program at DTU with effect from January 2015 to July 01, 2015
- **Coordinator:** "Photonic Design Center" under National Program on Micro and Smart Systems towards establishment of NMDC Network initiated by Indian Institute of Science, Bangalore since 2010 to 2015 at DTU
- **Chairman:** Served/serving as Chairman of various administrative committees for example (i) Wi-Fi installation & maintenance committee (ii) Computer and peripherals including telephone and internet connectivity committee (iii) Central

Instrumentation Facilities (iv) Disciplinary Committees (v) Library Advisory Committee (vi) Innovation Team regulation 2013 (vii) B.Tech.(Eve) Entrance Test 2014

- **Chairman:** University Level Anti Ragging Committee in 2014-2015 at DTU Delhi
- **Coordinator:** B.Tech (Eve) Entrance Examination in 2014 at DTU Delhi
- **Vice Chairman:** Knowledge Park, Delhi Technological University: Involved in establishing student led innovation and product development in the area related to diverse branches of Technology, Innovation and Knowledge Management
- **Chief Warden:** Served as Chief Warden of DCE Hostels during the year 2003 to 2007. Responsible for adding 4 new hostels during this tenure for the benefit to the students of DCE, Delhi
- **Deputy Superintendent:** B.E. Theory Examination conducted by University of Delhi in the year 2001-2002 at DCE Delhi
- **Coordinator:** Curriculum Development Committee of REC (now NIT) Hamirpur, HP where restructured B. Tech courses and organized a new schedule and syllabus of common courses for all branches of engineering and technology at undergraduate level during the year 1994-1996
- **Coordinator: Curriculum Development** of M.E/M.Tech. Program in the area of Microwave and Optical Communication; Designed and developed syllabus, teaching and evaluation scheme of this new and interdisciplinary program involving Applied Physics, ECE and IT departments of DCE/DTU
- **Lead the team** for its approval through various channels which includes courses committee, AICTE and Faculty of Technology, University of Delhi and later from academic council, Delhi Technological University
- **Revised First semester** (B.E.) Physics Course as member of Coordinator of Curriculum Development
- **Prepared syllabus** for additional electives and list of experiment for M.Sc. (P/T) program at DCE Delhi
- **Introduced new experiments** for B.E. first year students. Two experiments of optical fibers were designed, developed and executed in the B.E program
- **Faculty Advisor:** Establishment of First Student Chapter of Professional Society in the area of Optics and Photonics at DCE i.e. SPIE (International Society of Optical Engineers) DCE Chapter (www.spiedcechapter.dce.edu) since year 2005
- **Faculty Advisor:** Establishment of First Student Chapter of Optical Society of America (OSA) called The Optical Society at DCE Delhi since April 2009
- **Consultant:** Technical Consultants of Sterlite Optical Technologies Ltd and Infocomm Technology Innovation Center of Reliance Infocomm Ltd and associated with few other telecom companies in India during 2006 to 2010

- **Online Administrator:** Have been involved in design and development of websites of DCE since the year 1999 and onwards. Founder of www.dce.edu websites and its day to day management for 10 years till 2010
- **Management of Online Counseling** of CCB, MHRD, Govt. of India during the year 2004 and provided technical and manpower support to run this program at DCE Delhi
- **Listing of teaching and R&D activities of DCE Delhi** in Optics and Photonics in the world wide web (www.opticseducation.com) and listing of focused R&D activities in the world wide web
- Have been **Examiner of Ph.D. thesis** of leading institutes and universities
- **Expert Member of Curriculum Development/Modification Team** of M.Tech program of IIT Delhi in the area of Optoelectronics and Optical Communications
- **Expert member and Chairman** of syllabus revision committee of Applied Physics of GGSIP University Delhi
- **Faculty Advisor & PI:** DCE-Autonomous Under water Vehicle (AUV) project (Sponsored by Department of Ocean Development, Ministry of Earth Sciences, and Government of India): www.auv.dce.edu. The design of DCE-AUV is selected as **top 10 best design of the world** including getting **Most Improved Design Award** at International Competition organized by AUVSI held at San Diego, CA, USA during July/August 2008 to July 2015
- **Faculty Advisor & PI:** Innovation Lab (Design of Intelligent Ground Vehicle-IGV Project supported by Department of Scientific and Industrial Research-DSIR, Govt. of India), DCE Delhi during 2007-2009
- **Coordinator-** Advanced Optics, Fiber Optics & Optical Communication Labs at DCE, Delhi
- **Coordinator:** Indo-US Edusat Program at DCE, Delhi during the year 2006-2008

