

Curriculum Vitae

Shantanu Bhattacharya

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I. Education:

Date	Degree	Major	Institution
2003-2006	PhD	Bio Engineering	University of Missouri, Columbia, USA
2002-2003	MS	Mechanical Engineering	Texas Tech University, Lubbock, Texas, USA
1992-1996	BS	Industrial and Production Engineering	Delhi College of Engineering, University of Delhi

II. Professional Experience:

Date	Position	Organization
Jan, 2017 onwards	Head, Design Program	Design program, Indian Institute of Technology Kanpur
July 2016 onwards	Professor	Department of Mechanical Engineering, Indian Institute of Technology, Kanpur.
2012-July, 2016	Associate Professor	Department of Mechanical Engineering, Indian Institute of Technology, Kanpur.
2013-2015	Institute appointed Faculty Coordinator	TA202 core undergraduate manufacturing laboratory, Indian Institute of Technology, Kanpur.
2013	Institute appointed Faculty Coordinator	4-i Industrial Laboratory, Indian Institute of Technology, Kanpur.
2013	Department appointed Convenor	Manufacturing Science and Technology Stream, Indian Institute of Technology, Kanpur.
2013	Institute senate appointed committee member	P.K. Kelkar Library, Indian Institute of technology, Kanpur.
2013	Institute appointed committee member	Institute space planning and allocation committee, Indian Institute of Technology, Kanpur.
2011	Visiting Assistant Professor	College of Engineering, University of Missouri, Columbia, USA.
2011	Visitor	World Class University Program at Yeungnam University, Daegu, Dae-dong, Gyeongsangbuk-do, South Korea.
2009	Visitor (27 th Sept-12 th October, 2009)	University of Missouri, Columbia, University of Illinois at Urbana Champaign, University of California at Irvine, USA.
2008	Institute Appointed Boeing Focal for Undergraduate activities	Office of Dean of Research and Development, Indian Institute of Technology Kanpur.
2008	Faculty Coordinator	Microsystems Fabrication Laboratory, Department of Mechanical Engineering, Indian Institute of Technology, Kanpur.
2007-2012	Assistant Professor	Department of Mechanical Engineering, Indian Institute of Technology, Kanpur.
2006-2007	Post Doctoral Research Fellow	Birck Nanotechnology Center, Purdue University, West Lafayette, Indiana, USA.
1996-2002	Senior Manager	Suzuki Motors India Limited, Gurgaon, Harayana, India.

III. Current Research:

1. Integrated detection of food borne pathogens on a single microchip platform. **(Department of Biotechnology funded, DBT)**
2. Design and development of nanostructured gas sensors for automotive applications. **(National program on micro and smart structures, NPMASS Funded)**
3. Surface Electrophoresis of ds-DNA across nano-structured surfaces **(Department of Science and Technology funded, DST).**
4. Design and development of a novel miniaturized polymeric micropumps for drug delivery applications. **(NPMASS funded)**
5. Design and development of a completely autonomous ground vehicle under the Boeing University Relations Program. **(Funded by Boeing corporation)**
Details available at <http://www.iitk.ac.in/dord/boeing/>
6. Development of 3-Dimensional microchannel arrays by using a novel method and use of these arrays as vibration pads, micro-solenoid valves etc.
7. Development of Label free detection schemes for DNA amplification. **(Funding requested from Department of Science and Technology, DST)**
8. Liquid core waveguide based immunoassays for capture of food borne pathogens. **(DBT funded)**
9. Nano-engineered energetic composite development for gene delivery applications. **(DST funded)**

IV. Past Research Experience:

1. Extensive surface characterization studies for polymer surfaces after exposure to gas plasma and their application to development of novel electrode materials for electrochemical measurements. **(NPB, NIH funded)**
2. Designing and Developing of a MEMS based (on-chip) diagnostic setup to study flame propagation velocity in Nanothermites and on chip blast pressure measurements of nanosynthesized energetics. **(DOD funded)**
3. Design, fabrication and testing of on chip PCR based DNA microanalyzer. **(National Pork Board, NPB and NIH funded). Patent being licensed to Park Technologies.**
4. Design and development of Impedance recognition and PCR based identification of food micro-organisms. **(USDA funded)**
5. Development and standardization of micro-fabrication protocols for Silicon, Glass and PDMS. **(NSF, CRCD funded).**
6. Micro mixer design and development. **(NSF, CRCD funded)**

IV. Teaching Experience:

At IIT Kanpur (for the last about 7 years):

- (1) Introduction to Manufacturing Process (TA202A) **(UG institute Core course of Institute wide IInd Year UG students with hands on fabrication of live mechanisms for motion transfer)**
- (2) Advanced Manufacturing Techniques (ME662) highlighting modeling for Non-traditional Machining Techniques **(PG level institute compulsory course)**
- (3) Bio- Micro electro mechanical systems **(PG/UG level institute elective course offered as an institute minor for Mechanical Engineering): New Course developed**
- (4) Manufacturing Processes (Process Modeling based **UG level** departmental

compulsory course for IIIrd Year)

(5) Manufacturing Systems (**UG level departmental compulsory course** for IVth Year):
03 semesters

(6) Computer Integrated Manufacturing Systems (**VLFM** program, part teaching and **full CIMS laboratory**.)

(7) Product Design New Product Management (**VLFM** program, part teaching and **full product module development exercise**.)

(8) Integrated Product Design (**PG compulsory course** for **design program DESC 682**, Engineering track)

At Other Places:

(1) Delivered a 20 hours lecture module to **graduate students** at the **University of Missouri-Columbia** in the area of “**BioMEMS and Microsystems**”- 2011.

(2) Taught a 2-semester hands on MEMS fabrication training course at “**Texas Tech University**”- (2002-2003).

(3) Delivered a 12 hour lecture series on “**Nanotechnology and Nanoelectromechanical Systems**” for Industrial Research and Development units at Mumbai, India (2009)

(4) **Manufacturing Technology Management** Web-based course with IACT Global, for industry managers for manufacturing technology management. (2011-2012)

(5) Delivered a 20 hours lecture series at Suzuki Motors India Limited, Gurgaon for “**Lean manufacturing**”. (2013)

V. Academic Honors and Awards:

Research Awards:

- **Fellow of the Institution of Engineers of India (FIEI)**, 2016.
- **VIFA 2016** award, **Distinguished Faculty in BioMEMS**, 2016.
- **NDRF**(National Design Research Forum), **IEI, Best Mechanical engineering design award-2014**.
- **ISSS** (Institute of Smart Structures and Systems) **Young Scientist Award-2013**.
- **Honorary Fellow of the Institute of High Energetic Materials** in Melbourne, **2011**.
- **IEI (Institute of Engineers of India)**, **Young Engineers Award, 2010** in Mechanical Engineering.
- Selected in **Chancellor’s list** 2005-2006 and 2003-2004.
- **Huggins Graduate Fellowship** awarded from 2004~2006, at the University of Missouri at Columbia.
- Awarded 3rd place in the college wide research creative activities competition in 2006 at the University of Missouri at Columbia.
- Awarded 2nd place in the research poster contest held as a part of the Life-sciences week 2004 at MU. Won a mini research grant of \$500.

Academic Honors and recognitions:

- Nominated for the best graduate student award~2005.
- Nominated for the best student entrepreneur award~2006.
- Awarded a IEEE certificate of recognition for an invited talk in IIT (KGP) in December 2003.

Service Honors and recognitions:

- **Associate Editor** of “**The nanotechnology and nanoscience**”, 2011.
- Appointed as **Editorial board member** of the journal, “**New Trends in Mechanical Engineering**”, 2013.

- **Boeing Outstanding Leadership certificate**, 2009-2010, Boeing Corp. USA.
- **Best teachers awards (07 times each)** from the Senate of the Indian Institute of Technology Kanpur for Courses (1) Advanced manufacturing Techniques and (2) Introduction to Bio-MEMs and Microsystems.
- Represented the Design Program in Stanford University for the Global Kickoff Event of ME310 course (2014).
- Nominated as a **member of a review panel by the Indo-German Science and Technology Council** for reviewing proposals related to water sensing and remediation. (2015).

