



Dr. Saurav Goel CEng, FHEA, RA-CIRP, MIMechE, MIET

Associate Director: EPSRC Centre of Doctoral Training in Ultra-Precision (University of Cambridge/Cranfield)
<http://www.cdt-up.eng.cam.ac.uk/directory/core-staff>

Associate Professor,
London South Bank University and Cranfield University
+0044 (0) 1234754132, Email: GoeLS@lsbu.ac.uk
Scopus ID : 52463649500, **ORCID** : 0000-0002-8694-332X, **ResearcherID**: C-9714-2011

Education:

NERIST (Deemed University), India	Mechanical Engineering	B.Tech. (Hons.) in 2007
Bharathiar University, India	Business Administration	MBA in 2010
Heriot-Watt University, UK	Mechanical Engineering	PhD (thesis award) in 2013
Queen's University Belfast, UK	Education	PGCHET in 2015

Professional affiliation(s)

2016-	CEng - Engineering council - (Registration No. 631060) affiliated with IMechE
2015-	Fellow of the Higher Education and Academy (FHEA) (Ref No. PR087638)
2016-	Member of the IMechE., UK (Membership Number: 80207897)
2016-	Member of the IET (Membership no. 1100454457)
2015-	Member of the Engineering Professors' council (EPC)
2012-	Member of the European Society of Precision Engineering (EUSPEN)

Professional experience:

2019-present, London South Bank University, UK, School of Engineering, Associate Professor
2016-present, Cranfield University, UK, School of Aerospace, Transport and Manufacturing, Asstt. Professor
2016-2016, Indian Institute of Technology Guwahati, Mechanical Department, *GIAN FACULTY*
2013-2016, Queen's University Belfast, UK, School of Mechanical and Aerospace Engineering, Asstt. Professor
2010-2013, Heriot-Watt University, Edinburgh, UK, Mechanical Engineering, Part-time teaching assistant
2007-2010, Larsen and Toubro Limited, ECC Division, New Delhi, India, Senior Engineer (*Industrial experience*)

1. London South Bank University, UK

Dec 2019- Current

Associate Professor in Mechanical Engineering Division

Modules developed and taught: Manufacturing Systems and Material Technologies

2. Cranfield University, UK

October 2016 – Nov 2019

Lecturer in the Precision Engineering

Modules developed and taught (**Cranfield is a Post Graduate only University**):

1. Ultra-precision Engineering
2. MRes Research Labs on diamond turning, metrology and textures
 - **Received Best SATM Research Supervisor award in 2018**
 - **Nominated for Best Teaching Award in 2017 in the student led category**



3. Queen's University, Belfast, UK

June 2013 – August 2016

Lecturer in School of Mechanical and Aerospace Engineering

Courses Covered:

1. Stage-4 Strength of Materials (ME4041) to Stage 4 PG students
2. Stage -3 Strength of Materials (ME3023 and ME 3033) to 3rd year UG and PG students
 - **Nominated for Best Teaching Award in 2015 in the student led category**

4. Heriot-Watt University, Scotland, UK

September 2010- April 2012

Part time teaching assistant

Courses Covered:

1. Statics and Dynamics (Mech. Engg. Science-3)
2. Thermodynamics (Mech. Engg. Science-9)

5. Larsen and Toubro Limited, ECC Division, India

July 2007- September 2010

Senior Engineer - Last posting was at OP Jindal Global Law University Project Site – Sonipat, India

OP Jindal University Project was a design and build turnkey construction project involving finalization of CWP and SWP package items in tandem with the construction. I was heading planning department at the site and was directly reporting to the Project manager with respect to the following:

- Responsible for CWP and SWP Package Items with clients
- Responsible for vendor finalization for SWP package items
- Preparation of BOQ from available client approved drawings,
- Contractual Correspondence, sub-contractor management and billing.

Short Courses / Training School Lecturers

- Workshop Lecture at Dalian University of Technology, China on 11th October 2019
- Conducted a 20 hours long external teaching course at IIT Guwahati, India on “Advances in ultra-precision machining processes” under the MHRD Scheme, GIAN initiative of Government of India from 4th -16th August 2016
- Tutor during the Training School Organized by the Cost Action CA15102 at Lisbon, Portugal on February 6th, 2017
- Delivered an Invited Lecture in the Training School Organized by the Cost Action CA15102 at Sofia, Bulgaria on February 6th 2018

Award and Honours

- Secured Heidenhein Scholarship award for the best paper presented at 19th Int EUSPEN conference, Bilbao, Spain
- Secured best poster award at the 18th EUSPEN International conference, Venice in 2018
- Secured Heidenhein Scholarship award for the best paper presented at 18th Int EUSPEN conference, Venice, Italy
- Recipient of SATM best Research Supervisor award from CSA, Cranfield 2018
- Presented the Research poster at SET Britain, House of Commons, British Parliament in 2013
- Secured best poster award at the 12th EUSPEN International conference, Stockholm in 2012
- Secured Heidenhein Scholarship award for the best paper presented at 13th Int EUSPEN conference
- Secured Postgraduate Research “Thesis Prize” from Heriot-Watt University in 2013
- Secured Overseas Research Studentship award for fully funded PhD (2010-2013)
- Recipient of NCC “B” certificate.



