Curriculum Vitae

Dr Raj Das

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Citizenship: Australian

Biography

Dr Raj Das is a faculty member of the Mechanical Engineering Department of the University of Auckland, New Zealand. He is also a member of the Centre for Advanced Composite Materials. His current areas of interest include impact response and failure of composite materials, numerical modelling using finite element and mesh-less methods, dynamic fracture and fatigue, structural optimisation, and severe plastic deformation processes.

Dr Das has a PhD in the field of failure analysis and structural optimisation from Monash University, Australia, and a Bachelor degree (1st class Hons) in Mechanical Engineering from Jadavpur University, India. He developed a range of damage tolerance based optimisation tools, which have been adopted by aerospace industries for optimum designs of fracture strength and fatigue life. Dr Das subsequently worked as a Research Associate in the University of Manchester, UK. Here he was involved in the investigation of structural responses and collapse of joints in steel-framed structures in fire. On his return to Australia, Dr Das joined the Commonwealth Scientific and Industrial Research Organisation (CSIRO) as a Senior Research Scientist, where he contributed to the development and applications of mesh-less SPH method for a range of industrial applications. In the early stage of his career, Dr Das worked in Gas Turbine Research Establishment (GTRE), a national research laboratory under the Ministry of Defence in Bangalore, India. Here he was involved in a variety of projects related to structural integrity evaluation and mechanical analysis of ‘Kaveri Engine’ for the ‘Light Combat Aircraft (LCA)’ of Indian Air Force.

Dr Raj Das has established strong linkages with composite and material processing industries and active collaboration with national and international academic institutions. Dr Das is a member of the National Committee on Applied Mechanics, and is an adjunct academic of the University of Quebec, Canada. He has received various international awards and fellowships, such as the ‘CONICYT award’ from the Government of Chile, ‘UQAC Visiting Fellowship’ from the University of Quebec, and ‘Certificate of Merit Award’ from the International Association of Engineers, Hong Kong. He is on the editorial board and review panel of several journals and funding agencies. Dr Das also serve on the scientific committees of 15 international conferences. He is the only New Zealand member of the 'International Society for Structural and

Multidisciplinary Optimization (the most prestigious society in optimisation), the National Committee on Applied Mechanics, Australia (total 11 members), and the SPH European Research Interest Community.

Employment History

July, 2010 – Present	**Senior Lecturer** Department of Mechanical Engineering, and Centre for Advanced Composite Materials (CACM) University of Auckland, Auckland, New Zealand
January, 2006 - July, 2010	**Senior Research Scientist** Computational Modelling Group Division of Mathematical and Information Sciences **Commonwealth Scientific and Industrial Research Organisation (CSIRO)** Melbourne, Australia
June, 2005 - January, 2006	**Research Associate** School of Mechanical, Aerospace and Civil Engineering **University of Manchester,** Manchester, UK
February, 2004 - January, 2005	**Lecturer (part-time)** Department of Mechanical Engineering **Monash University,** Melbourne, Australia
February, 2002 – June, 2005	**Graduate Tutor (Sessional)** Department of Mechanical Engineering **Monash University,** Melbourne, Australia
March, 2000 - March, 2002	**Research Engineer** **Gas Turbine Research Establishment** **Defence Research & Development Organisation (DRDO)** Ministry of Defence, Bangalore, India

Education

January, 2002 - June, 2005	**PhD (Applied Mechanics)** Department of Mechanical Engineering **Monash University**, Melbourne, Australia
Dissertation:	***Structural Optimisation: Damage Tolerance based Formulation and Implementation*** *Supervisor:* Professor Rhys Jones
August, 1995 - August, 1999	**Bachelor of Engineering (Mechanical)** Department of Mechanical Engineering

	Jadavpur University, Calcutta, India
Accomplishments:	**First Class Honours (Aggregate: 86%)** **Rank 3rd in Mechanical Engineering Discipline**
Project Title:	*Computational Modelling of Heat Transfer in Ablative Materials*

Other Qualification:

February, 1999	**Graduate Aptitude Test in Engineering (GATE)** All India Council of Technical Education (National level examination for accreditation in the professional engineer category and eligibility for admission to postgraduate degrees) **Percentile Score: 99.54** **(Ranked 38 out of approx. 9,500 candidates)**

Awards/Achievements

- **Visiting Fellowship (Professeur Associé)**, *Department of Applied Sciences, University of Quebec*, Canada, 2012
- **Short Visit CONICYT Award**, *Ministry of Education*, Chile, 2011
- **Jim & Hazel D. Lord Emerging Faculty Fellowship**, *University of Auckland*, New Zealand, 2011
- **Faculty Teaching Excellence Award**, *University of Auckland*, New Zealand, 2010
- **Listed in Marquis "Who's Who in the World – 2011"**, 28th Edition (published 2010)
- **Elected as one of the 11 members** of the *National Committee on Applied Mechanics* under the Mechanical College of Engineers Australia, 2009
- **Certificate of Merit Award**, *International Association of Engineers*, Hong Kong, 2008: Awarded to the Best five papers of the conference
- **Invited speaker**, International Conference on CFD in Oil & Gas, Metallurgical and Process Industries, Trondheim, Norway, 10-12 June, 2008
- **Elected as an Adjunct Academic (Professeur Associé)**, Department of Applied Sciences, University of Quebec (Université du Québec) at Chicoutimi, Canada, 2010.
- **Postgraduate Publication Award**, Monash University, Australia, 2005: Awarded for high-quality publications resulting from the doctoral thesis
- **Postgraduate Travel Award**, Monash University, Australia, 2004: Awarded to present research papers at international conferences held at Loughborough (England), Lisbon (Portugal), and Bangalore (India)
- **Postgraduate Research Scholarships**, Monash University, Australia, 2001: Awarded for PhD program at Monash University
- **Third Rank in Bachelor of Engineering**, Jadavpur University, India, 1999

- **National (All India) Rank of 38 out of 9,500 candidates** in 'Graduate Aptitude Test in Engineering (GATE)', All India Council of Technical Education, 1999
- **S.K. Basu Memorial Award**, Jadavpur University Alumni Association, 1999: Awarded in recognition for academic accomplishments in Bachelor of Engineering

Professional Affiliations

- **European Structural Integrity Society (ESIS)**, Member, 2012.
- **International Society for Structural and Multidisciplinary Optimization (ISSMO)**, Elected Member, 2011.
- **Australian Fracture Group (AFG)**, Elected Member, Australia, 2010.
- **National Committee on Applied Mechanics (NCAM)**, Elected Member, Mechanical College, Engineers Australia, 2009.
- **American Society of Mechanical Engineers (ASME)**, Member, USA, 2010.
- **Institution of Engineers (IEAUST), Member (Professional Engineer category)**, Australia, 2010.
- **SPH European Research Interest Community (SPHERIC)**, Member, Europe, 2009.
- **International Association of Engineers (IAE)**, Member, Hong Kong, 2008.
- **Aeronautical Society of India (ASI)**, Member, New Delhi, India, 2001.

Professional Contributions/Service

International Committees and Organisations

- **Visiting (Invited) Professorship (Professeur Associé)**, *Department of Applied Sciences, University of Quebec*, Canada, January – February, 2012.
- **Elected Committee Member**, *National Committee on Applied Mechanics* (One of total 11 members in Australasia) under the Mechanical College of Institution of Engineers Australia (IEAust), November, 2009.

University Committees

- **Sub-Professorial Member,** *Vice-Chancellor's Advisory Committee – Student Affairs Committee***,** University of Auckland, New Zealand, 2012-2014.
- **Committee Chair,** *IT Strategy and Policy Committee***,** Faculty of Engineering**,** University of Auckland, New Zealand, 2012.
- **Faculty Member,** *IT Strategy and Policy VVC Advisory Committee***,** University of Auckland, New Zealand, 2012.
- **Departmental Seminar Co-ordinator,** *Department of Mechanical Engineering***,** University of Auckland, New Zealand, 2011.