VI. Research Grants and Contracts:

- (1)**Initiation Grant Proposal**, Indian Institute of Technology, Kanpur, "Multiplex assaying of water borne pathogens using a Micro-chip platform", **Funded** (Sep. 2007- Sep. 2008). (Amount: **10,00,000 INR, Equivalent USD \$20,000**). **PI**
- (2)**Department of Biotechnology, Government of India** "Integrated Dielectrophoresis based concentration and real time PCR based identification of food pathogens in a single microchip", **Funded** (August 2008) (Amount: **41,50,000 INR, Equivalent USD \$83,000**). **PI**
- (3)**Proposal Reach Symposium-2008**, Indian Institute of Technology-Kanpur, "Development and validation of a microchip platform based technique to count bacteria", **Funded** (May-2008). (Amount: **5,00,000 INR, Equivalent USD \$10,000**). **PI**
- (4)**CARE 2008 competitively funded proposal**, Office of Dean of Research and Development. Indian Institute of Technology-Kanpur, "Developing a micro-fabrication facility", **Funded** (October-2008).(Amount: **41,00,000 INR, Eq. USD \$82,000**). **PI**
- (5)**EXTENDED CARE 2008 competitively funded proposal**, Office of Dean of Research and Development. Indian Institute of Technology-Kanpur, "Developing a micro-fabrication facility", **Funded** (October-2008). (Amount: **1,50,00,000 INR, Eq. USD \$300,000**). **PI**
- (6)**Boeing Corporation**, competitively funded proposal through the university relations program of Boeing "Design and development of a completely autonomous ground and aerial navigation system", **Funded** (January-2008~ December-2014). (Amount: **1,18,64,946 INR, Eq. USD \$237,299**). **PI**
- (7)**National Program on Micro and Smart Structures (NPMASS), Government of India** "A novel MEMS based gas-sensor platform for automotive applications", **Funded** (March 2010). (Amount: **44,00,000 INR, Eq. USD \$88,000**). **PI**
- (8)**National Program on Micro and Smart Structures (NPMASS), Government of India**, "Miniaturized polymeric fluidic pumps based on principle of peristalsis", **Funded** (March 2011). (Amount: **52,50,000 INR, Eq. USD \$105,000**). **PI**
- (9) **National Program on Micro and Smart Structures (NPMASS), Government of India**, "MEMS design center at IIT Kanpur", **Funded** (March 2009). (Amount: **3198500 INR, Eq. USD \$48462**). **PI**
- (10)**Department of Science and technology, Government of India**, "DST unit of Nano-sciences", **Funded** (January 2012). (**Joint proposal of several faculty members**).**Co-PI**
- (11)**Department of Science and Technology, SERB, Government of India** "A novel high efficiency micro-scale gene transfection system using nanoenergetic materials",

- Funded** (August 2012) (Amount **31,00,000INR, Eq. USD \$62,000**). **PI**
- (12) **Department of Biotechnology, Food and Nutrition Security, Government of India.** “Development of Biosensors Using Nano-scale Materials”, **Funded** (August 2012) (Amount: **45,00,000 INR, Eq. USD \$ 90,000**). **PI**
- (13) **Sardar patel post graduate institute of dental and medical sciences (SPPGSDMS),** Design and fabrication of a dental chair for rural India. **Funded** (February 2015) (Amount: **5,50,000, INR, Eq. USD \$9000**). **PI**
- (14) **Boeing Corporation, USA,** “Additive Manufacturing of Functionally Engineered Materials”. **Funded** (April 2016) (Amount: **59,50,000 INR, Eq. USD 87,500**). **PI**
- (15) **Department of Science and Technology, Water Treatment Initiative,** “Installation of a pilot plant of 10 KLD capacity comprising ZnO-Graphene based sensitive photo catalytic filter for visible light catalysis and carbon nano-mat fiber filter for the treatment of the effluent of CETP, Jodhpur as a replacement of their secondary treatment unit and development of an alternative low cost process for dye adsorption on acid modified soil”, **Funded** (Amount: **120,00,000 INR, USD \$ 176470**), **PI**
- (16) **Indian Space research organization,** “Development of a Gas Sensor to detect leakage of Helium gas from Inflatable Space Structures”, **Funded** (Amount: **1976000 INR, USD \$29059**). **PI**

VII: Professional Activities:

Membership in Professional Organization:

- (a) Member of Editorial Board of the Journal of Green Nanotechnology.
- (b) Member of American Society of Mechanical Engineers.
- (c) Member of Biomedical Engineering Society.
- (d) Member of American Society of Engineering Education.
- (e) Member of DST unit on Nano-sciences at IIT Kanpur.

Reviewership of Journal:

- (a) Reviewer of Biomedical Microdevices.
- (b) Reviewer of International journal of Manufacturing technology and management.
- (c) Reviewer of Current Science.
- (d) Reviewer of Cancer.
- (e) Reviewer of Journal of Bionanotechnology.
- (f) Reviewer of Micro-fluidics and Nano-fluidics.

Conference Founder/ co-founder:

- (a) Golden Jubilee International Conference on Environmental Health and Technology, March, 2010. **Co-Founder**
- (b) Organized a 10 days training workshop at CEERI Pilani for fabrication of MEMS polysilicon Piezo-resistive pressure sensors, July-2010. **Founder**
- (c) National Workshop on MEMS technologies and its applications, IIT Kanpur, Sept.-2009, **Founder.**
- (d) Golden Jubilee International Symposium on Fabrication at Small Scales (FASS) and (e) Indo-US conf. on Fabronics: Science of adv. fabrication, Dec.-2009. **Co-Founder**
- (e) International workshop on futuristic shaping technologies at the Meso, Micro and Nano-scales" October-2007. **Co-Founder**
- (f) QIP programs on CNC (Computer Numeric Control) technology, 5-9th, October 2013, 15-19th, March 2014, 20-22nd, July, 2014 etc.
- (g) Organizing the Boeing Engineering Innovations Award workshop (BEIA) for the National Aero-modeling Contest sponsored by Boeing, 30th Nov- 01st Dec, 2013. **Founder**
- (j) Organized the “Advanced Micro/ Nano Technology-2016” TEQUIP workshop at IIT Kanpur. **Founder.**

Publications : Refereed Jorunal papers

S.No.	Author(s)	Year	Title	Complete Reference of Journal
1	Shantanu Bhattacharya, J.M. Berg, S. Gangopadhyay	2005	Studies on surface wettability of PDMS and glass under oxygen plasma treatment and correlation with bond strength.	<i>Journal of Microelectromechanical Systems</i> , Vol.14, No.3, June 2005
2	Shantanu Bhattacharya, Yuanfang Gao, Steve Apperson, Rajesh Shende, S. Gangopadhyay	2006	A novel on-chip diagnosis method to detect flame velocity of nanoscale thermites	<i>Journal of Energetic materials</i> , Vol. 24, pp. 1-15, Jan. 2006.
3	Shantanu Bhattacharya, Venumadhav Korampally, Yuanfang Gao, Maslina Othman, Sheila A. Grant, Keshab Gangopadhyay, Shubhra Gangopadhyay	2007	Optimization of design and fabrication process for realization of a PDMS-Silicon DNA amplification chip	<i>Journal of Microelectromechanical systems</i> , Vol.16, pp.401-410, 2007
4	Shantanu Bhattacharya, Yuanfang Gao, Venumadhav Korampally, M.T. Othman, Sheila Grant, Keshab Gangopadhyay, Shubhra Gangopadhyay	2007	Mechanics of plasma exposed spin-on-glass (SOG) and polydimethyl siloxane (PDMS) surfaces and their impact on bond strength	<i>Applied Surface Science</i> , Vol. 253, no. 9, pp.4220-4225, 2007
5	Shantanu Bhattacharya, Jaesung Jang, Liju Yang, Demir Akin and Rashid Bashir	2007	BioMEMS and Nanotechnology based approaches for rapid detection of Biological entities- Invited Review	<i>The Journal of Rapid methods and automation in microbiology</i> , Vol.15, pp.1-32, 2007
6	Maruf Hossain, Senthil Subramaniam, Shantanu Bhattacharya, Yuanfang Gao, Steve Apperson, Rajesh Shende, Suchi Guha, Shubhra Gangopadhyay	2007	Crystallization of amorphous silicon by self propagation of nanoenergetic thermites	<i>Journal of applied physics</i> , Vol. 101, pp. 054509-1~6, 2007
7	Shantanu Bhattacharya, Shuaib Salamat, Dallas Morrisette, Padmapriya Banada, Yishao Liu, Demir Akin, A.K. Bhunia, Michael Ladisch and Rashid Bashir	2008	PCR-based detection in a micro-fabricated platform	<i>Lab on chip</i> , Vol.8, 1130-1136, 2008.

8	Shantanu Bhattacharya , Nripen Chanda, Deb Gangopadhyay, Keshab Gangopadhyay and Shubhra Gangopadhyay,	2008	Low voltage capillary electrophoresis using high conductivity agarose nano-platinum composites.	<i>Sensor Letters</i> , Vol.6, 1~6, 2008.
9	Shantanu Bhattacharya , Nripen Chanda, Yi Shao Liu, Sheila A. Grant, Keshab Gangopadhyay, Rashid Bashir, Paul Sharp and Shubhra Gangopadhyay	2008	Enhanced DNA separation rates on nano-platinum doped agarose	<i>Journal of Bionanosciences</i> , Vol.2, pp. 1-8, 2008 .
10	Yi-Shao Liu, Padmapriya Banada, Shantanu Bhattacharya , Arun K. Bhunia and Rashid Bashir	2008	Electrical characterization of DNA molecules in solutions using DNA measurements	<i>Applied Physics Letters</i> , Vol. 92, 143902, 2008
11	Sangho Bok, Arnold A. Lubguban, Yuanfang Gao, Shantanu Bhattacharya , Kevin Gillis, Sanju Gupta, Paul R. Sharp and Shubhra Gangopadhyay	2008	Synthesis of electrochemically active Silica matrix bound carbon based electrode materials via Sol-Gel process	<i>Journal of Electrochemical Society</i> , Vol. 155, No. 5, K91-K95, 2008.
12	Ok Kyng Koo, YiShao Liu, Shuaib Salamat, Shantanu Bhattacharya , Michael R. Ladisch, Rashid Bashir and Arun K. Bhunia,	2009	Targetted capture of pathogenic bacteria using a mammalian cell receptor coupled with dielectrophoresis on a biochip.	<i>Analytical Chemistry</i> , Vol. 81 (8), pp 3094–3101, 2009 .
13	Anil Ghubade, Swarnasri Mandal, Rahul Chaudhury, Rajeev Kr. Singh and Shantanu Bhattacharya	2009	Dielectrophoretic Assisted Concentration of Micro-particles and their rapid quantitation based on optical means.	<i>Biomedical Microdevices</i> , Vol. 11 (5),pp. 987-995 2009 .
14	Yuanfang Gao, Shantanu Bhattacharya , Xiaohui Chen, Syed Barizuddin, Shubhra Gangopadhyay, Kevin D. Gillis	2009	A microfluidic cell trap device for automated measurement of quantal catecholamine release from cells	<i>Lab on chip</i> , Vol. 9, 3442 - 3446, 2009 .