Community Services

- Editorial board member for the “Journal of Micromanufacturing” by Sage publishers: <https://uk.sagepub.com/en-gb/eur/journal-of-micromanufacturing/journal203507#editorial-board>
- Editorial board member of International Journal “Machines” by MDPI publishers: <http://www.mdpi.com/journal/machines/editors>
- MRes Coordinator and Course Director for CDT in Ultra-Precision Engineering together with University of Cambridge fully funded by the EPSRC (2012-2022)
- Co-organised “ECNF” – European Conference on Nanofilms and led Session-3 on Modelling at Cranfield University, March 20-22nd 2018 (<http://www.ecnf2018.org/main-topics/>)
- Co-organised IET- Tribology Conference on "Challenges in Tribology 2018" at IET Austin Court, Birmingham, **UK**, March 16th to 17th 2018
- Co-organised “E-MRS” conference on "Solutions for critical raw materials under extreme conditions" at Warsaw, **Poland**, Sept. 18-21st 2017 (<http://www.european-mrs.com/solutions-critical-raw-materials-under-extreme-conditions-emrs>)
- Co-organised IET- Tribology Conference on "Challenges in Tribology 2017" at IET austin Court, Birmingham, **UK**, March 2017
- International committee member on the conference of “Sustainable Design and Manufacturing” Editors: R.Setchi, R.J. Howlett, M.Naim and H.Seinz published by KES International, Future Technology Press
- Advisory Panel Member of International Symposium on Aspects of Mechanical Engineering & Technology for Industry (AMETI 2014) (<http://ameti2014.org/>) held at NERIST (Deemed University), India from 6th to 8th December 2014

Research income (>3.6 M my own income to date)

LSBU (3rd employment 2019- current, Associate Prof) Total cumulative: ~£ 0.72 M

Funder	Year and duration	Status	Number/Ref	Role	Cumulative value	My portion
H2020	2018-2020	Running	Euramet EMPIR (A185 (2018)	Co-I	£62K	£7.5k
Royal Academy of Engineering	2019-2021	Running	IAPP18-19\295	PI	£49.9k	£49.9k
Royal Academy of Engineering	2020-2022	Running	TSP1332	PI	£80k	£22k
Royal Society London	2020-2022	Running	NIF\R1\191571	PI	£105k	£105k
EPSRC	2019-2022	Running	EP/S013652/1	LSBU PI	£618k	£31k
EPSRC	2020-2022	Running	EP/T001100/1	LSBU PI	£240k	£26.4k
EPSRC	2020-2024	Just started	EP/T024607/1	LSBU PI	£2.6M	£435K
Royal Academy of Engineering	2020-2021	Just started	EXPP2021\1\277 Pandemic preparedness	PI	£20k	£20k

Cranfield University (2nd employment 2016-current, Lecturer) Total cumulative: ~£ 2.9M

Funder	Year and duration	Status	Number/Ref	Role	Cumulative value	My portion
EPSRC (Ph1 CDT)	2012-2019	Completed	EP/K503241/1	Co-I	£2.56M	£1.1M
EPSRC (Ph2 CDT)	2015-2022	Running	EP/L016567/1	Co-I	£3.67M	£1.43M
NPL Consultancy	2018 (2 months)	Completed	Precision hemisphere	PI	£33k	£33k
Cranfield VC fellowship	2018-2022	Running	Vice Chancellor Fellowship	PI	£40k	£40k
EPSRC i-Case award	2020-2023	Running	Airbus (Voucher No. 19000006)	Co-I	£85.9k	£85.9k
STFC	2019-2020	Completed	MRes CDT	PI	£6k	£6k
EPSRC RAP	2019-2020	Running	Notional value HPC Grant	PI	£49k	£49k
NPL	2019-2019	Completed	Hire of equipment	PI	£10k	£10k
EPSRC	2019-2022	Running	EP/S036180/1	Co-I	£1M	£141k

Queen's University Belfast (1st employment 2013-2016- Lecturer) Total cumulative: ~£30k

Funder	Year and duration	Status	Number/Ref	Role	Cumulative value	My portion
Royal Society of Edinburgh	2013 (2 months)	Finished	John Moyce Lessels Scholarship	PI	£6k	£6k
QUB Belfast	2013 (1 year)	Finished	Vice Chancellor Research Fellowship	PI	£20k	£20K
Invest NI	2015 (2 months)	Finished	US-Ireland Preparation Grant	PI	£2400	£2400
Intertrade Voucher	2015 (6 months)	Finished	North-South Ireland collab	PI	£500	£500

Professional Development, trainings courses/ Memberships

Training and short courses	Training organisation	Year attended
o General data protection regulation	Cranfield	2019
o General Data protection regulation	Cranfield	4/2018
o Environmental awareness	Cranfield	6/2017
o ErgoWize	-do-	6/2017
o Health and Safety induction	-do-	6/2017
o Fire safety	-do-	6/2017
o Manual Handling	-do-	6/2017
o Laser safety fundamentals	-do-	3/2017
o Slips, trips and falls	-do-	6/2017
o Information security awareness	-do-	10/2016
o Accident Reporting (16/3/2016)	QUB, Belfast	2016
o Risk Assessment (1 day) course (13/8/2015)	-do-	2015
o Computer Assisted Assessment (QuestionMark) on 4 th March 2015	-do-	2015
o Complete an online training course on "Data	-do-	2015

<ul style="list-style-type: none"> Protection Online” on 23rd February 2015 o Complete an online training course on “Freedom of Information Online” on 23rd February 2015 o Attended a short term (1 day) software training session on “NVIVO” on 9th December 2014 o Introduction to HEFCE policies by the RCUK (during open access library week) on 23rd October 2014 o Attended a full day workshop on “Supervising research students” organized by www.missendencentre.co.uk on 10 Apr 2014 o Attended twice a short-term course on “Micro-manufacturing” held at IIT Kanpur, India from 30th September - 4th October 2011 and another one from 5th November-10th November 2012 o Organized a training session with Primary engineer at Linlithgow Academy, West Lothian organized by IMechE, UK on 27/4/2012 – on instruction of Dr. Stephen Houston (s.d.houston@hw.ac.uk) o Attended 2 days programme on “how to be an effective researcher” from 22-23rd November 2010 	<ul style="list-style-type: none"> -do- -do- -do- -do- -do- IIT, India Heriot Watt University, UK 	<ul style="list-style-type: none"> 2015 2014 2014 2014 2012 2012 2010
---	--	--

PhD Studentships

Completed PhDs

- **Co-supervised** Mr Jonathan Acheson with Dr Andrew Hamilton at Queen’s University Belfast
- **Played key role in the supervision** of Mr Saeed Zara Chavoshi with Prof Xichun Luo at University of Strathclyde, UK
- **Co-supervised** with Prof Adrian Murphy, Mr John Mclelland of Queen’s University Belfast
- **Co-supervised** with Dr Sebastian Balos, Ms Danka Labus Zlatanovic, University of Novi Sad, Serbia