Editorial Board Members

- **Editorial board member**, *International Journal of Research and Reviews in Applied Sciences,* ISSN: 2076-734X, 2010-.
- **Editorial board member**, *International Journal of Mechanic Systems Engineering (IJMSE),* ISSN. 2225-7403, 2011-.

Conference Organising Committees

- **Member of the International Advisory Committee**, 7*th Australasian Congress on Applied Mechanics* (ACAM7), 9-12 December, 2012, Adelaide, Australia.
- **Member of the International Advisory Committee**, *11th Global Congress on Manufacturing and Management (GCMM2012),* 28-30 November, 2012, Auckland, New Zealand.
- **Member of the International Advisory Committee**, *23rd International Symposium on Transport Phenomena (ISTP23),* 19-22 November, 2012, Auckland, New Zealand.
- **Member of the International Advisory Committee**, *4th International Conference on "Crack Paths" (CP 2012),* 19-21 September, 2012, Gaeta, Italy.
- **Member of the Organizing Committee**, *International Symposium on Green Manufacturing and Applications* (ISGMA 2012), 26-29 August, 2012, Jeju Island, Korea.
- **Technical Program Committee**, *3rd International Conference on Mechanic Automation and Control Engineering (MACE 2012),* 27-29 July, 2012, Baotou, China.
- **International Organizing Committee**, *2nd International Conference on Advanced Polymer Matrix Composites (Compo2012),* 21-25 July, 2012, Harbin, China.
- **Member of International Scientific Committee**, *10th World Congress on Computational Mechanics (WCCM 10),* 8 -13 July 2012, São Paulo, Brazil.
- **Member of International Scientific Committee**, *3rd International Conference on Engineering Optimization (EngOpt12),* 1-5 July 2012, Rio de Janeiro, Brazil.
- **Technical Program Committee**, *International Conference on Emerging Materials and Mechanics Applications (ICEMMA 2012),* 5-6 February, 2012, Hangzhou, China.
- **International Program Committee Chairs (New Zealand)**, *International Conference on Mechatronics and Applied Mechanics (ICMAM2011),* 27-28 December, 2011, Hong Kong.
- **Member of the International Advisory Committee**, *International Conference on Chemical, Material and Metallurgical Engineering (ICCMME 2011),* 23-25 December, 2011, Beihai, China.
- **Member of International Organising Committee**, *19th International Conference on Processing and Fabrication of Advanced Materials (PFAM-19),* 14-17 January, 2011, Auckland, New Zealand.
- **Member of the International Advisory Committee**, *6th Australasian Congress on Applied Mechanics (ACAM6),* Perth Convention Centre, 12-15 December, 2010, Perth, Australia.
- **Member of the International Organising Committee**, *World Congress on Engineering 2010 (WCE 2010),* 30 June - 2 July, 2010, London, UK.
- **Member of the Organising Committee,** *12th International Conference on Composite Structures* (ICCS12)', Monash University, Melbourne, Australia, 2004.

- **Organiser of advanced workshops** on *High Performance Computing, MPI Programming and Parallel Application Development*, organised by Victorian Partnership for Advanced Computing (VPAC), Australia.
- **Conference session chairs** for many conferences, e.g. AFMC-7, WCE-08, CFD-08, AFMC-10, ACAM-6, PFAM-XIX, etc.

Review panels

- **Review panel for national and international funding agencies,** e.g. Ministry of Science and Innovation (MSI), Health Research Council (HRC) and Australian Research Council (ARC) panels**.**
- **Review panel for international journals**, e.g. Engineering Fracture Mechanics, Applied Mathematical Modelling, Journal of Composite Materials, Journal of Computational Science, IEEE Transactions on Biomedical Engineering, Chinese Journal of Aeronautics, International Journal of Mechanic Systems Engineering, etc.
- **Referee for international conferences**, e.g. ACAM-07, AFMC-07, CFD-08, SHIRMS-08, WCE-08, IMACS-09, CFD-09, ACAM-10, AFMC-10, WCE-12, SPHERIC-12.