15	Shantanu Bhattacharya , R.K. Singh, Swarnasri Mandal, Sangho Bok, Venumadhav Korampally, Keshab Gangopadhyay, Shubhra Gangopadhyay	2010	Plasma modification of polymer surfaces and their utility in building Biomedical microdevices. (Invited Review)	<i>Journal of Adhesion Science and Technology</i> , Volume 24, 15-16, 2707-2739(33), 2010 .
16	Rahul Chaudhury, R.K. Singh, Anil B. Ghubade, Swarnasri Mandal, Shantanu Bhattacharya	2010	Bilayered staggered Herringbone micromixers with Symmetric and Assymetric geometries	<i>Microfluidics nanofluidics</i> , Vol. 4, 419-425, 2010 .
17	Arnab Ghosh, Tarak K. Patra, Rishi Kant, Rajeev Kr. Singh, Jayant K. Singh, Shantanu Bhattacharya	2011	Surfaces electrophoresis of ds- DNA across orthogonal pair of surfaces.	<i>Applied Physics Letters</i> , Vol. 98, 1,1-4, 2011 .
18	Rishi Kant, Himanshu Singh, Monalisha Nayak, Shantanu Bhattacharya	2012	Optimization of design and characterization of a novel micro- pumping system with peristaltic motion	<i>Microsystems Technologies</i> , 2012 , DOI: 10.1007/s00542-012- 1658-y
19	Rajeev Kumar Singh, Rishi kant, Mohammad Asfer, Bishakh Bhattacharya, Pradipta K. Panigrahi & Shantanu Bhattacharya	2012	Passive vibration damping using polymer pads with micro-channel arrays	<i>Journal of Microelectromechanical Systems</i> , 2012, DOI: 10.1109/JMEMS.2013.2241392
20	Rajeev Kumar Singh, Ankur Gupta, Shantanu Bhattacharya	2013	Design and fabrication of 3- dimensional helical structures in polydimethylsiloxane for flow control applications	<i>Microsystems Technologies</i> , 2013, DOI: 10.1007/s00542-013- 1738-7
21	Monalisha Nayak, Deepak Singh, Himanshu Singh, Rishi Kant, Ankur Gupta, Shashank Shekhar Pandey, Swarnasri Mandal, Gurunath Ramanathan & Shantanu Bhattacharya	2013	Integrated sorting, concentration and realtime PCR detection system for sensitive detection of Micro-organisms	<i>Nature Scientific Reports</i> , 20/11/2013, DOI:10.1038/srep03266
22	Avinash Kumar , Ankur Gupta , Rishi Kant , Syed Nadeem Akhtar , Nachiketa Tiwari , J. Ramkumar , Shantanu Bhattacharya	2013	Optimization of LASER machining process for the preparation of photo masks and its application to Micro- systems fabrication	<i>J. Micro/Nanolith. MEMS MOEMS</i> . 12(4), 041203 (Sep 25, 2013)., DOI:10.1117/1.JMM.12.4.041203

23	Ankur Gupta, Shashank Shekhar Pandey, Monalisha Nayak, Arnab Maity, Subhashish Basu Majumder, Shantanu Bhattacharya	2014	Hydrogen sensing based on nanoporous silica-embedded ultra dense ZnO nanobundles	<i>RSC Adv.</i> , 2014, 4 (15), 7476 - 7482
24	Ankur Gupta, Abhinav Srivastava, Cherian Joseph Mathai, Keshab Gangopadhyay, Shubhra Gangopadhyay, Shantanu Bhattacharya	2014	Nanoporous Palladium sensor for sensitive and rapid detection of Hydrogen	<i>Sensor letters</i> , 12, 1279-1285, 2014
25	Akshay Atwe, Ankur Gupta, Rishi Kant, Shayandev Sinha, Ishan Sharma, Shantanu Bhattacharya	2014	A novel microfluidic switch for pH control using Chitosan based Hydrogels.	<i>Microsystems Technology</i> , DOI 10.1007/s00542-014-2112-0, 2014
26	Vinay Kumar Patel, Shantanu Bhattacharya	2013	High-Performance Nanothermite Composites Based on Aloe-Vera-Directed CuO Nanorods	<i>ACS Applied Materials and Interfaces</i> , 5 (24), 13364-13374, 2014.
27	Brindan Tulachan, Sunil Meena, Ratan Rai, Chandrakant Mallick, Tejas Kusurkar, Arun Kumar Teotia, Niroj Sethy, Kalpana Bhargava, Shantanu Bhattacharya , Ashok Kaul, Raj Kishore Sharma, Neeraj Sinha, Sushil Singh, and Mainak Das	2014	Electricity from the Silk Cocoon Membrane	<i>Nature Scientific Reports</i> , 4 : 5434 DOI: 10.1038/srep05434, 2014
28	Rishi Kant, Shantanu Bhattacharya	2016	Optimization of laser micromachining process for fabrication of a portable piezo based micropump for field applications	<i>Sensors and Actuators-A Physical</i> , 2016 Under Review
29	Seema D. Yardi, Ankur Gupta, Poonam Saundriyal, Geeta Bhatt, Rishi Kant, D. Boolchandani, Shantanu Bhattacharya	2016	High efficiency coupling of optical fibres with SU8 micro-droplet using laser welding process	<i>Laser in Manufacturing and Materials Processing</i> , DOI: 10.1007/s40516-016-0027-6, 2016

30	Vinay Kumar Patel, Jayant Raj Saurav, Keshab Gangopadhyay, Shubhra Gangopadhyay, Shantanu Bhattacharya	2015	Combustion Characterization and Modeling of Novel Nanoenergetic Composites of Co ₃ O ₄ /nAl	<i>RSC Adv.</i> , 2015, 5 , 21471-21479 DOI: 10.1039/C4RA14751K.
31	Vinay Kumar Patel, Anurup Ganguli, Rishi Kanta, Shantanu Bhattacharya	2015	Micro-patterning of Nano-energetic Films of Bi ₂ O ₃ /Al for Pyrotechnics	<i>RSC Adv.</i> , 2015, 5 , 14967-14973 DOI: 10.1039/C4RA15476B
32	Rajeev Kumar Singh, Rishi Kant, Sushant Singh, E. Suresh, Ankur Gupta, Shantanu Bhattacharya	2015	A novel helical micro-valve for embedded micro-fluidic applications.	<i>Microfluid Nanofluid</i> , 2015, DOI 10.1007/s10404-015-1543-y
33	Ankur Gupta, Kunal Mondal, Ashutosh Sharma, Shantanu Bhattacharya	2015	Superhydrophobic Polymethylsilisesquoxane pinned one dimensional ZnO nanostructures for water remediation through photo-catalysis	<i>RSC Adv.</i> , 2015, 5 , 45897
34	Ankur Gupta, Shubhra Gangopadhyay, Keshab Gangopadhyay, Shantanu Bhattacharya	2016	Palladium functionalized nano structured platforms for enhanced hydrogen sensing	<i>Nanomaterials and nanotechnology</i> , DOI: 10.5772/63987, 2016
35	Anurup Ganguly, Vinay K. Patel, Deepak Singh, Maniak Das, Keshab Gangopadhyay, Shubhra Gangopadhyay, Shantanu Bhattacharya	2015	A novel high yield gene-delivery technique using shock wave electrophoresis combination.	<i>Manuscript under preparation</i> , 2016
36	Ankur Gupta, D. Singh, P. Raj, Himanshu Gupta, S. Verma, Shantanu Bhattacharya	2015	Antimicrobial investigation of ZnO-HAP nanocomposites for biomedical applications	<i>Journal of Bionanosciences</i> 9 , 190-196 (2015)
37	Ankur Gupta, Jayant Raj Saurav, Shantanu Bhattacharya	2015	Solar light based degradation of organic pollutants using ZnO nanobrushes for water filtration .	<i>RSC Adv.</i> , 2015, 5 , 71472

