

# Curriculum Vitae

## Prabir Sarkar, PhD

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## I. Background

### Research and Teaching Experience

July 2016 - present	Associate Professor, Department of Mechanical Engineering, Indian Institute of Technology (IIT) Ropar, India
April 2011 - June 2016	Assistant Professor, Department of Mechanical Engineering, Indian Institute of Technology (IIT) Ropar, India
May 2008 - April 2011	Associate Researcher, National Institute of Standards and Technology (NIST), Gaithersburg, Maryland, USA
Nov 2007 - April 2008	Post-Doctoral Research Associate, Centre of Product Design and manufacturing, Indian Institute of Science (IISc), Bangalore, India
Jan 2003 - Oct 2007	National Doctoral Fellow, Indian Institute of Science (IISc), Bangalore, India

### Industrial Experience

March 2007 - Oct 2007	Co-founder and managing director of a product design and development consultancy startup firm, 'ODEA solutions'
Aug 2000 – Dec 2002	Development Engineer (senior design engineer), R&D Center, Bharat Earth Movers Limited, Kolar Gold Fields, Karnataka, India

### Education

Nov 2007	<b>Doctor of Philosophy</b> , Mechanical Engineering, Indian Institute of Science (IISc), Bangalore, India. <i>Advisor:</i> Prof. Amaresh Chakrabarti. Submitted November 2007, defended March 2008.
Aug 2000	<b>Master of Design</b> , Mechanical Engineering, Indian Institute of Science (IISc), Bangalore, India
Aug 1998	<b>Bachelor of Engineering</b> , Production Engineering, National Institute of Technology (NIT), Trichy

### Awards

2015	Outstanding researcher award in Mechanical Engineering, VIFFA 2015 awards, Centre for advanced research and design, Venus international foundation, India.
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### Travel grants

2009	NIST travel grant to attend DETC, ASME conference at San Diego, 2009.
2007	Travel grant from government of India, for presenting four papers at ICED, 2007 conference in Paris, France.

### Fellowships

2005	National Doctoral Fellowship award, NDF of All India Council for Technical Education, AICTE (given to 50 Ph.D. students all over India), 2005-2007.
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2003 MHRD fellowship, Indian Institute of Science, Bangalore, 2003-2004.

#### **Best paper awards**

2009 One among top five best papers in International Conference on Research in Design, ICORD 2009.

1997 Third best paper award at a National Level Technical Symposium, held in N.I.T, Kurukshetra, for presenting a paper on "Implementation of expert system on wire cutting EDM", 1997.

1997 Best paper award in a southern India level technical symposium held in R.V.S. College, Dindugal, 1997.

#### **Honors**

2016 Biography included in "2000 Outstanding Intellectuals of the 21<sup>st</sup> Century," International Biography Centre, St. Thomas Place, Great Britain.

2016 Biography included in "Top 100 Professionals 2016," International Biography Centre, St. Thomas Place, Great Britain.

2016 Best citizens of India 2016 award, International publishing house, New Delhi

2016 Received Bharat Gaurav Award, 2016, India International Friendship Society.

2016 Biography will appear in the 33rd edition of Marquis Who's Who in the World, 2016.

2015 Guest of honor in short term training program on "advances on quality management practices in industries", 10th July, 2015 at National Institute of Technology, Hamirpur, HP.

2014 Key note speaker, "creative problem solving techniques in product design", at international workshop on creative product design, Chandigarh University, 15 July 2014

#### **Achievements**

2016 As an outcome of my course, we designed and manufactured, the longest ballpoint pen and the longest fountain ink pen in the world. Entered in the Linca Book of Records and India Book of Records in 2016. Guinness Book of World Records (applied).

1998 All India 6th rank (99.3 percentile), 1998 in Common Entrance Examination for Design (CEED).

## **II. Research**

#### **Research Interests**

**Product Design and Manufacturing:** Design creativity [journal=9]; Sustainable design [j=7]; Sustainable machining and manufacturing [j=3]; Bio-mimicry in engineering design [j=3], Aesthetics in engineering [j=1]

#### **Externally sponsored grants (total about 4 crores INR, 591,000 USD)**

2017-2020	<b>Big Data Analysis: A key to understand the Dynamics of Collaborative Knowledge Building</b>
Funding source	Cognitive Science Research Initiative (CSRI), Department of Science and Technology (DST), India
Level of support	INR 40 lakhs/ USD 58793 (project approved, level of support not decided yet)
Role	Co-Principal Investigator
2016-2019	<b>Experimentation and simulation assisted enhancement of energy efficiency &amp; pollution reduction in hand tool industries</b>
Funding source	Department of Science and Technology (DST), India, Ministry of Micro, Small and Medium Enterprises under Uchhatar Aviskar Yojana
Level of support	INR 99.58 lakhs/ USD 147616
Role	Co-Principal Investigator

2016-2019	<b>Study of aesthetics in product design using eye-tracking equipment from a cognitive view</b>
Funding source	Cognitive Science Research Initiative (CSRI), Department of Science and Technology (DST), India
Level of support	INR 16.26 lakhs/ USD 24,440
Role	Principal Investigator
2014-2019	<b>Fund for Improvement of S&amp;T Infrastructure in Universities and Higher Educational Institutions (FIST) Program</b>
Funding source	Ministry of Science and Technology, Government of India
Level of support	INR 235 lakhs/ USD 380,000
Role	Co-Principal Investigator
2015-2016	<b>Grant for strengthening of IPR cell</b>
Funding source	Patent Information Centre, Punjab State Council for Science and Technology
Level of support	INR 0.18 lakhs/ USD 262
Role	Principal Investigator/ Nodal officer
2014-2015	<b>Grant for setting up and strengthening of IPR cell</b>
Funding source	Patent Information Centre, Punjab State Council for Science and Technology
Level of support	INR 0.2 lakhs/ USD 330
Role	Principal Investigator/ Nodal officer
2014-2017	<b>Engineering Driven Sustainable Supply Network Design</b>
Funding source	Department of Science and Technology (DST), India and Engineering and Physical Sciences Research Council (EPSRC), UK
Institute involved	IIT Ropar, IIM Lucknow, and University of Cambridge
Level of support	£ 1 million / USD 1,517,300, IIT Ropar's share: INR 48,00,000/ USD 70,021
Role	Co-Investigator

#### **Internally sponsored grants (total about 1 crores INR, 176,000 USD)**

2013	<b>Establishment of Design studio</b>
Funding source	Indian Institute of Technology, Ropar
Level of support	INR 10 lakhs/ USD 18,699
Role	Co-Principal Investigator
2012	<b>Establishment of Design research laboratory</b>
Funding source	Indian Institute of Technology, Ropar
Level of support	INR 5.7 lakhs/ USD 11,181
Role	Principal Investigator
2011-2012	<b>Purchase of Eye tracking equipment (Research Grant)</b>
Funding source	Indian Institute of Technology, Ropar
Level of support	INR 45 lakhs / USD 67400