15. Fellow and Membership of learned Societies:

- Fellow: International Society of Optical Engineers (SPIE), USA: Membership No. 00707901
- Fellow: The Institution of Electronics and Telecommunication Engineering (IETE): Membership No. F170088
- Fellow: Optical Society of India: Membership No. L582
- Member: IEEE, USA: Membership No. 92807370
- Member: Optical Society of America, USA: Membership No. 352941
- Member: The Photonic Society, IEEE
- Life Member: Indian Society of Technical Education (ISTE), India
- Life Member: Japanese Government Scholars Association of India (MOSAI)

- Member: Semiconductor Society of India
- Life Member: Computer Society of India

16. Reviewer and Referee/ Member and Editor of Journals:

- Have served as Referee and reviewer of some of the leading journals i.e. IEEE/OSA Photonics Technology Letters, IEEE/OSA Journal of Lightwave Technologies, IEEE Journal of Quantum Electronics, Optical Engineering (SPIE, USA), JM3 (USA), Optics Communications (The Netherlands) and IETE Journal of research (India), Applied Physics B, IOP Journals, IET journals and for the proceedings a few national and international conferences held in India
- Member, Editorial Board: Journal of Electronic Science and Technology
- Editorial Committee: Journal of Photonics, Hindawi Publisher

17. Recent Honors/Invited Seminar/Lecture/Discussion Meetings Delivered/Organized since 2008 and onwards:

- [1] **Chief Guest and Speaker:** “Challenges on Technology Commercialization”, DST-Center for Policy Research, Panjab University, Chandigarh on February 01, 2020
- [2] **Chief Guest in** Annual Prize distribution function for the teachers of Kenriya Vidyalaya Sangathan Chandigarh Region on January 31, 2020
- [3] **Invited Speaker:** “All dielectric Zero-Index Metamaterial based Optical Antenna”, in International Conference on Optics and Photonics at IIT Delhi on December 14, 2018
- [4] **Invited Speaker** on “CSIR-CSIO: Improving the quality of Life through Instrumentation and research/internship opportunity in the areas of Optics and Photonics” in The Optical Society (OSA) sponsored students conference at IIIT Noida on Nov. 2, 2018
- [5] **Chairman:** Brainstorming session on Design and Development of Pulsed High Power Fiber Laser at Laser Technology and Science Center (LASTEC), DRDO, New Delhi on October 30, 2018
- [6] **Invited Speaker** in International Symposium on Optics organized by Optical Society of India held at IIT Kanpur during September 20-22, 2018. Topic: Slow Light Enabled Nanophotonic Devices on Photonic Crystal Platform.
- [7] **Chief Guest:** Inaugural Function of National Teachers Day 2018 & National Hardware Hackathon Competition for post graduate students at National Institute of Technical Teachers Training and Research (NITTTR) on September 05, 2018. Topic: CSIR-CSIO- Improving the Quality of Life through Instrumentation
- [8] **Moderator/Chair** of Panel Discussion on “Making Industry-Academia interface work: People and Patents as Drivers of Technology

Commercialization” during India-U.K. Industry Academia Symposium, CPR, Panjab University, Chandigarh during April 16-17, 2018