38	V.K. Patel, Deepak Singh, Ankur Gupta, Rishi Kant and Shantanu Bhattacharya	2015	Surface functionalization to mitigate fouling of biodevices: A critical review.	<i>Reviews of Adhesion and Adhesives</i> , 3 (4), 2015.
39	Vinay Patel, Shantanu Bhattacharya	2016	PEG8000/ Aloe-vera assisted synthesis of ZnO nanorods and its relative catalytic thermal decomposition of KClO ₄ with CuO nanorods and Co ₃ O ₄ nanobelts.	<i>Particulate Science and technology</i> , , DOI: 10.1080/02726351.2016.1163299, 2016
40	Ankur Gupta, Deepak Singh, Shantanu Bhattacharya	2016	Surface modification strategies for nanobiodevices	<i>Reviews of Adhesion and Adhesives</i> , 4(2), 166-191, 2016, DOI: 10.7569/RAA.2016.097307
41	Thimmappa Shetty Guruprasad, Shantanu Bhattacharya , Sumit Basu	2016	Size effect in microcompression of polystyrene micropillars	<i>Polymers</i> , Vol. 98, pp. 118-128, doi:10.1016/j.polymer.2016.06.010 , 2016.
42	Rishi Kant, Himanshu Singh, Shantanu Bhattacharya	2016	Nanoscale etching of particles in serpentine micromixers	<i>Journal of nanoscience and nanotechnology</i> , doi:10.1166/jnn.2017.13835 , Vol. 17, 1–11, 2017
43	Rishi Kant, Deepak Singh, Shantanu Bhattacharya	2016	Microfluidics on Printed Circuit Boards: Rapid counter for Fluorescent Microbeads	<i>Biomedical Microdevices</i> , Under review, 2016.
44	Kulwant Singh, Ashwin Shridhar, Anirrudh Kulkarni, Bishakh Bhattacharya, Shantanu Bhattacharya	2016	Directional vibration suppression of viscoelastic dampers using oil filled helical microchannels	<i>Journal of Vibration and control</i> , Accepted, In Press, 2016.
45	Sanjay Kumar, Pulak Bhushan and Shantanu Bhattacharya	2016	Design and fabrication of paper based device for colorimetric detection of uric acid using gold nanoparticles–graphene oxide (AuNPs-GO) conjugates	<i>Analytical Methods</i> , DOI: 10.1039/c6ay01926a, 2016.
46	Sanjay Kumar, Aviru Kumar Basu, Anubhuti Saha, Shantanu Bhattacharya	2016	Fabrication of nanostructures with bottom-up-approach and their utility in sensing, diagnostics and therapeutics	<i>Journal of nanoscience and Nanotechnology</i> , Under review, 2016.
47	Vinay Kumar Patela, Anu Chowdhury, Madhu Sudan Painullya, Shantanu Bhattacharya	2016	Aluminum-foil Forming through micro-blasts created through nano-engineered Bi ₂ O ₃ / n-Al based energetic systems.	<i>Journal of Micro., nano manufacturing</i> , Under Review, 2016

48	Poonam Sundriyal, Shantanu Bhattacharya	2016	Polyaniline- Silver nanoparticle-coffee waste extracted porous graphene nanocomposite structures as novel supercapacitor materials	Material Research Express, <i>Under review, 2016</i>
49	Pankaj Singh Chauhan, Shantanu Bhattacharya	2016	Room Temperature Helium gas sensing through Vanadium Pentoxide nanostructures	Sensors and Actuators-A Physical, <i>Under review, 2016</i>
50	Aviru Basu, Prabhat Dwivedi, Shantanu Bhattacharya	2016	Fabrication of Polymeric micro-cantilever arrays through a single masking step in various geometric configurations and their wide ranging mechanical behavior for sensing and actuation	Journal of Microelectromechanical Systems, <i>Under review, 2016</i>
51	Pankaj Singh Chauhan, Shantanu Bhattacharya	2016	Vanadium Pentoxide Nanostructures for Sensitive Detection of Hydrogen Gas at Room Temperature	Journal of Energy and Environmental Sustainability, <i>Accepted, In press, 2016</i>
52	Pankaj Singh Chauhan, Ashutosh Rai, Ankur Gupta, Shantanu Bhattacharya	2016	Enhanced Photocatalytic performance of vertically grown ZnO nanorods with doping of noble metal (Al, Ag, Au, and Au-Pd) nanoparticles for degradation of industrial dye	RSC advances, <i>Under review, 2016</i>
53	Jitender Singh, Shantanu Bhattacharya	2016	Fabrication of Micromixer on printed circuit board (PCB) using electrochemical micro-machining	Microsystems Technology, <i>Under review, 2016</i>

Maters Thesis Topic: *Plasma bonding of poly (dimethyl) siloxane and glass surfaces and its application to microfluidics* (Advisor: Prof. Shubhra Gangopadhyay and Prof. J. M. Berg), Texas Tech University, 2003

Dissertation Topic: *A novel PCR based on chip DNA micro-analyzer for sensing Viral Genome.* (Advisors: Prof. Sheila A. Grant and Prof. Shubhra Gangopadhyay), University of Missouri, Columbia, 2006. **Technology is being licensed to Park Technology.**

Patents international and national:

- (1) "A novel 3-D soft lithography technique to formulate micro-channels in polymers", **Shantanu Bhattacharya**, Rajeev Kumar Singh, Bikramjeet Basu et.al., IITK, Dec. 2007. (Indian Patent)
- (2) "Integrated dielectrophoresis based rapid concentration of pathogenic bacteria and their quantitaion using Flourescence techniques", Anil B. Ghubade, Rajeev K. Singh, Shreya Ghoshdostidar, Deepak Singh, R. Gurunath, **Shantanu Bhattacharya**, **Indian Patent Application Number 1787/DEL/2013** has been filed on June17, 2013.
- (3) "A process for the production of high surface area nano metal oxides", Ankur Gupta, Shashank Shekhar Pandey, Monalisha Nayak, **Shantanu Bhattacharya**, **Indian Patent Application no. '472/DEL/2014'** filed dated February 18, 2014.
- (4) "Design and Development of Compact, Low Cost Carry Bag Making Machine", Eshan, Mainak Das, Shantanu Bhattacharya, **Indian Patent Application Number, '772/DEL/2015'**, filed dated March 20th 2015- Design patent
- (5) "Design and development of School Bag Convertible into Study Table", Eshan, Mainak Das, Shantanu Bhattacharya, **Indian Patent Application** filing under process.
- (6) "Design and development of a simplistic dental chair for Rural India" Amit Kundal, Mohit Tewari, Shiva Kumar, Himanshu Gupta, **Shantanu Bhattacharya**, **Indian patent application in progress, 2015.**
- (7) "Optimization of design and characterization of a novel micro-pumping system with peristaltic motion", Rishikant, Shantanu Bhattacharya, **Patent application no. '201611005750', 2014.**
- (8) "Reusable PCR amplification system and method" Inventors: **Shantanu Bhattacharya** (West Lafayette, IN, US), Venumadhav Korampally (Columbia, MO, US) Shubhra Gangopadhyay (Columbia, MO, US) Keshab Gangopadhyay (Columbia, MO, US) Keshab Gangopadhyay (Columbia, MO, US) Sheila A. Grant (Columbia, MO, US) Steven B. Kleiboeker (Lee'S Summit, MO, US) Yuanfang Gao (Columbia, MO, US), Application number: 12/097,516, Publication number: US 2009/0148910 A1, Filing date: Dec 15, 2006. Date of allowance of claims: Jan 6th , 2012, **US Patent no. 8173077. Technology is being licensed to Park Technology.**
- (9) "Shock wave and power generation using onchip nanoenergetic materials" Inventors: Shubhra Gangopadhyay (Columbia, MO, US) Steven Apperson (Columbia, MA, US) Keshab Gangopadhyay (Columbia, MO, US) Andrey Bezmelnitsyn (Columbia, MO, US) Rajagopalan Thiruvengadathan (Columbia, MO, US) Michael Kraus (Columbia, MO, US) Rajesh Shende (Rapid City, SD, US) Maruf Hossain (Columbia, MO, US) Senthil Subramanian (San Diego, CA, US) **Shantanu Bhattacharya** (Columbia, MO, US) Yuangang Gao (Boulder, CO, US), Filing date: Oct 27, 2006 Issue date: Nov 29, 2011, Application number: 12/083,985 , **US Patent number: 8066831.**
- (10) "Agarose Nanoplatinum Composites", Inventors: **Shantanu Bhattacharya** (New Delhi, IN) Shubhra Gangopadhyay (Columbia, MO, US) Keshab Gangopadhyay (Columbia, MO, US) Keshab Gangopadhyay (Columbia, MO, US) Nripen Chanda (Columbia, MO, US) Paul Sharp (Columbia, MO, US), Application number: 12/170,287, Publication number: US 2009/0014333 A1, Filing date: Jul 9, 2008, **US Patent number 8747637B2.**

Book:

- (1) **Shantanu Bhattacharya**, "Economies of advanced trainings, basics, concepts and methods (Mniaturized nucleic acid analysis)", VDM Verlag, ISBN 978-3-8364-3768-4, Starbuccken, Germany, **2008.**

Book Chapters

- (1) Rajeev Kumar Singh, Anil Ghubade, Rahul Chaudhury and **Shantanu Bhattacharya**, "Fabrication technology for biomedical systems using non-conventional micromachining", Introduction to Micromachining, Edited by Prof. V.K. Jain, Narosa Publishing House, 22, Daryaganj, New Delhi-110002, **2010.**

- (2) Rishi Kant, Ankur Gupta, **Shantanu Bhattacharya**, “Studies on CO2 laser micromachining on PMMA to fabricate microchannels for microfluidic applications” Manufacturing, Topics in Mining, Metallurgy and Materials Engineering, S.N. Joshi and U.S. Dixit (eds.), Springer, **2015**.
- (3) S. Kumar, P. Bhushan, A. Saha, **Shantanu Bhattacharya**, “Diagnosis of communicable diseases using paper micro-fluidic platforms”, “, Point-of-Care Diagnostics – New Progresses and Perspectives, Publisher: IAPC Open Book and Monograph Platform (OBP), Editors: Chao-Min Cheng, Min-Yen Hsu, Marie Yung-Chen Wu, **2016**.
- (4) G. Bhatt, P. Sundriyal, P. Bhushan, A. Basu, Jitender Singh, **Shantanu Bhattacharya**, “Microfluidics for Clinical Diagnostics: An Overview”, DOI: 10.1007/978-3-319-40036-5, Microfluidics for Biologists Fundamentals and Applications, Edition: 1, Chapter: 2, Publisher: Springer, Editors: Chandra Dixit, Ajeet K. Kaushik, **2016**.
- (5) R. Kant, G. Bhatt, P. Sundriyal & **S. Bhattacharya**, “Relevance of adhesion in fabrication of microarrays in clinical diagnostics, in: Adhesion in Pharmaceutical, Biomedical & Dental Fields, K.L. Mittal and F.M. Etzler (Eds.), Wiley-Scrivener, Beverly, MA, **2017**.
- (6) S. Kumar, P. Bhushan & **S. Bhattacharya**, Coatings on surgical tools and how to promote adhesion of bio-fiendly coatings on their surfaces, in: Adhesion in Pharmaceutical, Biomedical & Dental Fields, K.L. Mittal and F.M. Etzler (Eds.), Wiley-Scrivener, Beverly, MA, **2017**.