Role	Principal Investigator
2011	<b>Establishment of sustainable design and manufacturing laboratory</b>
Funding source	Indian Institute of Technology, Ropar
Level of support	INR 49 lakhs / USD 120,000
Role	Co-Principal Investigator
2011-2012	<b>Creative sustainable product design methodology with standards compliant, and a support for measuring product sustainability in early design (Institute seed grant)</b>
Funding source	Indian Institute of Technology, Ropar
Level of support	INR 9.8 lakhs / USD 21,777
Role	Principal Investigator

### Consultancy projects

Dec 2015	<b>Bone alignment measuring system</b>
Funding source	IIT Ropar and PGI Chandigarh joint initiative (Financial expenses borne by IIT Ropar)
Role	Principal Investigator. Product developed in collaboration with Dr. Chawan, of Post Graduate Institute of Medical Education and Research (PGIMER)
Dec 2015	<b>Improved surgical cutter for plastic surgery</b>
Funding source	IIT Ropar and PGI Chandigarh joint initiative
Level of support	Financial expenses borne by IIT Ropar
Role	Principal Investigator. Product developed in collaboration with Dr. Sunil Gaba of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh along with Dr. S. S. Padhee and Mr Sameer Mishra, a summer internship student, 2015

### Invited Talks and presentations

2016	Invited speaker in Global Initiatives on Academic Networks (GIAN) program on Introduction to Sustainable Manufacturing, at MNIT Jaipur, 19-23 December 2016. Talk title: Sustainability standards.
2016	Invited speaker in One Day Meet of Medical Device Innovation Cluster at CSIO, Chandigarh, organized by DST Centre for Policy Research, Panjab University, Chandigarh on November 12 2016. Talk title: Innovation and manufacturing of Medical devices at Design research lab of IIT Ropar.
2016	Invited speaker for the Faculty Development Program on “A look into the future” being organized by Dr.SSB University Institute of Chemical Engineering and Technology, Panjab University under TEQIP-II (A World Bank Project). October 25, 2016. Talk title: Sustainable Product Design.
2016	Indo-US dissemination workshop on design of sustainable systems, 20-22 June 2016, Indian Institute of Science, Bangalore. Talk title: Understanding sustainability in pharmaceuticals companies through a case study.
2015	Guest of honor and expert inaugural lecture on “sustainability and Eco design”, in short term training program on “advances on quality management practices in industries, 10th July, 2015 at National Institute of Technology, Hamirpur, HP, organized by Mechanical Department, NIT, Hamirpur.

- 2015 Expert talk on sustainability and eco design in ISTE-PTU Sponsored Faculty Development Programme on, “Emerging Trends in Mechanical Engineering (ETME-15),” Rayat Institute of Engineering & Information Technology, June 8, 2015.
- 2014 Panel member, need of product design course in undergraduate study in international symposium on product design, Chandigarh University, 16 July 2014.
- 2014 Key note speaker, creative problem solving techniques in product design at international workshop on creative product design, Chandigarh University, 15 July 2014.
- 2014 Panel member and invited talk, industry academia collaboration at Confederation of Indian Industries (CII), Chandigarh, 5th march 2014.
- 2012 Invited lecture on sustainability and eco-design at Lovely Professional University, Jalandhar, 2012
- 2012 Invited lecture on automobile design, Society of Mechanical Engineers (SME), IIT Ropar chapter, 2012
- 2111 Invited lecture on ‘Approaching education related issues using creative problem solving techniques,’ faculty development program, Rayat Institute of Engineering and Information Technology, Ropar Campus, on July 19th, 2011
- 2009 Invited talk on design of new products, Indian Institute of Technology, Chennai, 2009.

## **Guidance**

### **PhD guidance (completed)**

- Gyanendra Singh Goindi (co-guide). Title: Investigation of Ionic liquids as metalworking fluids in minimum quantity lubrication machining. January 2012-October, 2015. Defended: 8/11/16. Degree awarded on 21/11/16.

### **PhD guidance (pursuing)**

- Sagar Dhage (co-guide). Title: surface textured cutting tools for sustainable machining, January 2012-present.
- Bijendra Kumar (guide). Title: Assessing and improving sustainability of products during conceptual design. August 2013-present.
- Geo Raju (co guide). Through DST (India) -EPSRC (UK) funded, Engineering Driven Sustainable Supply Network Design project. January 2016-present.
- Rachit Kumar Sharma (co guide). Through DST (India) -EPSRC (UK) funded, Engineering Driven Sustainable Supply Network Design project. January 2016-present.
- Prashant Kumar Singh (guide). August, 2016.
- Sunil Sharma (guide). Joined under External Registration Program. August, 2016.
- Umesh Chaturvedi (co-guide). Joined under External Registration Program in MNIT, Jaipur. January 2016.
- Jitender (guide). Through DST, CSRI funded project. January 2017.

### **Junior Research Fellow**

- Geo Raju (co-guide). Funded by DST (India) -EPSRC (UK) funded, Engineering Driven Sustainable Supply Network Design project (April 2015- January, 2016).
- Rachit Kumar Sharma (co-guide). Funded by DST (India) -EPSRC (UK) funded, Engineering Driven Sustainable Supply Network Design project (September 2015-January, 2016).
- Jitender (guide). Through DST, CSRI funded project, Study of aesthetics in product design using eye-tracking equipment from a cognitive view (August 2016-December 2016).

### **Masters guidance**

- Sheshanth Pallakonda (co-guide). Project DST (India) -EPSRC (UK) funded, Engineering Driven Sustainable Supply Network Design project.

- Dikshit Sharma (co-guide). Support for reduction of cost and environmental impact of components through the selection of suitable manufacturing processes (external: Kurukshetra university).
- Jitender (co-guide). Development of a method for benchmarking sustainable products (external: NIT Srinagar, J&K), completed, 2016.
- Sarang E Tayade (guide). Area: sustainability (August 2016- present)
- Rohit Bamne (guide). Area: Product design (August 2016- present)

#### **Undergraduate guidance (B.Tech. main project)**

- Expert review website, Asish Dhingan, P Mukesh, Ravi Mohan Meena, and Alok Mishra, 2015
- Real estate website development, Navneet Singh, Naveen Kumar, Honey Singla, and Naman Chhabra, 2015
- Prediction of the effect of design changes on company's performance, Siddharth L., 2015
- Seed oil extractor, Javed Khan and Nishant Kumar (co-guide, Dr. Harpreet Singh), 2014
- Handy machine to extract oil from mustard seeds, Ajay Kumar Verma and Pareep Singhroha (co-guide), 2013
- Development of particleboard using Rice/Wheat Straw, Ankush Kumar and Lal Singh (co-guide), 2013.
- Development of software tool for sustainability evaluation in product design, Parteek Singla, Prashant Yadav, Praveen Kumar Sah, and Raj Narayan Saha (co-guide), 2012.
- Regenerative braking system for human powered vehicles, Raj Narayan Saha and Prashant Yadav (co-guide), 2012.