- [9] **Chief Guest**, Valedictory Function of International Symposium on Functional Materials 2018 organized by IIT Kanpur, Panjab University and UI Chicago, USA in Chandigarh on April 15, 2018
- [10] **Distinguished Speaker** on Photonic Crystal based Nano-photonic Devices for Telecom and Sensing Applications during National Workshop on Computational Physics, at JIIT, Jaypee University, Greater Noida on April 06, 2018
- [11] **Invited Speaker** on Photonic Crystal based Nano-photonic Devices at National Workshop on Nanoscience and Technology at NIT Kurukshetra on March 29, 2018
- [12] **Inaugural Talk** on 2nd workshop on “Evaluation of uncertainty & ISO-17025” at HRDC of CSIR in Ghaziabad, UP on January 29, 2018
- [13] **Key Note Speaker** on “Scope of Research in Mechanical Sciences in the age of Internet, Machine Learning and Artificial Intelligence” at NIT Delhi on January 23, 2018
- [14] **Invited Speaker** in 4th International Conference on Image and Information Processing at Jaypee University of Information Technology at Solan, HP on December 21, 2017
- [15] **Invited talk** on Slow Light enabled Faster Nanophotonic Devices in international conference on Advances in Optics and Photonics-2017 at GJUS&T, Hisar during November 25-27, 2017
- [16] **Panelist** in Panel discussion in Session on smart care: “How to provide best health care to all” during DST-CII, India –Canada Technology Summit during Nov 14-17, 2017
- [17] **Invited talk** on “Wearable Devices and CSIR-CSIO Technology” at CSIR-NISTADS in the first national conference on emerging technologies on October 11, 2017
- [18] **Inaugural Speaker:** Workshop on Measurement Uncertainty Evolution and ISO 17025 on July 25, 2017
- [19] **Chief Guest** as inaugural speaker during Faculty Development Program for teachers at DAV University, Jalandhar on July 11, 2017
- [20] **Chief Guest** during Technical Festival (Tech Terra-2017) on “CSIR-CSIO: Scaling New Heights in Instrumentation” at National Institute of Technology (NIT), Delhi on April 18, 2017
- [21] **Chief Guest** during Technical Festival (Tech Terra-2017) on “CSIR-CSIO: Scaling New Heights in Instrumentation” at National Institute of Technology (NIT), Delhi on April 18, 2017

- [22] **Key note inaugural speaker** on “Slow Light in Photonic Crystal for faster Nanophotonic Devices” during Continuous Education Program(CEP) on Photonics for Detonics, February 27, 2017 at TBRL, DRDO Lab, Chandigarh
- [23] **Chief Guest Speaker:** Research Scholars Day, ECE Department, IIT Kharagpur on “CSIR-CSIO: Improving the quality of life through Instrumentation” on February 24, 2017
- [24] The Optical Society (OSA) **Invited Talk** at Physics Department, IIT Kharagpur on “Slow Light in Photonic Crystal for faster Nanophotonic Devices” on February 23, 2017
- [25] **Chief Guest & Invited Speaker:** Gian Chand Jain Memorial Lecture 2016 on March 05, 2016 on “CSIR-CSIO: Improving Quality of Life through Instrumentation”
- [26] **Chairman,** IETE Mid Term Symposium 2016 organized by IETE Chandigarh Centre during April 09-10, 2016
- [27] **Jury Member,** Seminar of Young Scientists under Indigenous Science and Technology in India International Science Festival (IISF) 2016 at NPL Delhi on December 08, 2016
- [28] **Jury Member,** Show case of theme wise CSIR Pavilions during India International Trade Festivals at Pragati Maidan, New Delhi during Nov 14-27, 2016
- [29] **Guest of Honor and invited Speaker:** Achievement of CSIR-CSIO, Chandigarh University, Punjab
- [30] **Chief Guest Speaker** on topic “Fiber Optics: An Enabling Science and Technology for Fascination of Light and Photonics for Life” at GCG, Chandigarh on January 22, 2016
- [31] **IETE Foundation Day Lecture** on “Photonic Crystal Fibers, Waveguides and Nanophotonic Devices”, IETE Chandigarh, November 02, 2015
- [32] **Inaugural Speaker** at Physics Department, Punjab University, Chandigarh on “Photonic Crystal Fibers and Waveguides: Paradigm Shift for Lightwave Propagation” on September 17, 2015
- [33] **Chairman:** PRC of DRDO on “Design and Development of Multikilowatt High Power Fiber Lasers” for Directed Energy Weapon Development of strategic applications, since January 2015
- [34] **Member: Education Committee of SPIE-**The International Society for Optics and Photonics, to promote optics and photonics education worldwide for the year 2015
- [35] **Member (External Expert):** Internal Quality Assurance Cell (IQAC) Keshav Mahavidyalaya, University of Delhi since February 2015