Final year PhD

- Co-supervising with Dr Damian Quinn, Ms Cara Harley of Queen’s University Belfast, Exp. Comp. 2019

3rd year PhD

- Co-supervising with Dr Claudiu Giusca, Mr Ashley Dennis supported by NPL in the CDT, Exp. Comp. 2020

2nd year PhD

- Co-supervising with Dr Claudiu Giusca, Mr Dileep Goli supported by Rubert Co. in the CDT, Exp. Comp. 2021
- Co-supervising with Dr Claudiu Giusca, Mr Xiuyuan Yang supported by NPL in the CDT, Exp. Comp. 2021
- Co-supervising with Dr Sue Impey, Mr Mohammad Khalili supported by Sophion Bioscience, Exp. Comp.2021

1st year PhD

- Lead supervisor of Ms Sara Hawi [VC Fellowship supported CDT Student](#), Exp. Comp.2022
- Lead supervisor with Dr Hamed, Mr Raghavendra Mishra supported by the [DTP-EPSC](#), Exp. Comp.2022
- Lead supervisor of Mr Siavash Baghaei, Industry sponsored, Dugard, Exp. Comp.2023
- Co-supervising with Prof Martin Stokes, Mr Ali Tousi, [EPSC iCase studentship](#), Exp. Comp.2022



PG/UG Student supervisions

LSBU

- 2020-2021: 10 UG Projects, Mr Kaisar Kadyrbay, Ms Kiran Patel, Mr Mohib Hasan Noor, Mr Codon Walsh, Mr Caaisha Warsame, Mr Muhammad Tariq, Mr Billy Lam, Ms Alicia Trew, Mr Dennis Muja and Mr Aasif Osman
- Ms Aarushi Sehgal (NIT Hamirpur): Internship

Cranfield

- 2018-2019: 5 PG Projects, Ms Sara Hawi*, Mr Alex Bishop, Mr Pengtao Yang, Mr Mikol Solis, Mr Yang Zhao
- 2017-2018: 4 PG Projects, Ms Cen Liu, Ms Junguo Zhao#, Mr Bilal Mughal and Mr Dileep Reddy
- 2016-2017: 6 PG Projects, Mr Ali Rashid, Mr Fabian Duarte*, Mr Ashley, Mr Andrew Dickins, Mr Aroop, Mr Lukas

QUB

- 2015-2016: 5 UG and PG projects, Mr Ryan, Mr Michael Quinn, Luke Cassidy, Mr Paul Watt, Mr Diarmuid McLaughlin
- 2014-2015: 5 UG and PG projects, Mr Mark Kelly, Mr Matthew Smyth, Mr Harsh, Mr Conor Mcveigh, Mr Wai Lok lee
- 2013-2014: 2 UG projects, Ms Caoimhe Kelly and Mr Thiago Boroski

*Secured best thesis awards at Cranfield University

+ McKeown's best thesis in Precision Engineering

Secured EUSPEN best poster and best paper award at Venice

PhD internal examiner

1. Cranfield University on 12th Feb 2020 on the thesis titled "Revitalisation of Embroidery industry using advanced technology in Saudi Arabia" Student Name: Hind Mosfer S Algamdy, Supervisor Name: Dr M Khan

PhD external examiner

2. Indian Institute of Technology, Kanpur, India on April 2019 of the thesis titled "On-line control of machining performance in turning process using adaptive control system" Student Name: Kashfull Orra, Supervisor Name: Prof. S.K. Choudhary
3. IKG Punjab Technical University, India on 24th January 2019 of the thesis titled "SPDT of Chromium Zirconium Copper Alloy C18150" Student Name: Mr Bhaskar Goel, Supervisor Name: Prof. Anirudh Singh
4. Indian Institute of Technology, Kanpur, India on 25th September 2017 of the thesis titled "Fabrication, Tribological Analysis and Mathematical Modelling of Complex Blind Features Machined by Abrasive Water Jet Machining" Student Name: Vijay Kumar Pal, Supervisor Name: Prof. S.K. Choudhary
5. University of Strathclyde, Glasgow on 5th September 2016 of the thesis titled "Investigation of cutting mechanics in single point diamond turning of silicon" Student Name: Amir Mir, Supervisor Name: Prof. Xichun Luo
6. University of Limerick, Ireland on 13th May 2016 of the thesis titled "Nanoindentation characterisation of Carbon Fibre Reinforced Plastic Microstructures" Student Name: Mark Hardiman, Supervisor Name: Dr. Conor McCarthy
7. Brunel University London on 28th January 2016 of the thesis titled "Vision-Augmented Molecular Dynamics Simulation of Nanoindentation" Student Name: Rajab Al-Sayegh, Supervisor Name: Harris Makatsoris (Charalampos Makatsoris)



LIST OF PUBLICATIONS

(i) Published Monograph:

Goel S., Wear Mechanism of Diamond Tools during Ultra Precision Machining: MD Simulation Study, ISBN No. 3844387447, LAP LAMBERT publishing, Germany, 2011.