#### **Summer internships guidance**

- Several summer internship projects- completed.

#### **Patents Granted**

1. Amaresh Chakrabarti, Prabir Sarkar, 2014. Method for Idea Generation for Creation of Product Designs, Indian patent application no.: 859/CHE/2006, patent grant no.: 258579, date of filing: 16th May 2006 (Link: <http://www.ipcell.iisc.ernet.in>) [[Link](#)].
2. Archana Badodekar, Prabir Sarkar, Amaresh Chakrabarti, Prasad G Kamble, 2005. A manually operated aid for impaired people to ingress and egress train and method thereof, Indian patent grant no.: 227939, date of filing: 20th April 2005. [[Link](#)]
3. B.Gurumoorthy, Neeraj Pal, and Prabir Sarkar, 2000. Rupturable disposable syringe, Indian patent grant number: 198228, date of filing: 25th February 2000.

#### **Patents Pending [[link](#)]**

1. Dr. Prabir Sarkar, Akash Mathwani, Arpit Sharma, Jitendra Kumar, Harshjeet Singh Aulakh, 2016. System and method for controlling electronic locks, Indian patent application number: 201711003769, filing date: February 01, 2017.
2. Dr. Navin Kumar, Dr. Prabir Sarkar, 2016. A method of fabricating particleboard from cellulosic plant material, Indian patent application number: 201611029993, filing date: 01-Sep-2016.
3. Dr. Prabir Sarkar, Nishant Bagaria, Ekjot Singh, Nabajit Hazowary, Gaurav Kumar, 2016. A rectangular slot-cutting machine for slots of variable sizes, Indian patent application number: 201611015347, filing date: 03-May-2016.
4. Dr. Prabir Sarkar, 2016. A programmable electro mechanical combination locking system, Indian patent application number: 201611004726, filing date: 10-Feb-2016.
5. Dr. Prabir Sarkar, Dinesh Chauhan, Duddela Sai Harish, Gaurav Gupta, Dhruv Kumar Bansal, 2016. Semi-automatic food processing device for preparing sweets and savories, Indian patent application number: 201611000957, filing date: 11-Jan-2016.

6. Gyanendra Singh Goindi, Dr. Anshu Dhar Jayal, Dr. Prabir Sarkar, 2015. A Flexible Continuous Minimum Quantity Lubrication (FCMQL) system, Indian patent application number: 3971/DEL/2015, filing date: 07-Dec-2015.
7. Dr. Prabir Sarkar, Bishal Ghosh, Mahak Sarin, Alluvala Mamata, Dev Prabhaker Singh Tomar, 2015. Stapler device with multi-tier force multiplication mechanism for binding hard materials, Indian patent application number: 3961/DEL/2015, filing date: 04-Dec- 2015.
8. Dr. Prabir Sarkar (Principal Investigator), Banoth Praveen Kumar, Honey Singla, Imroj Qamar, Jaskaran Singh Viridi, Kumar Harshad, 2013. Weighing system, Indian patent application number: 3354/DEL/2013, filing date: 15-November- 2013.

**Research Publications:** Google scholar profile: <http://scholar.google.co.in/citations?hl=en&user=k9oa6zIAAAAJ>.

Citations: >800, h-index:10, i10-index:11

### Books Publications

- B1. Amaresh Chakrabarti, Sudarsan Rachuri, **Prabir Sarkar**, and Srinivas Kota (Eds.), 2010. *Designing Sustainable Products, Services and Manufacturing Systems*, Research Publishing Services, Singapore. ISBN: 978-981-08-5466-9.
- B2. Special issue book: Sudarsan Rachuri, **Prabir Sarkar**, Dimitris Kiritsis, Masaru Nakano (Eds.), 2009. *Developing sustainable products, processes and services*. International Journal of Product Lifecycle Management, Vol 4, No 1-3. Inderscience, ISSN no. for the journal is 1743-5110.

### Peer Reviewed International Journal Publications, \* Students (PhD and B.Tech)

- J1. L. Siddharth\* and **Prabir Sarkar**, 2017. A Methodology for Predicting the Effect of Engineering Design Changes. *Procedia CIRP*, Elsevier (accepted).
- J2. **Prabir Sarkar** and Amaresh Chakrabarti, 2017. A model for the process of idea generation *The Design Journal*. Taylor and Francis, Vol. 20, No. 2, pp 239-257, 2017 (<http://dx.doi.org/10.1080/14606925.2017.1272244>).
- J3. Bijendra Kumar\*, **Prabir Sarkar**, 2016. Prediction of future car forms based on historical trends. *Perspectives in Science*. Elsevier, 8, pp 764-766 (<http://dx.doi.org/10.1016/j.pisc.2016.06.082>).
- J4. Geo Raju\*, **Prabir Sarkar**, Ekta Singla, Harpreet Singh, Rachit Kumar Sharma\*, 2016. Comparison of Environmental Sustainability of Pharmaceutical Packaging. *Perspectives in Science*. Elsevier, 8, pp 683-685 (<http://dx.doi.org/10.1016/j.pisc.2016.06.058>).
- J5. Amit Patel\*, **Prabir Sarkar**, Himanshu Tyagi, Harpreet Singh, 2016. Time value of emission and technology discounting rate for off-grid electricity generation in India using intermediate pyrolysis. *Environmental Impact Assessment Review*. Volume 59, July 2016, Pages 10–26. Elsevier. (IF=2.4) (doi:10.1016/j.eiar.2016.03.001)
- J6. Sameer Gupta\*, **Prabir Sarkar**, and Ekta Singla, 2015. Understanding different stakeholders of sustainable product and service based systems using generic algorithm. *Clean Technologies and Environmental Policy (CTEP)*, 2015, Volume 17, Issue 6, pp 1523-1533, Springer (IF= 1.7) (<http://link.springer.com/article/10.1007%2Fs10098-014-0880-y>).
- J7. Gyanendra Singh Goindi\*, Santosh Namdeo Chavan\*, Debaprasad Mandal, **Prabir Sarkar**, Anshu Dhar Jayal, 2015. Investigation of ionic liquids as novel metalworking fluids during minimum quantity lubrication machining of a plain carbon steel, *Procedia CIRP*, Volume 26, Pages 341–345, Elsevier (doi:10.1016/j.procir.2014.09.002).