- [36] **Invited Speaker** on “Modeling and Design of Plasmonic Mach-Zhender Interferometer for classification of cancer cells” and **Session Chair** in Photonics 2014 at IIT Khargapur, India during December 13-16, 2014
- [37] **Member:** Education Committee of International Society of Optical Engineering dealing with optics and photonics education worldwide for the year 2014-2015
- [38] **Member: PDR Committee- Pulsed Fiber Laser** for Directed Energy Weapon applications of DRDO, MoD, Govt. of India with effect from November 20, 2014
- [39] **Invited Speaker & Session Chair** in the International Conference (ICOL2014) held at IRDE Dehradun, during March 5-8, 2014
- [40] **Invited talk** on “Plasmonic Band Gap enabled PMZI sensor for classification of Cancer cells” in workshop on Computational Photonics organized by **Royal Society London and DST, Govt. of India** at IIT Delhi during March 01-03, 2014
- [41] **Invited Speaker and Chief Guest:** Two days workshop on “Optical Communications Systems and Networks” organized by National Institute of Technology, Surathkal, Karnataka during September 5-7, 2013
- [42] **Member: PDR Committee- High Power Fiber Laser** for Directed Energy Weapon applications of DRDO, MoD, Govt. of India with effect from March 18, 2013
- [43] **Member: Expert Advisory Committee-** Nanoscience and Technology Glossary, MHRD, Govt. of India during March 11-15, 2013 meeting held at GGSIPU, Delhi
- [44] **Invited Speaker and Guest of Honor:** International Conference on Telecommunication Network 2013 at Amity University on February 28, 2013 on “Slow Light in Photonic Crystal: Science, Technology and Telecom Applications”
- [45] **Member&Session Chairman:** Technical Program Committee, International Conference “Photonics-2012” to be held at IIT Madras, India during December 12-16, 2012.
- [46] **Member& session Chairman:** Organizing Committee of International Conference on Optical Engineering at Vishveshraya Technological University (VTU), Belgaon, Karnataka, July 27-29, 2012
- [47] **Invited Speaker** on “Science and Technology of Slow Light in Photonic Crystal”, International Conference on Optical Engineering at Vishveshraya Technological University (VTU), Belgaon, Karnataka, during July 27-29, 2012
- [48] **Invited Speaker** on “Slow Light in Photonic Crystals: Fascinating Science and Remarkable Applications”, during Annual Visitors’ Programme: Beyond the Class Room at University of Delhi, South Campus on March 24, 2012

- [49] **Invited Talk on** “Photonic Crystal based Nanophotonic Devices” during DRS Programme, Jamia Millia Islamia, New Delhi on February 03, 2012
- [50] **Invited participant and lead member** on Government Initiatives for the promotion of Optics & Photonics during Optical Society of America’s OSA India Workshop at Hyatt Regency Hotel, New Delhi, India on December 02, 2011
- [51] **Invited talk** on “Slow light induced SOI photonic Crystal based Nanophotonic Devices” in the session of Photonic Crystal during XXXVI Optical Society of India Symposium on Frontiers in Optics and Photonics at IIT Delhi during December 3-5, 2011.
- [52] **Chairman of a technical session** in National Conference on Recent Trends in Synthesis and Applications of Advanced Materials, MAIT, Delhi during December 5-6, 2011
- [53] **Invited Lecture** on “Photonic Crystal based Nano photonic Devices” in National Conference on Recent Trends in Synthesis and Applications of Advanced Materials, MAIT, Delhi on December 06, 2011
- [54] **Invited Seminar** on “R&D on Photonic Crystal Fiber and waveguides @TIFAC-CORE, DTU Delhi at NIT Surathkal, India on June 08, 2011
- [55] **Invited speaker** on topic of “Photonic Crystal Fibers and Applications” in Continuing Education Program, CEP of DRDO organized by LASTECH, Delhi on August 11, 2010
- [56] **Lead Member:** Brain Storming session on Plasmonic and Nanostructure Solar Cell, organized by DST, Govt. of India at University of Delhi on May 15, 2010
- [57] **Invited Speaker** in Workshop for professional development of Physics Faculty, University of Delhi, Delhi on March 20, 2010 on topic related to “Glimpses on research opportunity in the area of Nanophotonics”
- [58] **Keynote Speaker-** entitled “Photonic Crystal Waveguides based Nanophotonic Devices International Conference on Nanotechnology, Optoelectronics and Photonics (NOPT)-2010 to be held in Singapore during February 26-28, 2010
- [59] **Invited Speaker** – entitled “Design and Development of Autonomous Under Water Vehicle- A CaseStudy” in the seminar on Leveraging Offsets for Naval Self Reliance on February 17, 2010 during Defense Exposition 2010 at Pragati Madan, New Delhi
- [60] **Invited speaker** at seminar on Photonics by DRDO on “Photonic Crystal based waveguides and Devices” during January 17-18, 2010 at Delhi, India
- [61] **Chairman**, session on Photonic Crystal” at International Symposium on Microwave and Optical Technology-2009, held at Hotel Asoka, New Delhi during December 16-19, 2009