(ii) Published Book Chapter:

1. Saurav Goel, Saeed Zare Chavoshi and Adrian Murphy, a contributed chapter (19th) on "Molecular dynamics simulation (MDS) to study nanoscale machining processes" edited by Prof. V.K. Jain in "Nanofinishing Science and Technology: Basic and Advanced Finishing and Polishing Processes" published by CRC Press, USA, 25th Feb, 2017, Page No. 500-540, Print ISBN: 978-1-4987-4594-9, eBook ISBN: 978-1-315-40409-7
2. Nirmal Kumar Katiyar, Gaurav Goel, and Saurav Goel, "Nanomaterials based Biosensing: Methods and principle of detection", Springernature book Edited by Dr SN Joshi and Dr Pranjal Chandra

(iii) Authoritative reviews

1. A. Rizzo, **Saurav Goel**, M.L. Grilli, R. Iglesias, L. Jaworska, V. Lapkovsky, P. Novak, B.O. Postolnyi, D. Valerini, "The critical raw materials in cutting tools for machining applications: a review", Materials, MDPI, 2020
2. Samuel Clinton Daminabo, **Goel S.**, Sotirios A. Grammatikos, Hamed Yazdani Nezhad and Vijay Kumar Thakur, "FDM-based Additive Manufacturing (3D Printing): Techniques for Polymer Material Systems", Materials Today Chemistry, 2020
3. Faisal, N., Ahmed, R., **Goel, S.**, & Cross, G. (2018). Future of nanoindentation in archaeometry. Journal of Materials Research, 33(17), 2515-2532. doi:10.1557/jmr.2018.280
4. Chavoshi, S.Z., **Goel S.**, and P. Morantz, Current trends and future of sequential micro-machining processes on a single machine tool. Materials & Design, **2017**, 127: p. 37-53.
5. **Goel S.**, Luo X., Agrawal A. and Reuben R.L., **An invited Review article** on Diamond machining of silicon: A review of advances in molecular dynamics simulation in International Journal of Machine Tools and Manufacture, 88(0): p. 131-164, **2015**
6. **Goel, S.**, **solo authored topical review** on "The current understanding on the diamond machining of silicon carbide". Journal of Physics D: Applied Physics, IOP, 47(24): p. 243001, **2014**

(iv) Editorial note/ Comment

7. **Goel S** and Stukowski A., **Comment** on "Incipient plasticity of diamond during nanoindentation" RSC advances, **8**, 5136 – 5137, 2018
8. **Goel S.**, Inigo Llavori, Alaitz Zabala, Claudiu Giusca, Stephen Veldhuis and Jose L. Endrino, "The possibility of performing FEA analysis of a contact loading process fed by the MD simulation data", International Journal of Machine Tools and Manufacture, 134: p. 79-80, 2018

9. Ruello, Maria. L., D. Valerini, **Goel S.** and Paivi. K. Reponen, Preface for “E-MRS Fall Symposium I: Solutions for Critical Raw Materials Under Extreme Conditions”. IOP Conference Series: Materials Science and Engineering 329:011001, 2018

(v) Refereed Research papers

10. Pengfei Fan, Luo X., **Goel S.**, Yan Y., Geng Y and Wang Y, “An atomistic investigation on the wear of diamond during atomic force microscope tip-based nanomachining of Gallium Arsenide”, Int J of Extreme Manufacturing, 2020 (just accepted)
11. Khatri N, Borad M Barkachary, Muneeswaran B, Rajab, Xichun Luo and **Goel S.**, Surface Defect incorporated Diamond Machining of Silicon, Int J of Extreme Manufacturing, IOP, 2020 (just accepted)
12. Majid Fazeli, H. Ozgur Ozer, **Goel S.**, Jason Kilpatrick, Niall McEvoy, David McCloskey, John Donegan, Graham L. W. Cross, “Distribution of shallow NV centers in diamond revealed by photoluminescence spectroscopy and nanomachining”, Carbon, 2020 (LSBU REF)
13. **Goel S.**, Sara Hawi, Gaurav Goel, Vijay Kumar Thakur, Oliver Pearce, Clare Hoskins, Tanvir Hussain, Hari M Upadhyaya, Anupam Agrawal, Graham Cross and Asa Barber, “Resilient and Agile Engineering Solutions to Address Societal Challenges like Coronavirus Pandemic”, Materials Today Chemistry, 2020: p. 100300.
14. Ning Huang, Ying Yan, Ping Zhou, Renke Kang, Dongming Guo and **Goel S.**, “Elastic recovery of monocrystalline silicon during ultra-fine rotational grinding”, Precision Engineering, Volume 65, Pages 64-71, September 2020
15. Danka Labus Zlatanovic, Sebastian Balos, Jean Pierre Bergmann, Tobias Köhler, Michael Grätzel, Leposava Sidjanina and **Goel S.**, “An experimental investigation on friction stir spot welding of aluminum alloy (AA 5754) for lap joining of multiple sheets”, Int J of Adv Mfg. Tech., p. 1-15, 2020
16. Deepak Kumar, **Goel S.**, Nitya Nand Gosvami and Jayant Jain, Towards an improved understanding of plasticity, friction and wear mechanisms in precipitate containing AZ91 Mg alloy, Materialia, 2020: p. 100640 (LSBU REF)
17. Dennis A, **Goel S.**, Al-Sayegh Rajab and Neill WO, “The importance of wavelength for tight temperature control during μ -laser assisted machining”, Journal of Micromanufacturing, Sage, 2019 (LSBU REF)
18. Nerly D. Montañez, Heider Carreño, Patricia Escobar, Hugo A. Estupiñán, Darío Y. Peña, **Goel S.** and José L. Endrino, “Functional evaluation and testing of a newly developed Teleost’s Fish Otolith derived biocomposite coating for healthcare”, Nature Scientific reports, 2020. **10**(1): p. 1-16 (LSBU REF)
19. Sebastian Balos, Miroslav Dramicanin, Petar Janjatovic, Ivan Zabunov. Branka Pilic, **Goel S.** and Magdalena Szutkowska, “Suppressing the use of critical raw materials in joining of AISI 304 stainless steel using activated tungsten inert gas welding”, Metals, MDPI, 2019
20. P. Stolf, J. Paiva, Y. Seid Ahmed, **Goel S.**, J. Endrino, G. Fox-Rabinovich, S. Veldhuis, “Tribological aspects of high-pressure coolant supply assisted cutting of Ti-6Al-V”, Wear, 2019 (LSBU REF)
21. A. Zabala, D. Infante-García, E. Giner, **Goel S.**, J. L. Endrino, I. Llavori, On the use of the Theory of Critical Distances with mesh control for fretting fatigue lifetime assessment, Tribology International, 2019 (LSBU REF)
22. Giusca C. and **Goel S.**, “Improved and simpler estimation of scales linearity contribution to topography characterization”, Precision Engineering, 2019

