

Nilanjan DAS CHAKLADAR

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CURRENT APPOINTMENT

Apr 2019 –

Assistant Professor, Manufacturing Science and Engineering, Department of Mechanical Engineering, Indian Institute of Technology Kharagpur, India

- To pursue personal research including developing research ideas and winning support, including financial support.
- Plan, publish and/ execute high quality research
- Manage research activities and supervise research staffs
- Provide expert advice to staff and students within and external to the discipline
- Make substantial contributions to knowledge transfer and enterprise incl. business engagement
- Teach and examine courses at a range of levels
- Plan and review own teaching approaches and mentor to encourage others
- Develop programme proposals and make substantial contributions to the design of teaching programmes
- Disseminate appropriate practices through suitable media
- Contribute to the administration/management of research and/or teaching across the department
- Lead and manage a team to devise and implement a new process or programme
- Develop and make substantial contributions to knowledge transfer, enterprise, business and public outreach.

LAST APPOINTMENT

Aug 2018 – Mar 2019

Program Manager & Postdoctoral Fellow in Simulation and Performance Prediction of Composites, Automated Manufacture of Advanced Composites, School of Mechanical and Manufacturing Engineering, University of New South Wales, Sydney, Australia

- To undertake industry-focussed research in the areas of multi-scale simulation and performance prediction of composite materials
- Manage a research program and maintain the collaborative research relationships with ARC Training Centre industry partners
- Demonstrate leadership in industry engagement to build new and existing relationships; including submission of research proposals to external funders
- Occasional contribution to teaching in relation to his or her research projects
- Co-supervise Higher Degree Research students including to undertake any compliance and supervisor training
- Knowledge of health and safety responsibilities and commitment to attending relevant health training
- Contribute to all aspects of the operation of the School of Mechanical and Manufacturing Engineering and assist in outreach activities

PAST APPOINTMENTS

Nov 2015 – Mar 2018

Research fellow in Tribology and Computational Mechanics, School of Mechanical Engineering, University of Leeds, UK

- Developed a wear model to estimate wear of lubricated total replacements in collaboration with Department of Aeronautics, Imperial College London – the method solves any real lubrication system in all the regimes.
- Working in liaison with Leeds Teaching Hospitals Trust, AnyBody Technology and the Schulthess Klinik, Switzerland to validate the models. This project is a part of large EU funded 7th framework programme with a 15 partner consortium.
- Working effectively as a team to identify research opportunities and write research bids.
- In addition to the research, I am lecturing an MSc module on Tribology, supervising MSc projects on multiscale mechanics, composites and a PhD student to model arterial blood flow.
- Prepared documentary for filming of the project

- Publications (Journal – 1, Conference – 4), Public outreach (1)

- May 2014 – Nov 2015 **Research fellow in Composite Manufacture and Modelling**, Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham, UK
- Offered a topology optimized design of a composite bone plate.
 - Designed the tooling and the jigs for simulated fixation during mechanical testing.
 - Manufactured the final design using vacuum molding and tested to assess the reliability of the design.
 - Disseminated to clinicians and engineers and showcased a prototype to a public symposium.
 - This work is published (Publication - 1).
 - During same time, collaborated with two enterprises, Sheffield Precision Medicals and Ichrome, Bristol and applied research bids together in Innovate UK calls.
 - Assisted doctoral/MSc students in the composites research group.
- Sep 2010 – Apr 2014 **Part-time teaching assistant (TA)**, Mechanical Engineering, University of Manchester
- Worked as TA for undergraduates on FEA, basic machining processes, and material science.
- Apr 2008 – May 2010 **Part-time teaching assistant**, Mechanical Engineering, Indian Institute of Technology, Kharagpur
- Worked as a TA for undergraduates on basic machining processes, and metrology.