- [62] **Invited Talk** on “Photonic Crystal Waveguides and Device Research at TIFAC-CORE, DTU” on December 11, 2009, Photonic Technology Research Institute, NTHU, Taiwan
- [63] **Invited Talk** on “Research and Innovations @DTU” at Electrical and Electronic Engineering Department, National Tsing Hua University, Hsinchu, Taiwan on December 08, 2009
- [64] **Invited Talk** on “Photonic Crystal Fibers, Waveguides and Devices @DTU” at Physics Department, EPFL Switzerland on October 06, 2009
- [65] **Invited Lecture** on “Lightwave Propagation through Photonic Crystal Fibers and nano scale Photonic Crystal Waveguides and Device” in the workshop for teachers of engineering colleges at ECE Department, IIT Kharagpur on June 23 and 24, 2009
- [66] **Invited lecture** on “Research and Development at **TIFAC-CORE** in Fiber Optics and Optical Communication” during seminar on “Photonics and Hands on experiment in the area of Optical Fiber Communication” for students and teachers of colleges of Delhi University, Delhi, India during May 20-22, 2009
- [67] **Seminar and exhibition** on “Optical Fiber Communication and Sensors systems” On December 24, 2008 in association with NITTTR, Chandigarh, India for teachers of Engineering colleges at DCE Delhi
- [68] **Member**, Technical Committee, International Conference on Fiber Optics and Photonics 2008, organized by IIT Delhi during December 13-17, 2008
- [69] “Workshop and Lectures on “Photonics Design Tools” in association with RSOFT (USA) on December 12, 2008
- [70] “**DCE Innovates**” during national seminar on “Knowledge Power in the world of Learning” at DCE Delhi on August 26, 2008
- [71] “Light wave propagation through optical fibers and Photonic Crystal Fibers” **Invited talk** at National Institute of Technology, Hamirpur (H.P.)-177005 on August 20, 2008
- [72] **Delivered a talk** on “Research on Photonic Crystal fibers and waveguides at DCE”, St. Andrew University, UK on June 23, 2008
- [73] “Photonic Crystal Dual Band Wavelength Multiplexure” in seminar cum group **discussion meetings** at Glasgow University, UK during June 11 to June 22, 2008
- [74] “R&D activities of TIFAC-CORE at DCE Delhi” on January 18, 2008 at Division of Media network, Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan

18. List of Publications: A total of **350** Research Papers, which includes (i) **Journals:157** (ii) **Conf. Proceedings/presentation:193** (iii) **Books/Book Chapters:08** and (iv) **Patent: 05**

(a) Research Papers in Journals:

- [1] "Extremely high figure of merit in all dielectric split asymmetric arc metasurface for refractive index sensing", Keshav Samrat Modi, Jasleen Kaur, SP Singh, Umesh Tiwari and **Ravindra Kumar Sinha**, **Optics Communication**, Vol 462, pp 125327, 2020 (*Impact factor: 1.887*)
- [2] "High performance dual cavity-Interferometric volatile Gas –sensor utilizing Graphene/PMMA Nanocomposite", Dnyandeo Pawar, Rajesh Kanawade, Ajay Kumar, Ch.N. Rao, Peijiang Cao, Shankar Gaware, Dattatray Late, Y.M. Lu, **Ravindra K Sinha**, **Sensors and Actuators B: Chemical**, Vol 312, Article 127921, <https://doi.org/10.1016/j.snb.2020.127921>, 2020 (*Impact factor: 6.393*)
- [3] "Temperature Assisted broadly tunable supercontinuum generation in chalcogenide glass based capillary optical fiber", Satya P Singh, Jasleen Kaur, Keshav Samrat Modi, Umesh Tiwari and **Ravindra Sinha**, **Journal of Optical Society of America (JOSAB)**, <http://doi.org/10.1364/JOSAB.387491>, 2020 (*Impact factor: 2.284*)
- [4] "Improvement in short-circuited coaxial flange for evaluating microwave superconducting properties at low temperature", Y. Kalra, S.M. Patel, V.N. Ojha and **R. K. Sinha**, **Indian Journal of Pure and Applied Physics (IJPAP)**, Vol 58, Issue 1, pp 5-10, 2020
- [5] "TiO₂ nanofibers decorated with green-synthesized P AU/Ag@CQDs for the efficient photocatalytic degradation of organic dyes and pharmaceutical drugs", A. Thakur, P. Kumar, D. Kaur, N. Devunuri, **R.K. Sinha** and P.Devi, **RSC Advances**, Vol 10, Issue 15, pp 8941-8948, 2020 (*Impact factor: 3.049*)
- [6] "Boosting photoelectrochemical performance of GaN nanowall network photoanode with bacteriorhodopsin", P. Devi, A. Thakur, D. Ghosh, ES Prasad, SM Shivaprasad, **R. K. Sinha**, **International Journal of Hydrogen Energy**, Vol 45, Issue 1, pp 103-111, 2020 (*Impact factor: 4.229*)
- [7] "An efficient approach to derive TiO₂ nanoparticles infused carbon composite from MIL-125 (Ti) for all solid state symmetrical supercapacitor", Vishal Srivastva, Shashank Sundriyal, Ki-Hyun Kim, **Ravindra Kumar Sinha**, Umesh Tiwari, Akash Deep, **International Journal of Energy Research**, Article ID: ER5328, DOI: 10.1002/er.5328, Accepted for publication, 2020 (*Impact factor: 3.343*)
- [8] "Study of sonication assisted synthesis of Molybdenum disulphide (MoS₂) nanosheets", S. Kaushik, U.K. Tiwari, R.K. Choubey, K. Singh and **R. K. Sinha**, **Materials Today: Proceedings**, Vol 21, pp 1969-1975, 2020
- [9] "Metasurfaces for magnetic field enhancement", Keshav Samrat Modi, Satya Pratap Singh, Jasleen Kaur, Umesh Tiwari, **Ravindra Kumar Sinha**, **Asian Journal of Physics**, Vol. 28 Nos 7-9, 2019, 655-660.