23. Liu C., **Goel S.**, Iñigo Llavori, Pietro Stoff, Claudiu Giusca, Alaitz Zabala, Joern Kohlscheen, Jose Mario Paiva, Jose L Endrino, Stephen C. Veldhuis and German S. Fox Rabinovich, "Benchmarking of several material models for machining simulations of Ti6Al4V", Journal of the Mechanical behavior of biomedical materials, 2019 (Top-4 REF paper)
24. Huidong W, Yan S., Goel S and Menary G., Characterization and modelling the mechanical behaviour of poly(l-lactic acid) for the manufacture of bioresorbable vascular scaffolds by stretch blow moulding. International Journal of Material Forming, pp 1-15, <https://doi.org/10.1007/s12289-018-01463-2>, 2019
25. Kovalchenko A., Goel S., Zakiev IM, Pashchenko EA and Al-Sayegh Rajab, "Suppressing scratch-induced brittle fracture in silicon by geometric design modification of the abrasive grits. Journal of Materials Research and Technology, 2018
26. Goel S., Martinez F.D., Chavoshi S.Z, Khatri N and Giusca C., "Molecular dynamics simulation of the elliptical vibration-assisted machining of pure iron", Journal of Micromanufacturing, 2018. 1(1): p. 6-19 (Top-3 REF paper)
27. **Goel S.**, Cross G., Stukowski A., Gamsjäger Ernst, Beake Ben and Agrawal A., "Designing nanoindentation simulation studies by appropriate indenter choices: Case study on single crystal tungsten", Computational Materials Science, 2018. 152: p. 196-210 (LSBU REF)
28. Beake B., and **Goel S.**, Incipient plasticity in tungsten during nanoindentation: Dependence on surface roughness, probe radius and crystal orientation, International Journal of Refractory Metals and Hard Materials, 75:63-69, 2018 (LSBU REF)
29. Chavoshi S., Xu Shuozhi and Goel S., "Addressing the discrepancy of finding equilibrium melting point of silicon using MD simulations", Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science, 2017. 473(2202). (Top-2 REF paper)
30. Faisal N.H., Prathuru A.K., Goel S., Ahmed R., Droubi M.G., Beake B. and Fu Y.Q., "Cyclic nanoindentation and nano-impact fatigue mechanisms of functionally graded TiN/TiNi film", Shape memory and superelasticity (springer), pp 1-19, 2017 (ISSN: 2199-3858)
31. Chavoshi S.Z., Goel S. and Luo X., "Influence of temperature on the anisotropic cutting behaviour of single crystal silicon: A molecular dynamics simulation investigation", Journal of Manufacturing Processes, 23, 201-210 (2016)
32. Rashid W.B. and Goel S., Advances in the surface defect machining (SDM) of hard steels, Journal of Manufacturing Processes, 23, p 37-46, 2016
33. Goel S, Kovalchenko A. Stukowski A. and Cross G., "Influence of microstructure on the cutting behaviour of silicon", Acta Materialia, 105: p. 464-478, 2016 (Top-1 REF paper)
34. Chavoshi S.Z., Goel S. and Luo X., Molecular dynamics simulation investigation on plastic flow behaviour during nanometric cutting of single crystal silicon, Modelling and Simulation in Materials Science and Engineering, IOP, 24(1): p. 015002, 2016 – Selected by the journal as Highlight of 2016 (<http://iopscience.iop.org/journal/0965-0393/page/Highlights-of-2016>)
35. Rashid W.B., Goel S., Davim J.P and Joshi S.N., "Parametric design optimization of hard turning of AISI 4340 steel (69 HRC)" in Int. J. of Advanced Manufacturing Technology, p1-12, 2015
36. Agrawal A., Goel S., Rashid W.B. and Price M., Prediction of surface roughness during hard turning of AISI 4340 steel (69 HRC) in Applied soft computing, 30, 279-286, 2015 (Top-5 REF paper)
37. Goel S., Beake B., Chan C.W., Faisal N.H. and Dunne N., Twinning anisotropy of tantalum during nanoindentation, in Materials Science and Engineering-A, 627, 249-261, 2015



38. Goel S., Faisal N., Luo X., Yan J and Agrawal A., Nanoindentation of polysilicon and single crystal silicon: Molecular dynamics simulation and experimental validation, *Journal of Applied Physics: Part D*, published by IOP, 47(27): p. 275304, 2014
39. Goel S., Agrawal A. and Faisal N.H., Can a DLC carbon coating resist metallic phase transformation in silicon substrate during nanoimpact?, *Wear*, 315(1-2): p. 38-41, 2014
40. Goel S., Yan J., Luo X. and Agrawal A., Incipient plasticity in 4H-SiC during quasistatic nanoindentation, *Journal of the Mechanical behaviour of biomedical materials* 34: p. 330-337, 2014
41. Goel S., Joshi S. S., Abdelal G. and Agrawal A., Molecular dynamics simulation of nanoindentation of Fe₃C and Fe₄C. *Materials Science and Engineering: A*, 597(0): p. 331-341, 2014
42. Faisal, N.H., R. Ahmed, Goel S., and Y.Q. Fu, Influence of test methodology and probe geometry on nanoscale fatigue failure of diamond-like carbon film. *Surface and Coatings Technology*, 242(0): p. 42-53, 2014, 2014
43. Goel S., Rashid W.B., Luo X., Agrawal A. and Jain V.K., A theoretical assessment of surface defect machining and hot machining of nanocrystalline silicon carbide, *Journal of manufacturing science and engineering*, ASME, 136(2): p. 021015-021015, 2014
44. Goel S., Faisal N.H., Ratia V., et al., Atomistic investigation on the structure-property relationship during thermally sprayed nanoparticle impact, *Computational Material Science*, (84C), pp. 163-174, 2014
45. Goel, S., Stukowski, A., Luo, X., Agrawal, A., and Reuben, R.L., Anisotropy of single-crystal 3C-SiC during nanometric cutting, *Modelling and Simulation in Materials Science and Engineering*, 21(6): p. 065004. 2013
46. Goel, S., Luo, X., Comley, P., Reuben, R.L., and Cox, A., Brittle-ductile transition during diamond turning of single crystal silicon carbide. *International Journal of Machine Tools and Manufacture*, 65(February): p. 15-21, 2013
47. Goel, S., Luo, X., and Reuben, R.L., Wear mechanism of diamond tools against single crystal silicon in single point diamond turning process. *Tribology International*, 57(0): p. 272-281, 2013
48. Rashid, W.B., Goel, S., Luo, X., and Ritchie, J.M., The development of a surface defect machining method for hard turning processes. *Wear*, 302(1-2): p. 1124-1135, 2013
49. Rashid W.B., Goel S., Luo X. and Ritchie J.M., An experimental investigation for the improvement of the attainable surface roughness during a hard-turning process, vol. 227 No. 2, pp 338-342, *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, February, 2013
50. Goel S., Luo X., and R.L. Reuben, Shear instability of nanocrystalline silicon carbide during nanometric cutting. *Applied physics letters*, 100(23): p. 231902, 2012
51. Goel, S., Luo X., et al., Influence of temperature and crystal orientation on tool wear during single point diamond turning of silicon. *Wear*, 284-285(0): p. 65-72, 2012
52. Luo X., Goel S., and R.L. Reuben, A quantitative assessment of nanometric machinability of major polytypes of single crystal silicon carbide. *Journal of the European Ceramic Society*, 32(12): p. 3423-3434, 2012
53. Goel S., Stukowski A., Goel G., Luo X. & Reuben R.L., Nanotribology at high temperatures, *Beilstein Journal of Nanotechnology* 3, 586-588, 2012