- J8. **Prabir Sarkar** and Amaresh Chakrabarti, 2015. Creativity: Generic Definition, Tests, Factors and Methods. The International Journal of Design Sciences and Technology, Europa, vol, 21, no.1 (<http://europa.org/IJDST/vol21.htm> ).
- J9. **Prabir Sarkar**, Bhaanuj Sharma\*, and Ural Malik\*, 2014. Energy generation from grey water in high raised buildings: the case of India. Renewable Energy, Elsevier, Volume 69, September 2014, Pages 284–289 (I.F= 3.4) (<http://dx.doi.org/10.1016/j.renene.2014.03.046> ).
- J10. **Prabir Sarkar** and Amaresh Chakrabarti, 2014. Ideas generated in conceptual design and their effects on creativity, Research in Engineering Design, Springer, July 2014, Volume 25, Issue 3, pp 185-201 (I.F= 1.5) (<http://link.springer.com/article/10.1007%2Fs00163-014-0173-9> ).
- J11. **Prabir Sarkar** and Amaresh Chakrabarti, 2014. What affects design outcomes of conceptual design? International Journal of Design Engineering, Inderscience, Volume 5, no. 4, pp-289-321 (<http://www.inderscienceonline.com/doi/abs/10.1504/IJDE.2014.067075> ).
- J12. Patel Amit R\*, **Sarkar Prabir**, Singh Harpreet, Tyagi Himanshu, and Sagi Sudhakar, 2014. Life cycle assessment of intermediate Pyrolysis of wheat straw for sustainable energy alternate and emission mitigation. International Review of Applied Engineering Research, ISSN 2248-9967 Volume 4, Number 4 (2014), pp. 325-330, Research India Publications (<http://www.ripublication.com/Volume/iraerv4n4spl.htm> ).
- J13. **Prabir Sarkar** and Amaresh Chakrabarti, 2013. A support for protocol analysis for design research. Design Issues, MIT Press, vol. 29, issue- 4, pp-70-81 (I.F=1.5) ([http://dx.doi.org/10.1162/DESI\\_a\\_00231](http://dx.doi.org/10.1162/DESI_a_00231) ).
- J14. Che B. Joung, John Carrell, **Prabir Sarkar**, Shaw C. Feng, 2013. Categorization of indicators for sustainable manufacturing. Ecological Indicators, Elsevier, Volume 24, Pages 148–157 (I.F= 3.0) (<http://dx.doi.org/10.1016/j.ecolind.2012.05.030> ).
- J15. **Prabir Sarkar** and Amaresh Chakrabarti, 2011. Assessing design creativity. Design Studies, vol. 32, Issue 3, May 2011, Elsevier (I.F= 2.5) (<http://www.journals.elsevier.com/design-studies/most-cited-articles/> ). [**Most cited paper of 2014 in Design Studies Journal.**]
- J16. Sudarsan Rachuri, Ram D. Sriram, Anantha Narayanan, **Prabir Sarkar**, Jae-Hyun Lee, Kevin W. Lyons, Sharon J. Kemmerer, 2011. Summary of the NIST workshop on Sustainable Manufacturing: Metrics, Standards, and Infrastructure. International Journal for Sustainable Manufacturing, vol. 2, Issue 2/3, Inderscience
- J17. Gaurav Ameta and **Prabir Sarkar**, 2010. Comparison of electronics products standards for sustainability. International Journal of Product design, April 2010, Serials publications.
- J18. Sudarsan Rachuri, **Prabir Sarkar**, Dimitris Kiritsis, Masaru Nakano, 2009. Editorial: Special Issue on: "Developing Sustainable Products, Processes and Services", International Journal of Product Lifecycle Management, Vol 4, No 1-3, Inderscience (<http://www.inderscience.com/info/inarticletoc.php?jcode=ijplm&year=2009&vol=4&issue=1/2/3>).
- J19. **Prabir Sarkar**, Phaneendra S, Amaresh Chakrabarti, 2008. Developing engineering products using inspiration from nature. Journal of Computing and Information Science in Engineering, JCISE. Vol. 8, No. 3. ASME. (I.F= 0.5) (<http://dx.doi.org/10.1115/1.2956995> ).
- J20. **Prabir Sarkar** and Amaresh Chakrabarti, 2008. The effect of representation of triggers on design outcomes. Artificial Intelligence in Engineering Design and Manufacturing, AIEDAM. Journal's special issue on multi-modal design. Vol 22. Issue -2. Cambridge university press. (I.F=0.6) (<http://dx.doi.org/10.1017/S0890060408000073> )
- J21. Amaresh Chakrabarti, **Prabir Sarkar**, B. Leelavathamma, B.S. Nataraju, 2005, A functional representation for aiding biomimetic and artificial inspiration of new ideas. Artificial Intelligence in Engineering Design and Manufacturing, AIEDAM. Vol. 19, Issue – 2, pp-113-131. Cambridge university press. (I.F.= 0.6)



### Peer Reviewed Indian Journal

- J22. **Prabir Sarkar** and Guruprasad Rao, 2013. Creativity Demystified. IPI Journal, Special issue on product design and development – part 3, April/May 2013, Vol. 18 Issue 1, Indian Plastics Institute.

### Book Chapter Publications

- BC1. Sudarsan Rachuri, **Prabir Sarkar**, Anantha Narayanan, Jae Hyun Lee, Paul Witherell, 2011. Towards a Methodology for Analyzing Sustainability Standards using the Zachman Framework. In Jürgen Hesselbach and Christoph Herrmann (Eds.) Globalized Solutions for Sustainability in Manufacturing. ISBN: 978-3-642-19691-1. Springer.
- BC2. **Prabir Sarkar** and Amaresh Chakrabarti, 2010. Assessing innovation through product analysis. In Regalla Srinivasa Prakash and Kuldip Sangwan (Eds.), Product Design and Manufacturing: A collaborative and Product Lifecycle Approach, New Age International Publishers.
- BC3. **Prabir Sarkar** and Amaresh Chakrabarti, 2009. Analyzing Creativity Methods. In Amaresh Chakrabarti (Eds.), Research into Design: Supporting Multiple Facets of Product Development, Research Publishing Services.
- BC4. **Prabir Sarkar** and Amaresh Chakrabarti, 2008. Studying engineering design creativity- developing a common definition and associated measures. In, John Gero (Ed.) Studying Design Creativity, Springer Verlag, 2008.
- BC5. **Prabir Sarkar** and Amaresh Chakrabarti, 2006. Assessing degree of novelty of products to ascertain innovative products. In Bouras A., Gurumoorthy B. and Han S. (Eds.), 2006, Product life cycle management, going beyond product development and delivery, Inderscience Enterprises limited, Switzerland. (<http://www.inderscience.com/browse/book.php?journalID=1003&action=editorial>)

### International Conference Publications

- C1. Rachit Kumar Sharma\*, Sheshanth Pallakonda\*, Geo Raju\*, **Prabir Sarkar**, Ekta Singla, Harpreet Singh, 2017. Evaluating sustainability of the manufacturing process of a food product based on energy and resource inputs. International Conference on Materials, Manufacturing and Modelling, 9-11 March 2017. VIT. Accepted in Materials Today, Elsevier.
- C2. Aditya Goyal\* and **Prabir Sarkar**, 2017. Aesthetics In Automotive Design: Finding an Aesthetically Likable Car Form. IEEE International Conference on Science, Technology, Engineering and Management (ICSTEM'17). KIT-Kalaignarkaranidhi Institute of Technology, Coimbatore, March 3-4 March 2017.
- C3. Bijendra Kumar\* and **Prabir Sarkar**, 2017. Understanding perception of sustainable product: consumer vs. producer. IEEE International Conference on Science, Technology, Engineering and Management (ICSTEM'17). KIT-Kalaignarkaranidhi Institute of Technology, Coimbatore, March 3-4 March 2017.
- C4. Amit Patel\*, Himanshu Tyagi, **Prabir Sarkar**, Harpreet Singh, 2017. Sustainable Energy Assessment Criteria of Intermediate Pyrolysis of Wheat Straw as a Renewable Energy Alternative. International Conference on Sustainable Energy and Environmental Challenges. February 26-27, 2017. Center of Innovative and Applied Bioprocessing, Sector 81, Mohali, Punjab.