Online Video Lectures:

- (1) **Shantanu Bhattacharya**, NPTEL Lectures on Bio-MEMS and Microsystems, NPTEL, IIT Kanpur (Completed, Jan.-2011).
- (2) **Shantanu Bhattacharya**, NPTEL Lectures on Microsystems Fabrication by using Advanced Manufacturing processes, (Completed, Jun-2014) .
- (3) **Shantanu Bhattacharya**, NPTEL MOOCS, Bio-MEMS and Micro-fluidics, (NPTEL, IIT Kanpur (Completed, March-2015).
- (4) **Shantanu Bhattacharya**, NPTEL MOOCS, Manufacturing Systems Technology (Part-I), NPTEL, IIT Kanpur, (Completed, Sept.-2015).
- (5) **Shantanu Bhattacharya**, NPTEL MOOCS, Manufacturing Systems Technology (Part-II), NPTEL, IIT Kanpur (Completed, Oct.-2015)
- (6) **Shantanu Bhattacharya**, NPTEL MOOCS, Manufacturing process Technology (Part-I), NPTEL, IIT Kanpur (Completed, March-2016)
- (7) **Shantanu Bhattacharya**, NPTEL MOOCS, Manufacturing process Technology (Part-II), NPTEL, IIT Kanpur (Completed, September-2016)

Papers published in Conference Proceedings

S.No.	Author(s)	Year	Title	Name and Place of Conference
1.	Shantanu Bhattacharya , Jordan Berg ,Darryl James & Shubhra Gangopadhyay.	2003	A Flow Visualization Experiment for a First Course in Micro-fluidics	Proc. ASEE (2003), University of Texas at Arlington, TX, United States of America.
2.	Rajesh V. Shende, Senthil Subramaniam, Steve Apperson, Shameem Hassan, Shantanu Bhattacharya , Yuanfang Gao, Maruf Hossain, Shubhra Gangopadhyay, Paul Redner, Deepak Kapoor, Steven Nicolich	2005	Self- assembled Ordered Energetic Composites of CuO nanorods and nanowells and Aluminum nanoparticles with High Burn rates.	Proc. MRS (2005), Vol. 896E, Boston, MA, United States of America.
3.	Steven Apperson, Shantanu Bhattacharya , Yuanfang Gao, Senthil Subramaniam, Shameem Hassan, Maruf Hossain, Rajesh V. Shende, Shubhra Gangopadhyay, Paul Redner, Deepak Kapoor, Steven Nicolich	2005	On-Chip Initiation and Burn Rate Measurements of Thermite Energetic Reactions	Proc. MRS (2005), Vol. 896H, Boston, MA, United States of America.
4.	Venumadhav Korampally, Shantanu Bhattacharya , Yuanfang Gao, Sheila Grant, Jinglu Tan, Keshab Gangopadhyay, Shubhra Gangopadhyay.	2006	Optimization of fabrication process for a PDMS-SOG-Silicon based PCR microchip through system identification techniques	Proc. 19th IEEE Symposium on Computer-Based Medical Systems (CBMS'06) , pp. 329-334, Salt lake city, Utah, May 2006.
5.	Liju Yang, Shantanu Bhattacharya , Rashid Bashir	2007	Detection of Foodborne Pathogenic Bacteria By Dielectrophoresis Enhanced Immunoassay in Biochips	Proc. MicroTAS, The 11th international conference for chemistry and lifesciences , 7-11 October, 2007 , Paris, France.
6.	Rajeev Kumar Singh, Anil B. Ghubade, Bikramjit Basu, Shantanu Bhattacharya	2009	A novel replica molding process for realizing three dimensional microchannels within soft materials	Proc. , ICMEMS-2009 , Indian Institute of Technology- Chennai, India.
7.	Anil B.Ghubade, Swarnasri Mandal, Shreya Ghoshdostidar, Rajeev Kumar Singh, Deepak Singh, R. Gurunath, Shantanu Bhattacharya	2009	Bio-chip for fluorescence based quantitation of fluorescent microbeads	Proc. , ICMEMS-2009 , Indian Institute of Technology- Chennai, India.

8.	Shantanu Bhattacharya , Swarnasri Mandal, Deepak Singh and R. Gurunath	2009	Dielectrophoretic Separation of Nano-Particle Conjugated Bacterial Cells within Micro-Scale Architecture	<i>Proc. AICHE-2009</i> , 72H, Annual Meeting of the American Electrophoresis Society, Nashville, Tennessee, United States of America.
9.	Shantanu Bhattacharya , Arnab Ghosh, Deepak Singh, Tarak Kumar Patra, Jayant K. Singh and R. Gurunath	2009	Electrophoretic Transport of Nucleic Acids through Nano Structured Surfaces	<i>Proc. AICHE-2009</i> , 306C, Electrokinetic Behavior of Micro and Nanoparticles: Fundamentals and Applications, Nashville, Tennessee, United States of America.
10.	Tamalika Bhakat, Rajeev Kr. Singh, Arnab Ghosh, Shantanu Bhattacharya	2010	Flow rotation due to Bilayer staggered herringbone structures with symmetric and asymmetric geometries across micro-channels.	<i>Proc. COMSOL-2010</i> , held at Bangalore, India.
11.	E. Suresh, Rajeev Kr. Singh, Supriya Pathak, Shantanu Bhattacharya .	2011	A novel replica molded solenoidal microvalve for control of miniaturized flow Volumes	<i>Proc. RAMEMS-2011</i> , held at IT-BHU, Banaras, India, pp 122-125, March 7-9, 2011 .
12.	Rishikant, Arnab Ghosh, Rajeev Kr. Singh, Shantanu Bhattacharya .	2011	A novel soft lithography based peristaltic micro-pump.	<i>Proc. RAMEMS-2011</i> , held at IT-BHU, Banaras, India, pp 126-128, March 7-9, 2011 .
13.	Rajeev Kumar Singh, Sudhir Varanasi, Arnab Ghosh, Rishi kant, Supriya Pathak, Bishakh Bhattacharya, Shantanu Bhattacharya	2011	Passive vibration damping with microstructured viscoelastic laminates.	<i>Proc. RAMEMS-2011</i> , held at IT-BHU, Banaras, India, pp 138-140, March 7-9, 2011 .
14.	Himanshu Singh, Monalisha Nayak, Rishikant, Deepak Singh, R. Gurunath, Shantanu Bhattacharya	2012	A novel microchip platform to perform real time Polymerase Chain Reaction	<i>Proc. ISSS-2012</i> , held at IISC-Bangalore, India, January 4-7 th , 2012.
15.	Avinash Kumar, Rishi Kant, Ankur Gupta, Shantanu Bhattacharya	2012	Fabrication and Optimization of CO2 Laser Machined Photo Mask for Photo Lithography Process	<i>Proc. International Conf. on Innovations in Design and Manufacturing</i> , Jabalpur, India, (December 5-7, 2012).