54. Goel, S., Luo X., and R.L. Reuben, Molecular dynamics simulation model for the quantitative assessment of tool wear during single point diamond turning of cubic silicon carbide. Computational Materials Science, 51(1): p. 402-408, 2012
55. Goel, S., Luo X., Reuben R.L. et al., Replacing diamond cutting tools with CBN for efficient nanometric cutting of silicon. Materials Letters, 68(0): p. 507-509, 2012
56. Goel S, Luo X, Reuben RL, et al. Single Point Diamond Turning of Single Crystal Silicon Carbide: Molecular Dynamic Simulation Study. Key Engineering Materials, Vol. 496, pp 150-155, DOI:10.4028/www.scientific.net/KEM.496.150, 2012
57. Goel S, Luo X, Reuben RL, et al. Simulation Study of Cutting Forces, Stresses and Temperature during Nanometric Cutting of Single Crystal Silicon, Key Engineering Materials, Vol. 496, (2012), pp 223-228, DOI:10.4028/www.scientific.net/KEM.496.223, 2012
58. Goel S., Parmar A., An Investigation towards colossal success of Larsen and Toubro Limited: Human resource management perspective, Pertanika, JSSH Vol. 20 (4), 2012
59. Pen H.M., Liyang Y.C., Luo X, Goel S., et al., Multiscale simulation of nanometric cutting of single crystal copper and its experimental validation. Computational Materials Science, 50(12): p. 3431-3441, 2011
60. Goel, S., Luo X., R.L. Reuben, et al., Atomistic aspects of ductile responses of cubic silicon carbide during nanometric cutting. Nanoscale Research Letters, 6(1): p. 589, 2011

(vi) Conference Publications / Proceedings:

1. Labus Zlatanovic D., Balos S., Bergmann J.P., **Goel S.**, Sidjanin L., Influence of rotational speed on the weld during friction stir spot welding, 9th International Scientific Conference on Defensive Technologies, Belgrade, Serbia, October 2020
2. A. Zabala, D. Infante-Garcia, E. Giner, **S. Goel**, J. L. Endrino and I. Llavori, "Preliminary study on the use of the Theory of Critical Distances with mesh control for fretting fatigue life estimation", 9th International Symposium on Fretting Fatigue, Seville, Spain, April 1st to 3rd 2019
3. Hawi S., Dickins A., Pardal Goncalo Rodrigues, Giusca C., Pearse Oliver and **Goel S.**, "Fabrication of functionalised surfaces on Gum metal (Ti-30Nb) using micromachining", **19th EUSPEN** International Conference, Bilbao, Spain, 3rd-7th June 2019
4. Zhao J, Giusca C and **Goel S.**, "Manufacturing uncertainty: How reproducible is the depth of cut during diamond turning of OFHC copper?", **18th EUSPEN** International Conference, **Venice, Italy**, 4th - 8th June 2018 – **Secured best poster award at the 18th EUSPEN conference in Venice**
5. **Goel S** and Giusca C., "Calibration artefact for testing the resolution of 3D microscopes", Special Interest Group Meeting: Micro/Nano Manufacturing" at **Glasgow, UK** 8-9th November 2017
6. Khatri N, **Goel S.** and Karar V., "Hybrid machining of Silicon by using SPDT and MRF", E-MRS conference at Warsaw, **Poland**, 18th-21st September 2017
7. Barkachary B, **Goel S.** and Joshi S.N., Finite element modelling and simulation of spherical tip nano-indentation of nanocrystalline silicon carbide, Manchester, **UK**, MATADOR, 5th-7th July 2017
8. Wen Pin and **Goel S.**, "Structural and mechanical aspects of imperfections in 3D printing -validation of computer simulation model", Manchester, **UK**, MATADOR, 5th-7th July 2017