Miscellaneous

- **Examiner of Masters' and PhD thesis** of various universities and institutes.

Research Interests

Computational Solid Mechanics, Mesh-free and Finite Element Methods, Material Processing, Structural Optimisation, Composite Materials, Failure Analysis, Fatigue/Fracture Mechanics, Dynamic Fracture Mechanics, Fluid Structure Interaction**.**

Research Activities

- Development of mesh-free methods and coupled numerical solution algorithms to produce an integrated analysis framework.
- Development of robust finite-element algorithms for predicting the response of highly non-linear structures.
- Nonlinear stress and thermal analysis of composite structures for industrial design using FEM and coupled solvers
- Thermo-mechanical modelling of material processing including forging, extrusion, deep drawing and other high deformation process, and resultant microstructural transformations.
- Fracture and fatigue analysis of composite structures, including multi-scale modelling of micro-macro fracture processes.
- Dynamic fracture mechanics of metals, composites and rocks with an emphasis on impact damage and repair of composite structures.
- Design optimisation of engineering structures based on damage tolerance constraints.
- Design and modelling of biomechanical systems (e.g. Bone remodelling and fracture) and medical implants.
- Fluid structure interaction problems in biomedical devices and naval applications.

Research Collaborations

University of Quebec at Chicoutimi (UQAC), Quebec, Canada, Professor László Kiss and Professor Lyne St Georges.
Western Michigan University, USA, Professor Judah Ari-Gur.
Texas A&M University, USA, Professor Ramesh Talreja.
Monash University, Melbourne, Australia, Professor Raafat Ibrahim.
Monash University, Melbourne, Australia Professor Rhys Jones.
CSIRO, Melbourne, Australia, Dr Simon Marshall.
CSIRO, Perth, Australia, Dr Yanhua Zhang.
CSIRO, Brisbane, Australia, Dr Shivakumar Karekal.
Industrial Research Limited, Auckland, New Zealand, Dr Biswajit Banerjee.
Auckland Bioengineering Institute, University of Auckland, Dr Justin Fernandez.

Industrial Collaborations

Collaboration with industries and research institutions has been an integral part of my research activities. The applied nature of my research resulted in close links with industries and research institutions as follows:

- **Defence Science and Technology Organisation (DSTO), Australia:** Topology optimisation *of* F/A-18 aircraft fuselage bulkhead for minimum weight design, as part of the weight reduction criteria.
- **Royal Australian Air Force (RAAF):** Durability based optimum shape design of F-111 wing pivot fitting stiffener, as part of the life extension program of RAAF.
- **National Aerospace Laboratories, India:** Residual strength based shape design of P3-Orion aircraft bulkhead stringer cutout.
- **Bradken rail, Australia:** Optimum topology design of rail bogy sideframes for generating a reduced weight design.
- **Noran Engineering Inc., USA:** Development of an optimisation software NASESO, which performs topology and shape optimisation using the ESO method and is integrated with the commercial finite element package NE-NASTRAN.
- **CSIRO Division of Earth Science and Engineering, Perth, Australia:** Simulation of rock mass deformation and fracture during magma intrusion and development of thermodynamically consistent formulations for geomechanics applications.
- **CSIRO Division of Mathematics, Informatics, and Statistics, Melbourne, Australia:** Development of numerical algorithms for solution of diffusion problems using the finite element method.