EDUCATION

- Sep 2010 – Apr 2014 **PhD: Mechanical Engineering**, University of Manchester, UK
- Thesis title, ‘Multi-scale modelling of fibre assemblies’ (Area: Composite manufacture and mechanics)
 - **Scholarship:** University of Manchester full funded scholarship
 - Software skills: Abaqus, Fortran, Matlab, Office and LabView
 - Publications (Conferences – 6, Journal – 1), Date of award: 10 Dec 2014
- Apr 2008 – May 2010 **MTech: Mechanical Engineering**, Indian Institute of Technology Kharagpur, India
- Dissertation topic: Drilling of glass fibre composites (Area: Composite machining)
 - Scholarship:** All India Graduate Aptitude Test Exam Scholarship (All India Rank: 18 out of 1500 in Production Engineering)
 - Coursework in Continuum Mechanics, Manufacturing Science
 - Ranked Second with a grade point 9.84 out of 10.
 - Software skills: Ansys workbench, Ansys Autodyn, Office
 - Publications (Conference – 1, Journals – 2), Date of award: 17 Jul 2010
 - Led a team of five in a mechatronics group project and won a competition of developing an automated guided plant watering vehicle.
- Apr 2004 – Mar 2008 **BE: Production Engineering**, Jadavpur University, India
- Entry-level exam rank: 776 out of 40,000 (State level exam) after A-level (12th Std)
 - **Ranked First** with a grade point of 9.15 out of 10
 - Publications (Journal – 2), Date of award: 24 Dec 2008
 - Volunteered at a National Conference of Precision Engineering (2005), India.

AWARDS & ACHIEVEMENTS

- 2010 University of Manchester fully funded PhD scholarship
- 2010 Topped in Manufacturing Sp. M.Tech in Dept. of Mech Eng at IIT Kharagpur, India
- 2008 All India Graduate Aptitude Test Exam in Engineering Scholarship, Rank: 18 out of 1500
- 2008 First Class First, University Gold Medallist at Jadavpur University, India

2002

5th National Science Olympiad, Grade A+, Excellent

CERTIFICATIONS

2015 - Chartered Engineer, IMechE, UK
 2010 - 2014 Student member of SIAM chapter, Manchester, UK

TEACHING DUTIES & RESPONSIBILITIES

- Taught ‘Mech5660M – Lubrication and Lubricants’ at University of Leeds in an integrated TRIBOS programme, redesigned the numerical content of the module.
- Taught ‘Finite Elements’ for MEng students at University of Manchester.
- The teaching method, I follow is an engaged learning method to enhance my interaction with students in the classroom.
- Conducted class tests, semester exams, doubt clearance sessions, involved in marking and assessment of UG, MSc students, and evaluation of MSc projects and viva

TUTORING EXPERIENCES

- UG Tutorials and Lab undertaken: Engineering Maths, Solid Mechanics, Numerical methods in Engineering, Composite and Polymer materials, Machining.

TEACHING INTERESTS

- UG and PG courses
 Numerical Modelling of Manufacturing process, Basic Machining, Composite Manufacturing, Finite element methods

RESEARCH SUPERVISION

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| 2018–2019 | <ul style="list-style-type: none"> • PhD Student – Yiwen Gu – AWJet Cutting of 2D composites (Program Manager) • PhD student – Nikhil Garg – Implementing scale boundary FEM to large hydrofoils (Co-supervisor) |
| 2014–2015 | <ul style="list-style-type: none"> • PhD student – Sumaya Farhana – Impact test of PLA composites (...) • PhD student – Menghao Chen – Fatigue FEA of glass fibre composites (...) |
| 2017–2018 | <ul style="list-style-type: none"> • MSc student – Gang Khor – FEA of composite aircraft wing (Supervisor) • MSc student – Minzhi Zhao – FEA of composite wind turbine blade (...) • UG Level 4 – Adnan Alkathheeri – Wear analysis of a hip joint replacement (Co-supervisor) |
| 2016–2017 | <ul style="list-style-type: none"> • UG Level 3 project – Amalia Doyle, Sam Gareh, Jack Hodgson – FEA analysis of vertebra tumour (...) • MSc student – Nabila Hussain – Modelling of compaction of auxetic structures (...) |

ADMINISTRATIVE RESPONSIBILITIES

- Public engagement activity – Involved in Open Days (highlighting the use of school level maths to engineering maths to simulation)
- Suggested the module leader with more research-driven course content in Lubrication and Lubricants, aligning the learning outcomes
- Sponsored/Mentored postdoctoral staffs for Chartered Engineer status with IMechE
- Presented research to wider audience, clinicians in public symposium
- Involved in filming for dissemination of research to public

TRAINING COURSES

University of Leeds

- Building expertise in student education – 09.11.2017
- Effective Research Student Supervision – 05.07.2016
- Academic Careers – Next Steps – 26.06.2017
- Postgraduate Research Teaching Forum – 22.06.2016
- Evaluating and Developing Teaching Practice – 24.05.2016