- C5. Bijendra Kumar\* and **Prabir Sarkar**, 2017. A Tool for Generating New and Appropriate Methods for Supporting Various Design Processes. International Conference on Research into Design (ICORD) 2017, 9-11 January 2017, IIT Guwahati.
- C6. Jitendra\* and **Prabir Sarkar**, 2017. Reduction of environmental impact of products through Hotspot analysis in LCA. International Conference on Research into Design (ICORD) 2017, 9-11 January 2017, IIT Guwahati.
- C7. Bijendra Kumar\*, **Prabir Sarkar**, 2016. Understanding effect of background on car aesthetics. 4th International Conference on Production and Industrial Engineering (CPIE-2016), National of Technology Jalandhar, India, 19-21 Dec, 2016.
- C8. Bijendra Kumar\*, **Prabir Sarkar**, 2016. Awareness of government initiative on sustainable development. 4th International Conference on Production and Industrial Engineering (CPIE-2016), National of Technology Jalandhar, India, 19-21 Dec, 2016.
- C9. Sagar B. Dhage\*, Anshu Dhar Jayal, and **Prabir Sarkar**, 2016. Effects of cutting tool surface texturing on the surface integrity of machined AISI 1045. Proceedings of First Structural Integrity Conference and Exhibition (SICE-2016), Bangalore, July 4-6, 2016.
- C10. L. Siddharth\* and **Prabir Sarkar**, 2016. A methodology for predicting the effect of engineering design changes. Fourth International Conference on Design Creativity (4th ICDC), Atlanta, GA, November 2nd-4th, 2016 (accepted, however not presented).
- C11. Geo Raju\*, **Prabir Sarkar**, Harpreet Singh, Ekta Singla, Rachit Sharma\*, 2016. Comparison of Environmental Sustainability of Pharmaceutical Packing. International conference on recent trends in engineering and material science, (ICEMS-2016) March 17-19, 2016, Jaipur National University, Jaipur.
- C12. Bijendra Kumar\*, **Prabir Sarkar**, 2016. Prediction of future car forms based on historical trends. International conference on recent trends in engineering and material science, (ICEMS-2016) March 17-19, 2016, Jaipur National University, Jaipur.
- C13. Geo Raju\*, Harpreet Singh, **Prabir Sarkar**, Ekta Singla, 2016. A framework for evaluation of environmental sustainability in pharmaceutical industry. Dipak Kumar Mandal and Chanan Singh Syam (Eds.), Lecture notes in mechanical engineering, CAD/CAM, Robotics and Factories of the Future. Proceedings of the 28th International Conference on CAD/CAM, Robotics and Factories of the Future 2016, Springer ISSN 219-4356. DOI 10.1007/978-81-322-2740-3.
- C14. Patel A. R. \*, **Sarkar Prabir**, Singh Harpreet, Tyagi Himanshu, Sagi Sudhakar, 2015. Emission discounting method for mitigation of environmental issues. First IEEE Uttar Pradesh Conference-International Conference on Energy Economics and Environment (UPCON-ICEEE 2015), March 27-28, 2015, Greater Noida, India.
- C15. **Prabir Sarkar**, Srinivas Kota, Bijendra Kumar\*, 2015. Understanding consumers' perceptions of sustainable products in India. International Conference on Research in Design, ICORD 2015, Bangalore, India, 7-9th January, 2015. (Also published as Springer book chapter, CoRD'15 – Research into Design Across Boundaries Volume 2 in Volume 35 of the series Smart Innovation, Systems and Technologies pp 99-112.)
- C16. Goindi, G. S.\*, Chavan, S. N., Jayal, A. D., Mandal, D., **Sarkar, P.**, 2014. Investigation of ionic liquids as metalworking fluids in minimum quantity lubrication machining of AISI 1045 steel. 5th International and 26th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2014), Guwahati, 12-14, December, 2014.
- C17. Dhage, S. B.\*, Jayal, A. D., **Sarkar, P.**, 2014. Investigation of surface textured cutting tools for sustainable machining. 5th International and 26th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2014), Guwahati, 12-14, December, 2014.

- C18. Sameer Gupta\*, **Prabir Sarkar**, and Ekta Singla, 2014. Understanding Different Stakeholders of Sustainable Product and Service Based Systems using Genetic Algorithm for Sustainable Manufacturing. 5th International and 26th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2014), Guwahati, 12-14, December, 2014.
- C19. **Prabir Sarkar** and Bijendra Kumar\*, 2014. Identifying Tools for Remotely Located Collaborative Interactions Proceedings of International Conference on Recent Advances in Engineering and Computation Sciences, IEEE sponsored RA ECS, UIET Panjab University Chandigarh, 06 – 08 March, 2014.
- C20. Patel Amit R\*, **Sarkar Prabir**, Singh Harpreet, Tyagi Himanshu, and Sagi Sudhakar, 2014. Life cycle assessment of intermediate Pyrolysis of wheat straw for sustainable energy alternate and emission mitigation. International conference on "Innovative Trends in Mechanical, Materials, Manufacturing, Automotive, Automobile and Aeronautical Engineering (ITMMMAAAE)- 2014, 15th- 16th, February 2014. New Delhi.
- C21. **Prabir Sarkar**, Che Bong Joung, John Carrell, Shaw Feng, 2011. Sustainable Manufacturing Indicator Repository. ASME 2011, International design engineering technical conference & computers and information in engineering conference, August 28-31, Washington DC, USA. Paper no. DETC2011-47491 pp. 943-950.
- C22. Paul Witherell, **Prabir Sarkar**, Anantha Narayanan, Jae Hyun Lee, Sudarsan Rachuri, 2011. An Approach for Identifying Gaps and Overlaps in Standards to Determine Product Applicability. ASME 2011, International design engineering technical conference & computers and information in engineering conference, August 28-31, Washington DC, USA. <http://dx.doi.org/10.1115/DETC2011-48631>.
- C23. Anantha Narayanan, Jae Hyun Lee, Paul Witherell, **Prabir Sarkar**, Sudarsan Rachuri, 2011. An Information Modeling Methodology for Sustainability Standards. ASME 2011, International design engineering technical conference & computers and information in engineering conference, August 28-31, Washington DC, USA. Volume 2: 31st Computers and Information in Engineering Conference, Parts A and B. ISBN: 978-0-7918-5479-2.
- C24. Sudarsan Rachuri, **Prabir Sarkar**, Anantha Narayanan, Jae Hyun Lee, Paul Witherell, 2011. Towards a Methodology for Analyzing Sustainability Standards using the Zachman Framework. Proceedings of the 18th CIRP International Conference on Life Cycle Engineering, Technische Universität Braunschweig, Braunschweig, Germany, May 2nd - 4th, 2011.
- C25. Vicente Chulvi; Elena Mulet; Amaresh Chakrabarti; Srinivasan V; **Prabir Sarkar**, 2010. Quantitative measure of creativity related to SAPPhIRE-based method. Design computing and cognition, DCC 2010, 12–14 July 2010, University of Stuttgart, Stuttgart, Germany.
- C26. Sudarsan Rachuri, Ram D Sriram, **Prabir Sarkar**, 2009. Metrics, standards and industry best practices for sustainable manufacturing systems. 5th IEEE Conference on Automation Science and Engineering (IEEE CASE 2009), August 22 to 25, 2009 (Invited paper).
- C27. **Prabir Sarkar**, Sudarsan Rachuri, Hyo Won Suh, Kevin Lyons, Ram D. Sriram, 2009. A Measure of Product Sustainability Based on Triple Bottom Line. ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, San Diego, California, USA.
- C28. **Prabir Sarkar** and Hyo Won Suh, 2009. Environmental impact of manufactured products: A measure inspired by nature. International Conference on Product Life cycle Management, PLM 2009, University of Bath, UK.
- C29. **Prabir Sarkar**, Amaresh Chakrabarti, 2008. Analyzing creativity methods, International Conference on Research in Design, ICORD 2009, Bangalore, India.
- C30. **Prabir Sarkar**, Amaresh Chakrabarti, 2007. Development of a method for assessing design creativity, International conference on engineering design, ICED'07, 28 - 31 August 2007, Paris.
- C31. **Prabir Sarkar**, Amaresh Chakrabarti, 2007. Understanding search in design, International conference on engineering design, ICED'07, 28 - 31 August 2007, Paris.