- [10] "Zero Index Metamaterial based optical nano antenna", Nishant Shankhwar, Yogita Kalra, Qiang Li, **Ravindra Kumar Sinha**, **AIP Advances**, Vol 9, pp 035115 (1-7), doi: 10.1063/1.5086234, 2019 (*Impact factor: 1.731*)
- [11] "Fiber Optic Fabry –Perot Interferometer Sensor: an efficient and fast approach for ammonia gas sensing", Rajesh Kanawade, Ajay Kumar, Dnyadaeo Pawar, Dattatray Late, Samir Mondal and **Ravindra Sinha**, **Journal of Optical Society of America B**, Vol 36, Issue 3, pp 684-689, 2019(*Impact factor: 2.284*)
- [12] "Negative Axicon tip based Fiber Optic Interferometer Cavity Sensor for volatile Gas sensing", Rajesh Kanawade, Ajay Kumar, Dnyadaeo Pawar, Dattatray Late, **Ravindra Sinha** and Samir Mondal, **Optics Express**, Vol 27, Issue 5, pp 7277-7290, 2019(*Impact factor: 3.561*)
- [13] "Label free detection of Escherichia Coli bacteria by cascaded chirped long period gratings immunosensor", Siddharth Kaushik, Umesh Tiwari, Nilima, Shivendu Prashar, Bhargab Das and **Ravindra K Sinha**, **Review of Scientific Instruments**, Vol 90, pp 025003(1-9), 2019(*Impact factor:1.587*)
- [14] "Quantum dot activated indium gallium nitride on silicon as photoanode for solar hydrogen generation", Praveen Kumar, Pooja Devi, Rishabh Jain, S. M. Shivaprasad, **R. K. Sinha**, Guofu Zhou & Richard Nötzel, **Nature Communications Chemistry**, Vol 2, Issue 4, doi: 10.1038/s42004-018-0105, 2019
- [15] "Design and development of a field deployable packaged fiber Bragg grating based accelerometer", Umesh Kumar Tiwari, Than Singh Saini, Vipender Negi, Amit pande, Harry Garg, **Ravindra Kumar Sinha**, **Optical Engineering**, Vol 58, Issue 1, 014104, 2019 (*Impact Factor: 1.209*)
- [16] "Rapid detection of Escherichia coli using fiber optic surface Plasmon resonance immune sensor based on bio functionalized Molybdenum disulfide(MoS₂) nanosheets", Siddharth Kaushik, Umesh K. Tiwari, Sudipta S. Pal, **Ravindra K. Sinha**, **Bio-Sensors and Bioelectronics**, Vol 126, Issue 1, pp 501-509, 2019 (*Impact Factor: 9.518*)
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- [18] "Two Dimesional transition metal chalcogenides assisted biofunctionalized optical fiber SPR biosensor for efficient & rapid detectionof bovine serum albumin", Siddharth Kaushik, Umesh K. Tiwai, Akash Deep & **Ravindra K Sinha**, **Scientific Reports-Nature**, Vol 9 Issue 1, pp. 6987, 2019 (*Impact Factor: 4.525*)
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- [22] "Design and analysis of Dispersion Engineered Rib waveguides for on-chip Mid-Infra red supercontinuum", Than Singh Saini, Umesh K Tiwari and **R. K. Sinha**, **IEEE/OSA Journal of Lightwave Technology**, Vol.36, Issue 10, pp 1993-1999, 2018 (*Impact factor: 4.162*)
- [23] "Structural, Optical and Carrier dynamics of self-assembled InGaN nanocolumns on Si(111)", Praveen Kumar, Pooja Devi, PED Soto Rodriguez, Rishabh Jain, Neena Jaggi, **R.K.Sinha**, Mahesh Kumar, **Superlattices and Microstructures**, Vol. 117, pp. 25-30, 2018 (*Impact Factor: 2.385*)
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- [28] "Deep Seated Negative Axicon in Selective Optical Fibre Tip and Collimated Bessel Beam," Kaushal Vairagi, Rashmi A Minz, Sarabjeet Kaur, Dharmadas Kumbhakar, Sambhav Paul, Umesh Tiwari, **Ravindra K Sinha**, Jochen Fick, Samir K Mondal, **IEEE Photonics Technology Letters**, Vol.29, No. 10, pp.786-789, 2017 (*Impact factor: 2.553*)
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- [33] "Realization of all Optical Logic Gates using universal NAND gates on Photonic Crystal Platform", Preeti Rani, Shiba Fatima, Yogita Kalra, **R. K. Sinha**, **Superlattices and Microstructures**, Vol.109, pp. 619-625, 2017(*Impact factor: 2.385*)
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- [40] "SBS based slow-light generation in rectangular lattice graded-index photonic crystal fiber: design and analysis", Sandeep Yadav, Ajeet Kumar, Than Singh Saini, **Ravindra Kumar Sinha**, **Optik - International Journal for Light and Electron Optics**, Vol. 132, pp. 164 – 170, 2017 (*Impact factor: 1.914*)
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