- Introduction to Designing and Planning – 19.05.2016
- Introduction to Supervising Taught Student Dissertation – 11.05.2016
- Understanding Student Learning – 09.05.2016
- A-Z of publications – 17.03.2016
- HPC1 – Intro to High Performance Computing – 05.02.2016
- Research and Innovation – 25.01.2016

University of Nottingham

- Key Moodle Basics: An Introduction to Moodle – 17.04.2015
- Doing research in or with external organizations – 06.05.2015
- The PowerPoint Revolution – 08.05.2015
- Online Reading list essentials for University Staff – 12.05.2015
- Emotional Intelligence in Teaching – 21.05.2015
- Facing the journalists: communicating your research through media – 03.06.2015
- Evaluating your teaching – 10.06.2015
- Applying for academic jobs – 03.07.2015
- Interview skills workshop for research staff – 13.07.2015
- Associate teachers' programme – 15/16.09.2015
- Engage, Excite, Enhance: Top tips for teaching and learning! – 01.10.2015

University of Manchester

- Graduate Teaching assistant training workshop – 01.04.2011

INDUSTRIAL TRAININGS

- Automotive Fabrication Line – Tata Motors, Jamshedpur, India – July 2006
- Steel Plant Casting Line – Durgapur Steel Plant, Durgapur, India – June 2007

REVIEWER IN JOURNALS

- Tribology – Materials, Surfaces and Interfaces
- Composites Part A: Applied Science and Manufacturing
- Medical and Biological Engineering and Computing

REFEREES

Current employer	<i>Line Manager:</i> Professor Sukanta K Dash , Head of the Department, Mechanical Engineering Department, Indian Institute of Technology Kharagpur, INDIA 721302, +91 3222 282918, sdash@mech.iitkgp.ernet.in
Ex-employer-1	<i>Line Manager:</i> Professor Gangadhara Prusty , School of Mechanical and Manufacturing, University of New South Wales Sydney, NSW 2052, +61 2 9385 5939, g.prusty@unsw.edu.au
Ex-employer-2	<i>Line Manager:</i> Professor Richard M Hall , School of Mechanical Engineering, University of Leeds, Leeds LS2 9JT, +44(0)113 343 2132, r.m.hall@leeds.ac.uk <i>Co-investigator:</i> Dr Rob W Hewson , Sr. Lecturer, Department of Aeronautics, Imperial College London, London, SW7 2AZ, +44(0)207 594 5110, r.hewson@imperial.ac.uk
Ex-employer-3	<i>Line Manager:</i> Dr Andrew Parsons , Sr. Research fellow, Composites Research Group, University of Nottingham, NG7 2RD, +44(0)115 951 3822, Andrew.Parsons@nottingham.ac.uk <i>Co-investigator:</i> Dr Lee Harper , Principal Research fellow, Composites Research Group, University of Nottingham, NG7 2RD, +44(0)115 951 3823, lee.harper@nottingham.ac.uk
Doctoral supervisors	<i>Supervisor:</i> Dr Partha Mandal , Sr. Lecturer, School of Mechanical, Aerospace and Civil Engineering, University of Manchester, M13 9PL, +44(0)161 3064622, partha.mandal@manchester.ac.uk <i>Co-supervisor:</i> Professor Prasad Potluri , North West Composites Centre, University of Manchester, M13 9PL, +44(0)161 306 4128, prasad.potluri@manchester.ac.uk

Annexure – I

List of publications

Journals (Refereed – 8), Conferences (Refereed – 12)

Google Scholar **h-index – 5, i10-index – 5, Citations – 230** as on 18 Apr 2019

ORCID id: 0000-0003-0026-0200

Journal articles (Refereed):