- C32. **Prabir Sarkar**, Amaresh Chakrabarti, 2007. Developing novel technical systems using ideas from nature, International conference on engineering design, ICED'07, 28 - 31 August 2007, Paris.
- C33. **Prabir Sarkar**, Amaresh Chakrabarti, 2007. A tool for supporting protocol analysis, International Conference on Engineering Design, ICED'07, 28 - 31 August 2007, Paris.
- C34. **Prabir Sarkar**, Amaresh Chakrabarti, 2006. Assessing degree of novelty of products to ascertain innovative products. International Conference on Product Life Cycle Management, PLM, 2006.
- C35. Amaresh Chakrabarti, **Prabir Sarkar**, B. Leelavathamma, B.S. Nataraju, 2005. A behavioural model for representing biological and **artificial** systems for inspiring novel designs, International Conference on Engineering Design, ICED 05, Melbourne, August 15– 18, 2005.

#### **National Conference and Symposium Publications (Total Number: 6, First Author:4)**

- C36. Sagar Bhimraj Dhage\*, Gyanendra Singh Goindi\*, Anshu Dhar jayal, **Prabir Sarkar**, 2013. Influence of cutting tool flank surface texture in mechanical micro-manufacturing of AISI 1045 steel. National conference on manufacturing, vision for future, Oct 12-13, 2013, IIT Guwahati.
- C37. **Prabir Sarkar**, 2008. Supporting search of design spaces during design, Symposium on Research in Product Design, 2008, Indian Institute of Science, Bangalore.
- C38. **Prabir Sarkar**, 2007. Exploring creativity, Symposium on Research in Product Design, 2007, Indian Institute of Science, Bangalore.
- C39. **Prabir Sarkar** and Amaresh Chakrabarti, 2006. Determining and measuring product novelty to ascertain innovation in product development cycle. Proceedings of the National Conference on Design for Product Life Cycle, DPLC. February 17-18, 2006, BITS, Pilani.
- C40. Amaresh Chakrabarti, **Prabir Sarkar**, Phaneendra.S, B.S. Nataraju, 2005. A Behavioural Model for Representing Natural and Artificial Systems for Inspiring Novel Designs. Proceedings of 5th National Seminar on Aerospace and related Mechanisms, ARMS, 2005. November 18-19, 2005, ISRO, Bangalore.
- C41. **Prabir Sarkar** and K.Vijay, 1997. "Implementation of expert system on wire-cutting EDM", presented in National Level Technical Symposium, held at R.E.C, Kurukshetra, India, Literati, 1997.

#### **International Workshop**

- IW1. **Prabir Sarkar**, Sudarsan Rachuri, Ram D Sriram, 2009. Understanding sustainability of products. Indo-US workshop on Designing Sustainable Products, Services and manufacturing Systems, Bangalore India, Aug 18-20, 2009.
- IW2. **Prabir Sarkar**, Amaresh Chakrabarti, 2008. Studying engineering design creativity, Invited paper in the Proceedings of the NSF Workshop on Studying Design Creativity, John Gero (ed.), Aix-en-Provence, France, March 2008.

#### **Technical Reports**

- TR1. Sudarsan Rachuri, Ram D. Sriram, Anantha Narayanan, **Prabir Sarkar**, Jae-Hyun Lee, Kevin W. Lyons, Sharon J. Kemmerer (Eds.), 2010. Sustainable Manufacturing: Metrics, Standards, and Infrastructure Workshop report, NISTIR.
- TR2. Dozer group, BEML, 2002. DSIR (Govt. of India's department for Scientific and Industrial Research) report on directional boring system.
- TR3. Dozer group, BEML, 2002. TIFAC (Technology Information Forecasting & Assessment Council) report on Radio Controlled Dozer (Disaster management equipment).

### III. Teaching

#### Course teaching

##### At IIT Ropar

- 2017 **Sustainable Design and Manufacturing** (MEL 517) course for PhD and Masters' students during Jan-May 2017.
- 2017 **Product design and realization Intermediate, II** (MEP 205) co-taught course for Mechanical Engineering undergraduate students during Jan-May 2017.
- 2016 **Product design and realization –I** (GEL 101) co-taught for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2016.
- 2016 **Manufacturing Laboratory** (MEP 302) co-taught for Mechanical Engineering undergraduate students during Fall 2016.
- 2016 **Product design and realization Intermediate, II** (MEP 205) course for Mechanical Engineering undergraduate students during Spring 2016.
- 2015 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2015.
- 2015 **Computer Aided Design and Manufacturing** (MEL 474) co-taught for Mechanical Engineering undergraduate students during Summer 2015.
- 2015 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Spring 2015.
- 2014 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2014.
- 2014 **Computer Aided Design and Manufacturing** (MEL 474) co-taught for Mechanical Engineering undergraduate students during Fall 2014.
- 2014 **Design Research** (Mel 467) co-taught for Mechanical Engineering graduate and undergraduate students during Summer 2014.
- 2014 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Spring 2014.
- 2013 **Product design and realization Intermediate, II** (MEP 205) co-taught course for Mechanical Engineering undergraduate students during Fall 2013.
- 2013 **Mechanical engineering** (MEN 100) co-taught course for Mechanical Engineering undergraduate students during Fall 2013.
- 2013 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2013.
- 2013 **Sustainable Design and Manufacturing** (MEL 517) co-instructed course for graduate students during Fall 2012.
- 2013 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Spring 2013.
- 2013 **Design Research** (Mel 467) co-taught for Mechanical Engineering graduate and undergraduate students during Spring 2013.
- 2012 **Mechanical engineering** (MEN 100) co-taught course for Mechanical Engineering undergraduate students during Fall 2012.