16	Ankur Gupta, S.S. Pandey, Shantanu Bhattacharya	2013	High aspect ZnO nano structures based Hydrogen sensing”	<i>Proc. International conference on recent trends in Applied Physics and material Science</i> , Bikaner, India (February 1-3, 2013).
17	Vinay Patel, Shantanu Bhattacharya	2013	Effect of Oxidizer Morphology on Combustion Characteristics of Nanoenergetic Materials of CuO/Al”	<i>Proc. International conference on recent trends in Applied Physics and material Science</i> , Bikaner, India (February 1-3, 2013).
18	Seema Deepak Yardi, Dharmendra Boolchandani, Shantanu Bhattacharya	2014	Polymer Waveguide and Optical Fiber Coupling Using Whispering Gallery Modes in an Elliptical Micro-Sleeve	<i>Optical Trapping Applications</i> Waikoloa Beach, Hawaii United States, <i>The Optical Society, April 14-18, 2013 ISBN: 978-1-55752-966-4</i>
19	Rishi Kant, Ankur Gupta, Shantanu Bhattacharya	2014	Studies on CO ₂ laser micromachining on PMMA to fabricate micro channel for microfluidic applications	<i>Proc. AIMTDR</i> to be held in IIT Guwahati, India
20	Ankur Gupta, M. Nayak, D. Singh, Shantanu Bhattacharya	2014	Antibody immobilization over ZnO nanobundles for biosensing applications	<i>Materials research society (MRS) spring Proceedings</i> , San Francisco, California, USA, (April 21st -25th , 2014), 1675, mrs14-1675-k14-09 doi:10.1557/opl.2014.848.
21	Seema D. Yardi , D. Boolchandani , Shantanu Bhattacharya	2014	Porous Polydimethyl Siloxane (PDMS)- Acrydine Orange (AO) as a biomaterial in opto-bio-sensing	<i>International symposium on metallurgy, material science and engineering, ISRS-2014</i> , Dec. 2014, IIT Madras.
22	Ankur Gupta, Praveen Raj, Himanshu Gupta and Shantanu Bhattacharya	2015	Antimicrobial investigation of ZnO-HAP nanocomposites	<i>Proceeding of the 2nd international material, industrial and manufacturing conference</i> , February 2015, Bali, Indonesia.
23	Vinay Patel, Shantanu Bhattacharya	2015	Synthesis and characterization of energetic nanomaterials and their utility in gene delivery applications	<i>Proceedings of International Conference on advances in Micro/nano technologies</i> , August 2015, PSG Tech, Coimbatore, India

24	A. K. Basu, H. Sarkar and Shantanu Bhattacharya	2016	Fabrication and resilience measurement of thin aluminium cantilevers using scanning probe microscopy	<i>Proceedings of 3rd International Conference C2E2, IEEE</i> , Mankundu, West Bengal, India, (15th-16th January, 2016)
25	Eshan Sadasivan, Mainak Das , Shantanu Bhattacharya	2016	Design for Communities: An entrepreneurial approach to solve the problems of society and environment fuelled by product design	<i>ICORD-2016</i> , Accepted, to be held in South Africa, Cape Town, October 2016.
26	Ashutosh Rai, Shantanu Bhattacharya	2016	Enhancement of photocatalysing of water having organic impurities using gold and platinum plated ZnO nanofibres.	<i>AIMTDR-2016</i> , Presented in College of Engineering, Pune, December 2016.
23	Eshan Sadasivan, Mainak Das, Shantanu Bhattacharya	2016	Design and Development of a study companion for rural students in India	<i>IEEE Region 10 Humanitarian Technology Conference</i> , Dayalbagh, Agra. December -2016.
24	Madhusudan Painuly, Vinay Kumar Patel, Shantanu Bhattacharya	2016	Influence of MnC ₂ O ₄ microadditives on combustion characteristics of CuO/Al nanoenergetics	<i>Proceedings of International conference on condensed matter and applied physics (ICC)</i> , May-2016, DOI: 10.1063/1.4946171

List of Invited talks:

. Papers Presented in Conferences But Not Published (These are all seminars)

S.No.	Author(s)	Year	Title	Conference
1.	Shantanu Bhattacharya , S.A. Grant, S.B. Kleiboeker, K. Gangopadhyay, S. Gangopadhyay.	2005	A novel PCR based DNA micro-analyzer	2005, International PRRS symposium , St. Louis., Missouri, USA
2.	Shantanu Bhattacharya , S.A. Grant, Y. Gao, V. Korampally, K. Gangopadhyay and S. Gangopadhyay.	2005	Modification of surfaces using oxygen plasma for bonding between surfaces	52nd Midwest Solid State Conference-2005 , Columbia, Missouri, USA
3.	Shantanu Bhattacharya , S.A. Grant, S.B. Kleiboeker, K. Gangopadhyay, S. Gangopadhyay	2005	A novel PCR based DNA microanalyzer	Biomedical Engineering Society- 2005 , Baltimore, USA
4.	Meghana Honnati, Shantanu Bhattacharya , S. Gangopadhyay, K.D. Gillis	2004	Measurement of the kinetics of dye dissociation from cell membranes using a microfluidic device	Biomedical Engineering Society- 2004 , Philadelphia, USA
5.	Shantanu Bhattacharya , V. Korampally, D. Gangopadhyay, D.A. Vonschoenberg , K. Gangopadhyay, S. Gangopadhyay, and S.A.Grant	2006	A Micro-fluidic PCR chamber and Electrophoresis platform for DNA Micro-analysis	11th Institute of Biological Engineers meet, Tuscon, Arizona, USA
6.	Y. Gao, Shantanu Bhattacharya , Lubguban A., Ruzigana P., Gillis K., Gangopadhyay S.	2006	High Throughput Microchip for Exocytosis Measurement With Automatic Cell Positioning	11th Institute of Biological Engineers meet, Tuscon, Arizona, USA
7.	L. Yang, P. Banada, R. Chatni , K.S. Lim, Shantanu Bhattacharya , A.K. Bhunia, M. Ladisch, R. Bashir	2006	A Multifunctional micro-fluidic system for dielectrophoretic concentration coupled with immuno-capture of low number of <i>Listeria</i> <i>Monocytogenes</i>	ARS-PURDUE university- Research Planning workshop- 2006, Ocean City, New Jersey, USA

8.	Yi-Shao Liu, P. Banada, Shantanu Bhattacharya , A.K. Bhunia, Rashid Bashir	2007	Electrical Characterization of DNA molecules in fluids using impedance measurements	Biomedical Engineering Soc. , Annual Fall Meeting, Sept-2007, Los Angeles, California, USA
9.	Shantanu Bhattacharya , Shuiab Salamat, Dallas Morisette, Yi Shao Liu, P. Banada, D. Akin, A.K. Bhunia and Rashid Bashir	2007	Integrated detection of microorganisms in a microfluidic biochip	Biomedical Engineering Soc. , Annual Fall Meeting, Sept-2007, Los Angeles, California, USA
10.	Invited Talk, Shantanu Bhattacharya	2006	A field applicable DNA micro-analyzer (Role of surfaces, interfaces and nano-material based composite gels)	10th annual Institute of Biological Engineers meet March-2005, University of Georgia, Athens, USA
11.	Shantanu Bhattacharya	2007	BioMEMS and Microfluidics	Indo-US symposium on Advanced Manufacturing , Sept. 2007, Indian Institute of Technology-Kanpur, India
12.	Shantanu Bhattacharya	2008	Bioinspired designs of microfluidic systems	Reach Symposium , March-2008, Organized by Indian Institute of Technology-Kanpur, Kharagpur, India
13.	Shantanu Bhattacharya	2008	Microheaters, Micropumps & Microreactors	NUS-IITK joint symposium , April
14.	Shantanu Bhattacharya	2008	Biochips and Biosensors	CESE Technical Workshop '08 - "Development of Technol. for Improvement of Environment: Advancements and Challenges on the occasion of Inauguration of Center for Environmental Science and Engineering.
15.	Shantanu Bhattacharya	2009	An integrated fluorescence based bacterial counter and a RT-PCR based identification system in a single microchip	Indo-US symposium on research excellence in Fabricionics , Jan. 2009, Indian Institute of Technology-Kharagpur, India.
16.	Shantanu Bhattacharya	2009	BioMEMS and Microfluidics	National workshop on MEMS technology and its applications , Sept. 2009, Indian Institute of Technology Kanpur, India.

17.	Shantanu Bhattacharya	2009	Intoduction to BioMEMS and Microfluidics	Plenary Speaker of Vision-tech 2010 , MGM College of Engineering, Nanded, Maharashtra.
18.	Shantanu Bhattacharya	2010	Impedance Spectroscopy methods for identification of Food pathogens using microchip architectures.	Invited speaker at a seminar on current trends in food sciences at the Department of Chemical Engineering, Punjab University, Chandigarh.
19.	Shantanu Bhattacharya	2010	BioMEMS and Microfluidics for clinical Diagnostics and Detecion	Invited speaker in National workshop on MEMS technology and its applications , Oct. 2010, Kurukshetra University.
20.	Shantanu Bhattacharya	2010	Surface electrophoresis of ds-DNA across orthogonal surfaces	Invited speaker in Indo-US conference of advanced Fabronics , Dec.2010, MGM college, Aurangabad, Jawahar Lal Nehru Center.
21.	Shantanu Bhattacharya	2010	Microfluidics for clinical Daignostics and detection	Invited speakers at Indo-Japan Seminar held at IIT Delhi on March 21-24, 2011, Organized jointly by IIT Kanpur and IIT Delhi
22.	Shantanu Bhattacharya	2011	Bionanotechnology, Microfluidics and BioMEMS for Clinical Diagnostics and identification.	Invited seminar at Department of Applied Physics, AMU, Aligarh, "Workshop on Nanoscience and Nanotechnology" held on March 26-27, 2011
23.	Shantanu Bhattacharya	2011	Microfluidics and BioMEMS research at IITKanpur	Invited seminar at University of Texas at Arlington, Nano-Bio seminar , July 1 st , 2011, Arlington, USA
24.	Shantanu Bhattacharya	2011	Plasma Modification of Polymer Surfaces and Their Utility in Building Biomedical Microdevices	Invited speaker in 8th International Symposium on Polymer Surface Modification , June-2011, Danbury, Connecticut, USA
25.	Shantanu Bhattacharya	2011	BioMEMS and Microfluidics for clinical Diagnostics and detection.	Invited speaker at the World Class University Program at Yeungnam University, Daegu, Dae-dong, Gyeongsangbuk-do, South Korea , May-2011.
26.	Shantanu Bhattacharya	2011	BioMEMS research at IIT Kanpur	Invited speaker at the QIP program on Microfluidics at IIT Guwahati , October 1-3, 2011.
27.	Shantanu Bhattacharya	2012	BioMEMS and Microfluidics	Invited speaker at ISSS-2012, IISC, Bangalore, January 5-6, 2012.
28.	Shantanu Bhattacharya	2012	BioMEMS and Microfluidics	Invited Speaker at MAMM-2012, CMERI, Durgapur, January 19-20, 2012.
29.	Shantanu Bhattacharya	2012	BioMEMS research at IIT Kanpur	Invited Speaker at Nano-II at AMU, Aligarh, March 10-12, 2012.