- Oromiehie, E., **Chakladar, N. D.**, Rajan, G., Prusty, B. G., Online monitoring and prediction of thermo-mechanics of AFP based thermoplastic composites. *Sensors* 19(6), 1310 [Impact: **2.475**].
- Chakladar ND**, Gao L, Hall RM, Hewson RW (2018). Computational evaluation of wear and roughness in mixed lubrication regime, *Orthopaedic Proceedings, Special issue of The British editorial society of the Bone and Joint Surgery*, 100-B, 90-90. [Impact: **2.953**]
- Chakladar ND**, Parsons AJ, Harper LT (2015). Optimisation of composite bone plates for ulnar transverse fractures, *J. Mech behavr Biomed Mater*, 57, 334-336. [Impact: **3.111**]
- Chakladar ND**, Mandal P, Potluri P (2013). Effects of inter-tow angle and tow-size on carbon fibre friction, *Composites Part A: Appl Sc. and Manuf*, 65, 115-124. [Impact: **4.075**]
- Chakladar ND**, Pal SK, Mandal P (2012). Drilling of woven glass fibre reinforced plastic – an experimental and finite element study, *Int.J. Adv. Manuf. Tech*, 58, 267-278. [Impact: **2.209**]
- Dutta S, Dutta A, **Chakladar ND**, Pal Surjya K, Mukhopadhyay S (2012). Detection of tool condition from the turned surface images using an accurate grey level co-occurrence technique, *Precision Engineering*, 36, 458-466. [Impact: **2.237**]
- Chakladar ND**, Das R, Chakroborty S (2009). A digraph-based expert system for non-traditional machining processes selection, *Int.J. Adv. Manuf. Tech*, 43, 226-237. [Impact: **2.209**]
- Chakladar ND**, Chakroborty S (2008) A combined TOPSIS-AHP method based approach for non-traditional machining processes selection, *Proc. Inst. Mech. engineers, Part B: J. Eng. Manuf*, 222, 1613-1623. [Impact: **0.978**]

Conference papers (Refereed):

- Alkatheeri A, **Chakladar ND**, Hall RM (2018). How comparable are the analytical models with the numerical assessment of hip prosthesis wear, *62nd Annual Congress of the Korean Orthopaedic Association*, Seoul, South Korea, Oct 18-20, 2018.
- Gao L, Lunn D, Redmond A, **Chakladar ND**, Pieri ED, Ferguson S, Hall RM (2018). Effect of body-mass-index of virtual patients on the wear of lubricated hip joints in gait cycles – a numerical study, *15th Int. Symp. On Comp Methods in Biomechanics and Biomedical Engineering*, Lisbon, Portugal, Mar 26-29, 2018.
- Chakladar ND**, Gao L, Hall RM, Hewson RW (2018). Prediction of wear and evolution of roughness in total hip replacements, *15th Int. Symp. On Comp Methods in Biomechanics and Biomedical Engineering*, Lisbon, Portugal, Mar 26-29, 2018.
- Chakladar ND**, Gao L, Hall RM, Hewson RW (2017). Computational evaluation of wear and roughness in artificial hip replacements, *30th Annual Congress International Society for Technology in Arthroplasty*, Seoul, South Korea, Sep 20-23, 2017.
- Chakladar ND**, Gao L, Hall R, Hewson R (2017). Evolution of wear and surface roughness in mixed lubrication regime, *6th World Tribology Congress, Beijing, China*, Sep 17-22, 2017.
- Chakladar ND**, Mandal P, Potluri P (2013). Multi-scale modelling of fibre assemblies, *Proc. 19th Int. Conf. Composite Materials, Montreal, Canada*, July 2013, pp 4902-4912.
- Mandal P, **Chakladar ND**, Potluri P, Hearle J (2013). Application of ABAQUS beam model to modelling mechanical properties of woven fabrics, *Proc. 5th World Conf. on 3D Fabrics and their Applications, Delhi, India, 16-17 December 2013*.
- Chakladar ND**, Mandal P, Potluri P (2013). Finite element modelling of fibre bundles, *Simulia Academic conference, Manchester, England, November 2013*.
- Mandal P, **Chakladar ND**, Potluri P (2013). Finite element modelling of fibre assemblies using beam elements, *Proc. 1st Int. Conf. Digital Technologies for the Textile Industries, Manchester, UK*, 5-6 September 2013.
- Chakladar ND**, Mandal P, Potluri P (2013). Multi-scale modelling of compaction of fibre assemblies, *Proc. Int. Conf. designing against deformation and fracture of composite materials: Engineering for integrity large composite structures*, Cambridge, England, April 2013.
- Chakladar ND**, Mandal P, Potluri P (2012). Experimental study on frictional behaviour of carbon fibres., *Proceedings of PGR-MACE Conference, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, UK, Dec 2011*, pp 5-6.
- Chakladar ND**, Pal SK, Mandal P (2010). Finite Element Estimation of Cutting Parameters in Drilling Glass Fiber Reinforced Plastic (GFRP) Plates, *Nat. Conf. Recent Advances in Manufacturing Technology and Management (RAMTM 2010)*, 19th -20th February, 2010, Jadavpur University, Kolkata.