- 2012 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2012.
- 2012 **Sustainable Design and Manufacturing** (MEL 517) co-instructed course for graduate students during Spring 2012.
- 2012 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Spring 2012.
- 2011 **Product design and realization –I** (GEL 101) course for Mechanical Engineering, Computer Science and Engineering, and Electrical Engineering undergraduate students during Fall 2011.

#### **Short term courses**

- 2010 **Design of cars**, a short course for senior students, Frederick school, Maryland, USA.
- 2014 **Advanced Aesthetics**, a short course for Master of Design students at Indian Institute of Science Bangalore.
- 2003 **Computer Aided Design**, a short course taught at Kolar Gold Fields
- 1998 **Computer Aided Design**, a short course taught at Trichy

### **IV. Services**

#### **Professional services**

##### **Editor/ Editorial board member**

- Editorial board member, **Journal of Engineering, Design and Technology**, Emerald
- Editorial board member, **International Association of Scientific Innovation and Research (IASIR) journals**
- Founder editor-in-chief of **International Journal of Product Design**, Serials Publications (<http://www.serialspublications.com/journals1.asp?jid=477&jtype=1>), 2008-2011.
- Special issue editor of International Journal of Product Lifecycle Management (**IJPLM**), Special Issue: Developing sustainable products, processes and services. (<http://www.inderscience.com/browse/index.php?journalCODE=ijplm>).

##### **Journal reviewer**

- Research in Engineering Design, Springer (many papers)
- Journal of Engineering Design, Taylor and Francis (many papers)
- Co-Design, Taylor and Francis
- International Journal of Design Engineering, Inderscience Publishers
- Production Planning and Control, Taylor and Francis
- International Journal of Design Creativity and Innovation, Taylor and Francis
- Design studies, Elsevier
- Journal of Mechanical design, ASME
- IEEE, T-ASE
- Sadhana, Springer
- Environmental Science and Pollution Research, Springer
- Journal of The Institution of Engineers (India): Series C, Springer
- Design science, Cambridge university press
- Environment, Systems and Decisions, Springer

##### **Conference reviewer**

- 5<sup>th</sup> International Conference on PLMSS 2015.

- International conference on research into design (ICoRD'15), Bangalore, India
- International Design Engineering Technical Conferences (IDETC) & Computers and Information in Engineering Conference (CIE), ASME 2014
- IEEE-TASE, 2013, Aston university
- iNaCoMM, 2013. 1<sup>st</sup> International and 16th National Conference on Machines and Mechanisms, IIT Roorkee.
- ACM SIGCHI Creativity & Cognition 2009 conference, October 27-30, 2009. Berkeley Art Museum & UC Berkeley, USA
- ASME 2011 International Design Engineering Technical Conferences (IDETC) & Computers and Information in Engineering Conference (CIE)
- ASME 2009 International Design Engineering Technical Conferences (IDETC) & Computers and Information in Engineering Conference (CIE)
- DCC, 2008. Third international Conference on Design Computing and Cognition, 2008 (DCC, 2008), 23-25 June, Georgia Institute of Technology, Atlanta, USA
- TMCE 2008. Seventh International Symposium on Tools and Methods of Competitive Engineering (TMCE 2008), April 21-25, 2008, Izmir, Turkey

#### **International programme committee member**

- International Programme Committee of the 3rd International Conference on Design Creativity (3rd ICDC), 2014
- International Programme Committee of the ICORD, 2015. 5th International Conference on Research into Design (ICoRD'13), Bangalore, India
- International Programme Committee of the ICORD, 2013. 4th International Conference on Research into Design (ICoRD'13), Bangalore, India

#### **Academic and administrative services in the Department of Mechanical Engineering at IIT Ropar**

- Member, web development committee (2012-present)
- Member, manufacturing machines, tools, and equipment committee (2013- present)
- Member, standing purchase committee for manufacturing group (13.9.2011-present)
- Member, short listing committee member for SMME faculty recruitment (2011, 2012, 2017-present)
- Member, purchase committee of Product design and realization computer laboratory (2013)
- Member, expert talk organization committee (2016-present)
- Member, Departmental Purchase Committee (2016-present)
- Member, Departmental Junior Lab Assistant recruitment committee (2016-present)
- Member, Departmental Staff Recruitment committee (2016-present)
- Founder faculty, Design research laboratory (2012-present)
- Co-founder faculty, Sustainable design and manufacturing laboratory (2012- present)
- Co-founder faculty, Design studio laboratory (2013-current)

#### **Academic and administrative services at IIT Ropar**

- **Co-coordinator of the central workshop**
- **Chairman and Nodal officer IPR cell**

Member, doctoral Scrutiny Committee (DSC) for the following students of the department and the institute (date of joining of these students-present):

- (i) Ashpreet singh,
- (ii) Jaspreet Singh Chahal,
- (iii) Ashis Gupta,
- (iv) Sameer Gupta,

- (v) Neha Singh Bhakal,
- (vi) Saikha Bhatta,
- (vii) Harish Kumar Nirala,
- (viii) Devi Prasad Dash,

(ix) Mahima Gulati

(x) Rajesh Sharma

- Member, Web development committee of the institute (2012-present)
- Member, Institute Ranking Committee (2016-present)
- Member, banner and hoarding committee (2012-2015)
- Member, guest house facility committee (2012-2013)
- Member of selection committee of Junior Attendant (Semi-skilled) (ME) (09.05.2013)
- Member, new campus development committee (2013-2015)
- Member, institute car purchase and renting committee (2013-present)
- Coordinator of Product design and realization manufacturing laboratory (workshop) (2013-present)
- Developed four products for Rural Technology Action Group (RuTAG) group (2013, 2014)
- Member of Unnat Bharat Abhiyan, IIT Ropar (2015-present)
- Started Intellectual Property Cell (IPR cell) at IIT Ropar and received initial grant from PSCST (July 2014-present) and coordinating with Patent Information Centre (PSC), Punjab State Council for Science and Technology (PSCST) and Technology Information, Forecasting and Assessment Council (TIFAC), Government of India for patent filing (2013-present)