S.No.	Author(s)	Year	Title	Conference
30.	Shantanu Bhattacharya	2012	BioMEMS research at IIT Kanpur	Invited Speaker at IACS Kolkata, June 13th, 2012.
31.	Shantanu Bhattacharya	2012	BioMEMS research at IIT Kanpur	Invited Speaker at MNIT Jaipur, July 2nd, 2012.
32	Ankur Gupta, Shantanu Bhattacharya,	2012	Zinc Oxide Nanostructures over Nanoporous Silica as a template and its characterization	International Conference on Multi criteria optimization and advanced manufacturing processes “ by UK- India Education Research initiatives (UKIERI), IIT Kanpur, India (October 1-5, 2012)
33	Vinay Patel, Shantanu Bhattacharya	2012	Combustion characteristics of morphology tuned CuO/Al nanoenergetics	International Conference on Multi criteria optimization and advanced manufacturing processes “ by UK- India Education Research initiatives (UKIERI), IIT Kanpur, India (October 1-5, 2012).
34	Ankur Gupta, Shantanu Bhattacharya	2012	Fabrication of ultra low refractive index nano porous silica film and its characterization	Asia Academic Seminar on Manufacturing Design and innovation” held in I.I.T. Bombay (December 3, 2012)
35	Vinay Patel, Shantanu Bhattacharya	2012	Developing Nanoenergetic Composites for High Speed Self-propagating Reactions	Asia Academic Seminar on Manufacturing Design and innovation” held in I.I.T. Bombay (December 3, 2012)
36	Shantanu Bhattacharya	2013	Review of BioMEMS and Microfluidics work at IIT Kanpur	Invited Speaker at the National Institute of Nanotechnology, University of Alberta, Edmonton, Canada (08/05/2013)
37	Shantanu Bhattacharya	2013	Fundamentals of Micro/Nanomanufacturing	Plenary Talk at RIT, Islampur (25/06/2013) (Tequip Lecture)
38	Shantanu Bhattacharya	2013	Review of BioMEMS and Microfluidics work at IIT Kanpur	Expert lecture at MNNIT Allahabad, Micromanufacturing: Materials, Processes and Systems (MMPS-2013) (10/06/2013)

S.No.	Author(s)	Year	Title	Conference
39.	Shantanu Bhattacharya	2013	Biochips and Bionanotechnology	Expert Lecture at G.B. Pant Engineering College, (23/10/2013),(Tequip Lecture)
40.	Shantanu Bhattacharya	2013	Exploring new technologies	Expert Lecture at Infotech, Hyderabad (12/07/2013)
41.	Shantanu Bhattacharya	2013	Review of Biochips and Bionanotechnology	Expert Lecture at Raja Rammana Center for Advanced Technologies (RRCAT), Indore(05/12/2013)
42.	Ankur Gupta, Shantanu Bhattacharya,	2013	Zinc Oxide Nanostructures over Nanoporous Silica as a template and its characterization	International Conference on Multi criteria optimization and advanced manufacturing processes “ by UK- India Education Research initiatives (UKIERI), IIT Kanpur, India (October 1-5, 2012)
43.	Shantanu Bhattacharya	2014	Intergrated Micro/Nano sensing for diagnostics	SURGE Popular Institute Lecture Series, Indian Institute of Technology Kanpur, June 05th, 2014.
44.	Shantanu Bhattacharya	2014	Abhyast: Autonomous Air vehicle and ground control for disaster management (I)	Tech Talk at Infotech, Hyderabad at Boeing externship review (16/07/2014)
45.	Shantanu Bhattacharya	2014	Micro-fabrication of Biomedical Microdevices	Plenary Talk at the conference on ‘Fluid Flow and Heat Transfer in the Microchannel’ at the National Institute of Technology, Agartala (22/08/2014)
46.	Shantanu Bhattachaya	2014	Integrated Micro/ Nano Sensing	Invited lecture at the workshop “Nanoscience and Nanotechnology: Opportunities and Challenges” by Indian Science Academy at Mody University, Sikar, Rajasthan (21-22/11/2015)
47.	Shantanu Bhattacharya	2015	BioMEMS and Microsystems	Invited Lecture at NIT Durgapur, (11-12/05/2015)
48.	Shantanu Bhattacharya	2015	Microfabrication Techniques for sensing applications	Invited Lecture at HALL, Kanpur, (20/05/2015)

49.	Shantanu Bhattacharya	2015	Biochip for rapid identification of water pathogens	Invited Talk at the 9th symposium on National Frontiers of Engineering, IIT Jodhpur, (5-7/6/2015)
50.	Shantanu Bhattacharya	2015	Lecture series on BioMEMS research	Tequip sponsored lecture at GBPEC, Pauri, Ghurdauri
51.	Shantanu Bhattacharya	2015	Abhyast: Autonomous Air vehicle and ground control for disaster management (II)	Tech Talk at Infotech, Hyderabad at Boeing externship review
52.	Shantanu Bhattacharya	2015	Biochip for rapid identification of water pathogens	Tequip Lecture at IIT Kanpur on Micro-manufacturing, Dr. V.K. Jain
53.	Shantanu Bhattacharya	2015	Micro-fabrication Techniques with emphasis to layered manufacturing	Tequip Lecture at IIT Kanpur on additive manufacturing
54.	Shantanu Bhattacharya	2015	Biomedical Microdevices for rapid daignostics	Tequip Lecture at IIT Kanpur on micro-manufacturing, Dr. V.K. Jain
55.	Shantanu Bhattacharya	2015	Nanostructured materials and their applications to sensing and remediation	Invited Lecture at MBE college of Engineering, Jodhpur
56.	Shantanu Bhattacharya	2015	Nanofabrication and Combustion Characterization of Highly Energetic Metal Oxides/Nano-Aluminum Composites for Pyrotechnics and Gene Transfection Applications.	Invited lecture at Material Research Center, MNIT, Jaipur
57.	Shantanu Bhattacharya	2015	Nanofabrication of materials and their applications in sensing, remediation, eneregetics etc.	Invited lecture at College of Engineering, Adoor, Kerala
58.	Shantanu Bhattacharya	2015	Fabrication, Characterization and Application of various Nano-structures in Sensing and Remediation	Lecture at TEQUIP sponsored Advanced Micronano technology Workshop, IIT Kanpur
59.	Shantanu Bhattacharya	2015	Nanofab. and Comb. Characterization of Highly Energetic Metal Oxides/Nano-Al. Comp. for Pyro. & GeneTrans.	Invited Lecture at the BARC sponsored Workshop on Micro/ nano machining, IIT BHU.
60.	Shantanu Bhattacharya	2016	Manufacturing Process technology	NPTEL sponsored live session at Allen-house Inst. of Tech.
61.	Shantanu Bhattacharya	2016	Gene delivery using shock waves and elec. fields	TEQUIP Invited seminar at IIT BHU, Banaras.

M. Tech/ Ph.D./ Project Associateship Guidances:**List of Ph.D. (completed/ submitted) Students:**

Sl. No.	Name	Thesis Title	Completion Year	Co-Supervisor	Status
1	Ankur Gupta (Completed)	Fabrication, Characterization and Application of Various Nanostructures in Sensing and Remediation	2015	None	Joined as Assistant Professor at the Department of Mechanical Engg, Indian Institute of Technology Bhubaneswar, 2016.
2	Vinay Kumar Patel (Completed)	Nanofabrication and Combustion Characterization of Highly Energetic Metal Oxides/Nano-Aluminum Composites for Pyrotechnics and Gene Transfection Applications	2015	None	Joined as Associate Professor at G.B. Pant Engineering College, Pauri, 2015
3	Rishi Kant (Completed)	Miniaturized fluid/ particle manipulation in hybrid micro-devices fabricated with laser micromachining for fluid delivery, mixing and diagnostic applications.	2016	None	Microsystems Laboratory, IIT Kanpur, India, 2016.
4	Rajeev Kumar Singh (Completed)	Micro-manufacturing of 2/3 dimensional structures in polymers and impact of fluid structure interplay within them.	2014	None	Joined PSG TECH, Coimbatore in 2014 at Dept. of Mech. Engg. as Assistant Professor
5	Seema Deepak Yardi (Completed)	A novel technique for using polymers as optical interconnects and as sensors for biological recognition.	External PhD candidate, 2016	Dr. Dharmender Boolchandani (MNIT, jaipur)	Assistant Professor in Electronics, Govt. Polytechnique, Aurangabad, 2015

List of M.Tech./M.Des. (Completed) Students:

Sl No.	Name	Thesis Title	Programe	Completion Year	Co-Supervisor (s)
1	Ankit Belchandan	Design intervention for developing a low cost dental loupe to increase the effect of visualization of oral cavity in Indian Dental Practices	M. DES.	2016	Satyaki Roy
2	Haripada Soren	Development of Water Purifier by using Red Mud	M.DES.	2016	None
3	Pradeep Verma	Application of smart parking in development of smart cities in India	M.DES.	2016	None
4	Sachin N.P.	Designing and prototyping of efficient	M.DES.	2016	None

		writing tools for the visually impaired			
5	Aditya Singh Bhisht	Design and fabrication of a rapid Styrofoam prototyping machine.	M.DES.	2016	None
6	Shweta Gautam	Designing of a Photocatalytic Filter for Remediation of industrial waste water	M.DES.	2016	None
7	Mohit Tewari	Making Dental Facility Accessible to Mass Population In India : Designing a Low Cost Dental Chair for India	M.DES.	2015	Deepu Philip
8	Charu	Design for Disability-Indoor Navigation for visually challenged	M.DES.	2015	Jhumkee Sengupta Iyer
9	Himanshu Singh	Size reduction of nano-particles through micromixing with etchants in a micro-channel	M.Tech.	2015	Niraj Sinha
10	Eshan Sadasivan	Design and development of newspaper carry bag making machine	M.DES.	2015	Mainak Das
11	Jayant Raj Saurav	Solar light based degradation of organic pollutants by ZnO nanostructures for water filtration system	M Tech	2015	Niraj Sinha
12	Sushant Singh,	A novel solenoidal valve for embedded microfluidics application	M Tech	2014	None
13	Anurag Govind Meher	Velocity measurement technique of shock waves generated through combustion of nano-energetic composites through schlieren imaging	M Tech	2015	None
14	Abhinav Srivastava	Development of Nano-Porous Palladium film for enhanced hydrogen sensing	M. Tech.	2013	None

15	Deepak Arya	Design and fabrication of an electronic thermocycler with microfluidic cooling capabilities for performing quantitative Polymerase Chain Reaction	M. Tech.	2013	Prabhat Munshi
16	Kislay Kaushal	Nano Patterning Approaches, Zinc Oxide Nano Structures Synthesis and their Application to ds DNA Surface Electrophoresis	M. Tech.	2013	None
17	Akshay Pravin Atwe	Design and Fabrication of a Microvalve Based on pH Sensitive Hydrogel	M. Tech.	2012	Ishan Sharma
18	Manoj Kumar Gupta	Microfabrication of Metallic Cantilever Structures and Investigation of their Mechanical behavior at Microscopic Length Scale.	M. Tech.	2012	Sumit Basu
19	Avinash Kumar	Optimization of Laser Machining Process for Preparation of Photo-masks and its Application to Micro-systems Fabrication	M. Tech.	2012	None
20	Suresh, E	Design Optimization of a Novel Solenoid Micro Valve	M. Tech.	2011	None
22	Arnab Ghosh	Surface Electrophoresis of dsDNA across Orthogonal Surfaces	M. Tech.	2010	None
23	Rahul Choudhary	Bilayer Staggered Herringbone Micromixers	M. Tech.	2009	Sounak Kumar Choudhury
24	Suresh Jha	Design, fabrication and testing of a novel peristaltic micro-pumping system.	M. Tech.	2009	None
25	Anil Ghubade	Dielectrophoresis assisted concentration of	M. Tech.	2009	None

		micro-particles and their rapid quantitation based on optical means.			
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List of Project Associateship:

Sl No.	Name	Completion year	Current Status
1	Anurup Ganguly	2014	Pursuing PhD at the Department of Bioengineering, University of Illinois at Urbana Champaign, USA
2	Shashank Shekhar Pandey	2012	Pursuing PhD at the department of Bioengineering, University of Utah, Salt lake city, USA
3	Himanshu Singh	2011	Pursuing PhD at the Department of Bioengineering, NUS, Singapore
4	Swarnasri Mandal	2009	Pursuing PhD at University of Missouri, Columbia, USA
5	Dr. Deepak Singh	2014-2015	Post Doctoral Research Scholar at the Department of Chemistry, IITK
6	Monalisha Nayak	2014	Pursuing MS by research student at IIT Mumbai

List of Ph.D. (current) Students:

Sl No.	Name	Department	Year of Joining	Co-supervisor (s)
1	Sanjay Kumar	ME	2013	None
2	Jitendra Singh	ME	2014	None
3	Aviru Basu	Design	2014	None
4	Poonam Saundriyal	ME	2014	None
5	Geeta Bhatt	ME	2014	None
6	Anubhuti Saha	Design	2015	None
7	P.Guruprasad	ME	2012	Dr. Sumit Basu

8	Pankaj S.Chauhan	ME	2015	Dr. Niraj Sinha
9	Eshan Sadasivan	Design	2015	Dr. Mainak Das
10	Kapil Manoharan	ME	2015	None

List of M.Tech. (Current) Students:

Sl. No.	Name	Programme	Co-Supervisor
1	Ashutosh Rai	M.Tech.	None
2	Kuldeep Yavad	M.Tech.	None

List of current (Current) Project Associates:

Sl. No.	Name	Year of employment	Previous Qualification
1	Pulak Bhushan	2015-16	MS, AIT, Bangkok.

Undergraduate student mentoring through Boeing Abhyast Activities, Surge Program and Laboratory activities:

- (1) Mayank Mittal,(EE), Year of mentoring-2016-17
- (2)Vikulp Bansal,(EE), Year of mentoring-2016-17
- (3)Ritwik Bera (ME), Year of mentoring-2016-17
- (4)Tushar Agarwal (ME), Year of mentoring-2016-17
- (5)Divyanshu Narayan (ME), Year of mentoring-2015-16
- (6)Dipendra (ME), Year of mentoring-2015-16
- (7)Elle Atma Vidya Prakash (EE), Year of Mentoring 2013-15.
- (8)Preksha Gupta (AE), Year of mentoring 2013-15.
- (9)Sanny Kumar (ME), Year of mentoring 2013-14.
- (10)Rahul Gurjar (CS), Year of mentoring 2013-14.
- (11)Shehzad Hathi (EE), Year of mentoring 2013-14.
- (12)Shivam Aggarwal (ME), Year of mentoring 2013-14.
- (13)Nitish Kumar (EE), Year of mentoring 2013-14.
- (14)Sidhant Khatri (EE), Year of mentoring 2013-14.
- (15)Dhrupal Shah (ME), Year of mentoring 2012-14.
- (16)Deepali Mittal (AE), Year of mentoring 2012-14.
- (17) Harshad Sawhney (CSE), Year of mentoring 2012-14.
- (18) Vineet Garg(ME), Year of mentoring 2012-14.
- (19) Abhijeet Verma(EE),Year of mentoring 2011-12.
- (20)Ajinkya Kumar Jain (ME), Year of mentoring 2011-12.
- (21)Anuj(ME), Year of mentoring 2011-12.
- (22) Ajaypal Singh(ME), Year of mentoring 2010-12.
- (23) Anubhav (ME), Year of mentoring 2011-12.
- (24) Farid Ahsan, Year of mentoring 2011-12.
- (25) Mudit, Year of mentoring 2011-12.
- (26) Omanshu Thapliyal, Year of mentoring 2011-12.
- (27) Sachin Aggarwal, Year of mentoring 2011-12.
- (28) G. Sriram, Year of mentoring 2011-12.

- (29) Varun Bhatt, Year of mentoring 2011-12.
- (30) Ayush Varshney, Year of mentoring 2011-12.
- (31) Govind Saria, Year of mentoring 2011-12.
- (32) Naman Kumar, Year of mentoring 2011-12.
- (33) Rajat Arora, Year of mentoring 2011-12.
- (34) Siddharth, Year of mentoring 2011-12.
- (35) Subhojit Ghosh, Year of mentoring 2011-12.
- (36) Vipul Chaudhury, Year of mentoring 2011-12.
- (37) Mayank Baranwal, Year of mentoring 2009-11.
- (38) Faez Ahmed, Year of mentoring 2009-11.
- (39) Abhilash Jindal, Year of mentoring 2009-11.
- (40) Ankur Jain, Year of mentoring 2009-11.
- (41) Pranay Sharma, Year of mentoring 2010-11.
- (42) Sagar Setu, Year of mentoring 2010-11.
- (43) Ankur Agarwal, Year of mentoring 2010-11.
- (44) Ashish Bajpai, Year of mentoring 2010-11.
- (45) Mohit, Year of mentoring 2010-11.
- (46) Kamal Sahni, Year of mentoring 2010-11.
- (47) Tarun Baranwal, Year of mentoring 2010-11.
- (48) Anki Gupta, Year of mentoring 2010-11.
- (49) Kartikey Asthana, Year of mentoring 2010-11.
- (50) Akshay Mittal, Year of mentoring 2010-11.
- (51) Subhranshu Baranwal, Year of mentoring 2010-11.
- (52) Gaurav Dhama, Year of mentoring 2009-10.
- (53) Shishir Pandya, Year of mentoring 2009-10.
- (54) Palash Soni, Year of mentoring 2009-10.
- (55) Shishir Pandya, Year of mentoring 2009-10.
- (56) Sriram Ganesan, Year of mentoring 2009-10.

Place: Kanpur, India

Shantanu Bhattacharya