9. Acheson, J, Ziminska M., **Goel, S**, Dunne, N and Hamilton, A., "Mechanical and Physical Response of Nanocomposite-Coated Foams Subjected to Hydration: Potential Uses for Bone Tissue Scaffolds", E-MRS Fall meeting, Warsaw, **Poland**, 19th-22nd September 2016.
10. Faisal N.H., **Goel S.**, Kelly C. and Fu, R, "Dynamically mechanical and nano-impact (fatigue) analysis of touch screen thin films deposited on polyethylene terephthalate substrate", 3rd International Conference on Structural Nano Composites, Robert Gordon University, **Aberdeen** from 12th-15th September 2016
11. McClelland J., **Goel S.**, Murphy A., Jin Y., Morgan M., McClory C., Higgins C and Collins R., "TOOL WEAR MECHANISMS AND TOOL WEAR MODELLING FOR CFRP DRILLING" **33rd International Manufacturing Conference** at University of Limerick, **Ireland** from 31st August to 1st September 2016
12. Acheson, J, Ziminska M., **Goel, S**, Dunne, N and Hamilton, A., "Hydration of Nanocomposite Coatings for Bone Tissue Scaffold Applications: Controlling Mechanical Properties of Porous Structures", NIBES Spring symposium, Belfast, **UK**, 10th June 2016
13. **Goel S.**, Stukowski A., Kovalchenko A. and Cross G., "Self-healing of cracks during ductile regime machining of silicon: Insights from molecular dynamics simulation", **16th EUSPEN International Conference**, **Nottingham, UK**, 30th May – 3rd June 2016
14. Harley C., Quinn D., Robinson T. and **Goel, S**, "The effect of manufacture and assembly joining methods on stiffened panel performance" **32nd International Manufacturing Conference** at Queen's University of **Belfast, UK** from 2nd-4th September 2015 – **Best paper award**
15. Acheson, J, **Goel, S**, Dunne, N and Hamilton, A, "Hydration of Nanocomposite Coatings Developed for Bone Tissue Scaffold Applications: Adaptability of Layer by Layer Assembly", Northern Ireland Biomedical Engineering Society (NIBES) Annual Spring Symposium 2015, UK
16. Foster P., Abdelal G. and **Goel, S**, FE Simulation of Viscoplastic Consistency Model at 4th Aircraft Structural Design Conference: Royal Aeronautical Society at Queen's University of Belfast, UK on 7th October 2014.
17. Rashid W.B., **Goel, S.**, and Luo X, Proceedings of **14th EUSPEN International Conference**, "Enabling ultra-high precision on hard steels using surface defect machining", P 7.16, in section "Enabling ultra high precision on hard steels using surface defect machining" at **14th EUSPEN International Conference** at **Dubrovnik, Croatia** on 2nd-6th June 2014
18. **Goel S.**, Yan J, Luo X. and Agrawal A., Incipient plasticity in 4H-SiC during quasistatic nanoindentation, Oral Presentation at 5th International Conference on Mechanics of Biomaterials and Tissues 2013 (abstract No.:MOBT2013_0188) held at **Sitges, Spain** from 8th-12th December 2013.
19. **Goel S**, Yan J. and Agrawal A, **Keynote paper on State-of-the-art knowledge on diamond machining of silicon**, presented at the MHRD sponsored National Conference on recent advancements in Mechanical Engineering, held at **NERIST (Deemed University), India**, ISBN: 978-93-82880-71-4, November 8-9th 2013.
20. **Goel S** and Agrawal A, Cutting hardness- an absolute measure after Mohs hardness Scale, Paper Presented at the MHRD sponsored National Conference on recent advancements in Mechanical Engineering, held at **NERIST (Deemed University), India**, ISBN: 978-93-82880-71-4, November 8-9th 2013.
21. **Goel, S.**, Rashid W.B., Luo X., et al. Development of the surface defect machining method for micro/nano scale material removal processes, Proceedings of the **13th EUSPEN International Conference** at **Berlin, Germany**, 27-31 May 2013.

22. **Goel, S.**, Luo X., Stukowski A., et al. Influence of nanoparticle coolant and crystal structure of the workpiece during nanometric cutting of silicon carbide, Proceedings of the [12th EUSPEN International Conference](#), Volume 2, Page 299-302. 2012. **Stockholm, Sweden**
23. **Goel S**, Goel G, and S. Samanta, 'Assessment of Damage Mode in Composite Material by S-Link Clustering', Proceedings of the Computational Mechanics & Simulation held at Indian Institute of technology, **Guwahati, India** vol.1, pp 433-437.
24. **Goel S**, Goel G. and S. Samanta, 'Indoor Welding- Its Threats and Solutions', Int. Conf. on Advances in Materials Processing & Characterization held at Anna University, Chennai, 28-30th August 2006, pp 539-544.
25. **Goel S**, D. Datta and S. Samanta, 'Assessment of Damage Mode in FRP Composite', Int. Conf. on Advances in Materials Processing & Characterization held at Anna University, Chennai, 28-30th August 2006, pp 574-579
26. **Goel S** and Parmar A, "Evaluation of HRM Practices in a Multi National Company: A Pilot Study on Larsen and Toubro Limited", In the proceedings of "International Conference on Consultation & Experience Sharing on Role of Humanities and Social Sciences in Holistic Development of Future Technocrats- Looking Ahead" held at Jaypee University of Information Technology, 23rd-24th Sept. 2011 at Solan, Shimla, India.
27. **Goel S** and Parmar A, "Study of HRM practices: retrospective to the success of Larsen and Toubro Limited", in the proceedings of "International Conference on Business and Technology" held at FRI University, 4th-5th November 2011 at Dehradun, India.
28. **Goel S**, S. Samanta, G. Goel and R. Datta, 'Improvement of the Mechanical Properties -An Overview of the Heat Treatment', Int. Conf. on Molecules to Materials held at SLIET, Punjab, March 3-4th 2006, pp 91-93.
29. **Goel S**, D. Datta, S. Samanta and P. Maity, 'Automated C-Scan Image of Glass Epoxy Composite Materials with Resin Rich Zone', Paper Presented at the Int. Conf. on Advances in Mechanical Engineering held at Jamia Millia Islamia, New Delhi, January 20-21st 2006, pp 6-9.
30. **Goel S**, S. Samanta, S. Singh, D. Ghosh, A. Roy, N.C. Pal, 'Experimental Determination of Chip Curl Radius Dependence on Geometry of the Chip Breaker in Orthogonal Cutting', Paper Presented at the Int. Conf. on 14th ISME held at Delhi College of Engineering, Delhi, December 12-14th 2005