#### **International conferences/workshops/design exhibitions co-organized**

- Conducted a one-day workshop on IPR at IIT Ropar, 3 March, 2015.
- Session moderator of Industrial academia conclave (IAC), 2016, IIT Ropar.
- Session moderator of Industrial academia conclave (IAC), 2015, IIT Ropar.
- Session chair and conducted a workshop on sustainability at the International Conference on Research in Design, ICORD 2015, Bangalore, India, 7-9<sup>th</sup> January, 2015.
- Co-chair of 29th Computers and Information in Engineering Conference (CIE), Product Lifecycle Management for Sustainable Manufacturing (CIE-9-1 PLM-1), ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, August 28 –September 2, 2009, San Diego.
- Indo-US workshop on Designing Sustainable Products, Services and manufacturing Systems, Bangalore, India, Aug 18-20, 2009.
- NIST Workshop on Sustainable Manufacturing: Metrics, Standards, and Infrastructure, October 13-15 2009, NIST.
- Research in Product Design, 2007 and 2008, Indian Institute of Science, Bangalore.
- Indo –US Workshop, Engineering design, 2007, Bangalore.
- Green Design Workshop, 2007, Bangalore.
- Ripples 2000, 2005, Indian Institute of Science, Bangalore.
- Technical Program committee member of Prodigy, 1997- a technical symposium, National Institute Technology, Trichy.

### **V. Design activities**

#### **New product development**

- Designed as a lead engineer the first radio controlled dozer of India, while working for BEML (2000-2002).
- Invented an auto-disposable syringe and patented the design (MAS/2000).
- Design and developed various industrial projects such as, load indicator deck lamps for a dumper (BH85), joysticks for dumpers for hoist control, and new dashboards for dumpers (BH85) for universal electronic controller.
- Various consultancy projects were carried out both as a consultant and as a volunteer.
- For portfolio, please visit my website at [www.prabirsarkar.com](http://www.prabirsarkar.com)

#### **Website developments**



- Indo-US workshop website
- CPDM Department website (CPDM), IISc, 2005
- Ideas Lab website, (CPDM), IISc, 2005
- Sustainability standards portal, NIST

#### **Software developments**

- Intelligent Designer - Design of Jigs and Press Working Tools using AI (C++, AutoCAD) (BE Project)
- Idea-Transcribe – An aid for design researchers for transcribing protocols (VB, Media player, Spreadsheet)
- Idea-Inspire (in team) - An aid to help designers generate solutions (VC++, OpenGL)
- Idea-Trigger – An aid to trigger ideas (VB, VC++, OpenGL) (PhD work)
- Planner – Planning software for researchers (VB)

#### **Medical equipment design**

- 2015 Completed design and manufacturing of a project titled “Bone alignment measuring system” along with four students of IIT Ropar and with Dr. Chawan of PGI hospital, Chandigarh, 2015.
- 2015 Developed “improved surgical cutter for plastic surgery” for Dr. Sunil Gaba of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh along with Dr. S. S. Padhee and Mr Sameer Mishra, a summer internship student, 2015

#### **Design exhibitions conducted**

- 2016 Design exhibition at Indian Institute of Technology Ropar in November 2016 (guided products displayed= 16).
- 2016 Design exhibition at Indian Institute of Technology Ropar in April 2016 (guided products displayed= 8).
- 2015 Design exhibition conducted for undergraduate students in November 2015 (guided products displayed= 18, approx..).
- 2015 Design exhibition at Indian Institute of Technology Ropar in April 2015 (guided products displayed= 14).
- 2014 Design exhibition conducted for undergraduate students in November 2014 (guided products displayed= 18).
- 2014 Design exhibition conducted for undergraduate students in April 2014 (guided products displayed= 24).
- 2013 Design exhibition conducted for undergraduate students in November 2013 (guided products displayed= 28).
- 2013 Design exhibition conducted for undergraduate students in April 2013 (guided products displayed= 28).
- 2012 Design exhibition conducted for undergraduate students in November 2012 (guided products displayed= 24).
- 2012 Design exhibition conducted for undergraduate students in April 2012 (guided products displayed= 14).
- 2011 Design exhibition conducted for undergraduate students in November 2011 (guided products displayed= 28).

### **VI. Other information**

#### **Certificates and Internship Training**

- 2001 FESTO, Bangalore. Electro-Pneumatics certified course, 1 week, 2001.
- 2001 Bharat Earth Movers Limited, Kolar Gold Fields. Management Training, 1 week, 2001
- 1997 Hindustan Motor, Kolkata. Project: Material Handling in Camshaft section, 15 days, 1997
- 1996 Ordinance Factory, Kolkata. Project: Study of stabilizer unit of AT Missiles, 15 days, 1996
- 1996 Jessop and Company Limited, Kolkata. 1 month, 1996

#### **Computer knowledge**

- Operating Systems: Windows, UNIX, with a good knowledge of windows administration
- Graphics packages: Coral Draw, Adobe Photoshop, Alias Sketchbook Pro
- Web authoring tools: Dreamweaver
- CAD/CAM packages: SolidWorks, Catia, Rhinoceros, IDEAS, AutoCAD, Pro-E, Inventor
- Programming: Visual basic, C++
- CNC programming: CNC milling with FANUC, CNC lathe
- Others: Microsoft office, C-panel admin
- Web developer and system administrator, CPDM Department, Indian Institute of science, Bangalore from 1998 to 2000 and from 2003 to 2007

### **Memberships**

- Member of American Society of Mechanical Engineers (ASME), membership number: 100037361 (2009-current)
- Member of Design Society (DS), UK, membership number: DS00766 (2012-current)
- Member of IEEE (Member #90634796) (2014- 2015)
- Life member of Indian Science Congress Association, membership number: L26809
- Member of SIG, Design Creativity, Design Society (2008-current)
- Member of International Association of Engineers (IAENG) (130646) (2013-current)
- Senior member, Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEES) (100789) (2013-current)
- Life member, Indian Society for Technical Education (LM 107365)

### **Collaborations**

- Prof. Amaresh Chakrabarti, Professor, Centre for Product Design and manufacturing (CPDM), Indian Institute of Science (IISc), Bangalore - 560012, India.
- Dr. Sudarsan Rachuri, Federal Program manager, US Department of Energy. Advance Manufacturing Office (AMO), Washington D.C.
- Dr. Shaw Feng, Project leader, National Institute of Standards and Technology (NIST), USA.
- Dr. Jae Hyun Lee, Assistant professor, Industrial and management engineering, College of engineering, Daegu university, Republic of Korea.
- Dr. Anshu Dhar Jayal, Assistant Professor, Department of Mechanical Engineering, Indian Institute of Technology Ropar.
- Prof. Jagjit Singh Srail, Head, International Manufacturing Institute for Manufacturing, Dept. of Engineering, University of Cambridge
- Dr Mukesh Kumar, Lecturer, Institute for Manufacturing, Dept. of Engineering, University of Cambridge
- Prof. Sameer K. Srivastava, Professor, Operations Management, Indian Institute of Management, Lucknow
- Prof. Hyo Won Suh, Professor, KAIST, South Korea

*Prabir Sarkar / Last update: April, 30, 2017 / IIT Ropar*