(vii) Poster publications:

1. **Goel, S**, Morantz P, Comley P, Tonnellier X. and Shore P, "Process chain for rapid-production of hard, brittle materials", The world leading Defense and security (DSEI) event, London, UK from 12th-13th September 2017
2. Acheson, J, **Goel, S**, Dunne, N and Hamilton, A, "Effect of hydration on the mechanical behaviour of nanocomposite-coated porous bone scaffold materials", UK Society for Biomaterials (UKSB) at University of Ulster, NI, UK from 25th-26th June 2015
3. Acheson, J, **Goel, S**, Dunne, N and Hamilton, A, Layer by layer assembly as a bottom-up nanofabrication technique for the manufacture of Multifunctional Engineered Bone Tissue Scaffolds, BioEngineering in Ireland (*BINI,2015*), Dublin, Ireland, 16th-17th January 2015.
4. Development of surface defect machining for SiC presented at [Recent Appointees in Materials Science Conference](#) held at University of Bath, UK from 11-12th September 2014

5. P 7.16 on Enabling ultra-high precision on hard steels using surface defect machining" presented at 14th EUSPEN International Conference, " at Dubrovnik, Croatia on 2nd-6th June 2014
6. A research poster on "Nanomachining of single crystal SiC" presented at 13th EUSPEN International conference at Berlin, Germany from 27th- 31st May 2013
7. A research poster on "Crystal anisotropy and its influence on nanometric cutting of beta silicon carbide" presented at 19th International conference on Wear of Materials at Portland, Oregon, USA from 14-18 April 2013
8. Selected research poster on "Development of surface defect machining method" presented at the SET Britain exhibition at House of Commons, Parliament at London, UK on 18th March 2013.
9. Won 3rd prize (certificate and cash prize of 100 Euro) for the poster presented on "Single Point Diamond Turning of Silicon Carbide" at 12th EUSPEN International Conference held at Stockholm, Sweden from 4th July - 8th July 2012.
10. Presented a poster (Poster No. 59) at **EPSRC, UK** organized International conference on "Manufacturing the future conference 2012" held at Loughborough University, UK during 19th -20th September 2012
11. Presented a poster at a knowledge exchange International conference in Edinburgh held at Heriot-Watt University, UK during 4th-5th October 2012 organized by KE Scotland society.
12. Presented a poster at the Annual Research festival held at Heriot-Watt University, UK on 5th October 2011.

Invited talks

- Delivered an invited talk at University of Zaragoza, Prof Manuel, **Spain**, on 19th April 2018
- Delivered an invited talk at Cantoblanco Universidad, Prof Albella, **Spain** on 17th April 2018
- Delivered an invited talk at University of Madrid, Nano4Energy, **Spain** on 10th April 2018
- Delivered an invited talk in DMEM at University of Strathclyde, **UK** on 24th March 2017
- Delivered an Invited talk in a pre-conference workshop and during the International conference on Techno-societal 2016 at SVERI Pandharpur, Maharashtra, **India**
- Delivered an invited lecture at NPL, Teddington on invitation from Prof Ben Beake and interaction with the IOP Group on 15th November 2016, **UK**.
- Delivered an invited lecture at Shiv Nadar University on invitation from Dr. Ram Sharma (Associate Dean) and interaction with the Department of Mechanical Engineering on 6th July 2015, **India**
- Delivered an invited lecture at IIT Kanpur, **India** at a workshop on "Micro-Manufacturing" and interacted with academic participants on invitation by Prof. VK Jain on 3rd July 2015.
- Delivered an invited talk at Robert Gordon Universtiy, Aberdeen, **Scotland** on invitation from Dr. Nadimul H. Faisal on 26th November 2013.
- Delivered an invited talk at Indian Institute of Technology, (IIT Bombay) on invitation from Prof. Suhas S. Joshi on 16th November 2013, **India**.
- Delivered an invited talk at Keio University, Japan on invitation from Prof. Jiwang Yan on 17th September 2013, **Japan**
- Delivered an invited talk at Darmstadt University of Technology, Germany on invitation from Prof. K. Albe and Dr. Alexander Stukowski on 24th May 2013, **Germany**.
- Delivered an invited talk at Bremen University, **Germany** on invitation from Dr. Oltmann Riemer on 18th June 2012.
- Delivered an invited lecture at IIT Kanpur, **India** on invitation from Prof. V.K. Jain and addressed the academic participants on "Wider spectrum of molecular Dynamics in the field of ultra precision manufacturing" on 5th November 2012.
- Delivered an invited talk at Sharda University, Greater Noida, **India** on "Molecular Dynamics & single point diamond turning" on 10th Oct. 2011



References:

- 1. Dr. Anupam Agrawal**
Capacity known: Academic supervisor (MBA Dissertation)
Associate Professor, Mays Business School, Texas A&M University
301 N, Wehner, Texas, **USA**
Mobile: (979) 845-2253
Email: anupam@tamu.edu

- 2. Prof. Xichun Luo**
Director, Institute of Mechanics & Advanced Materials (IMAM)
Design, Engineering and Manufacturing Department,
University of Strathclyde, Glasgow, UK
Tel: +44 548 2091
Fax: 44 552 7986
E-mail: xichun.luo@strath.ac.uk

- 3. Prof. Graham Cross, FTCD**
Assoc. Professor,
School of Physics
PI, CRANN Nanotechnology Institute
Trinity College, Dublin, 2, **Ireland**
Tel: +353 – 872782767
Email: crossg@tcd.ie

- 4. Professor Nicholas Dunne BSc, PGCHET, PhD, CEng, FIMMM**
Chair of Mechanical & Manufacturing Engineering
Dublin City University, Stokes Building
Collins Avenue, Dublin 9, **Ireland**
Ph: 353-1-7005712; Mob: 44-78-40699683; Fax: 353-1-7007148
Email: nicholas.dunne@dcu.ie

- 5. Professor Hari M. Upadhyaya**
Chair in Solar Energy Technologies
London South Bank University
M+44 (0)7854424075