Research Grants

- **Health Research Council (HRC),** *Can low dose fluoride therapy increase bone strength in osteoporosis?*, J. Fernandez, P. Hunter, J. Cornish, I. Reid, A. Grey, R. Pitto, and R. Das (2011-2014), Start:1/10/2011, End: 30/09/2014, Associate Investigator.
- **Faculty Research Development Fund (FRDF)**, **University of Auckland,** *Characterisation of metal-ceramic interfaces*, M. Hyland and R. Das (2011-2012), Associate Investigator.
- **Faculty Research Development Fund (FRDF)**, **University of Auckland,** *Characterisation of micro- meso- and macro- failure in composites under impact using a multi-scale numerical model*, R. Das (2010-2012), Principal Investigator.
- **Monash-CSIRO Collaborative Research Grant,** *Fundamental Understanding of Temper Bead Welding produced by Flux Cored Arc Welding process using Smoothed Particle Hydrodynamics, and its Application to Repair Welding*, R. Das and R. Ibrahim (2008-2009), Principal Investigator.
- **Engineering Faculty Grant, Monash University**, *Effect of process parameters on the residual stress generated and characteristics of micro and nano surface coatings*, R. Ibrahim, R. Das, P. J. Martin (2008), Associate Investigator.
- **Engineering Faculty Grant, Monash University**, *Improvement of welding techniques, healing treatment for damaged areas and life assessment of welded structures using Smoothed Particle Hydrodynamics*, R. Ibrahim, P. W. Cleary, R. Das (2007), Associate Investigator.

Postgraduate Supervision

- *Thesis title*: **Fracture behavior of short-fibre natural composites,** *Candidate*: Shyam Mohan, (PhD in progress, started 2011, Main Supervisor)
- *Thesis title*: **Manufacture of Advanced Natural Fibre Composites by Vacuum Sheet Consolidation,** *Candidate*: Monis Kazmi, (PhD in progress, started 2011, Main Supervisor)
- *Thesis title*: **Modelling the Flammability Performance of Bio-derived Composite Materials for Aircraft Interiors,** *Candidate*: Maurice Chai, (PhD in progress, started 2009, Main Supervisor)
- *Thesis title*: **Development of composite material based retrofit technologies to improve the crashworthiness of rotary and fixed wing aircraft,** *Candidate*: Thomas Blic, (PhD in progress, started 2011, Co-supervisor)
- *Thesis title*: **Understanding interface behaviour in thermal spray coatings,** *Candidate*: Danial Qadir, (PhD in progress, started 2011, Co-supervisor)
- *Thesis title*: **Characterisation of Polymer-Graphene nanocomposites to optimize mechanical and functional properties,** *Candidate*: Jahnavee Upadhyay, (Masters in progress, started 2011, Main Supervisor)
- *Thesis title*: **Numerical and experimental studies of Interface failure in composite metal-polymer beams,** *Candidate*: Benjamin Kraus, (Masters in progress, started 2011, Main Supervisor)

- *Thesis title*: **Microscale characterization of foam metal interface,** *Candidate*: Jun Lim, (Masters in progress, started 2011, Main Supervisor)
- *Thesis title*: **Development of a Numerical Model of Slamming using Finite Element – Finite Volume Methods Coupling,** *Candidate*: Maxime Goutard, (Masters, Completed in 2011, Supervisor)
- *Thesis title*: **Experimental and numerical study of friction stir welding,** *Candidate*: Frédéric Thibeault, **(**Masters Completed in 2012, Co-supervisor with University of Quebec)
- *Thesis title*: **A novel technique to characterise and evaluate the interfacial fracture toughness of coatings,** *Candidate*: Joe Elambasseril, (PhD, Completed in 2011, Co-supervisor with Monash University)
- *Thesis title*: **Development of nano scale machining methodologies for nano-channel fabrications,** *Candidate*: Sumaiya Islam, **(**PhD Completed in 2011, Co-supervisor with Monash University)
- *Thesis title*: **Improvement of mechanical and metallurgical properties of metals using material forming processes: Investigations using numerical modelling (SPH) and high strain rate experiments** *Candidate*: Timothy Fagan, (PhD Started in 2010, Co-supervisor with Monash University)

Teaching

Roles

- Member of the **Mechanics of Materials** teaching group
- Course director of **Dynamics** (MECHENG 222) and **Composite Materials** (MECHENG 743)

Responsibilities:

- Designing and developing relevant curricula and courses in applied mechanics and design
- Preparing and delivering lectures using a variety of learning methods and environments
- Developing lecture notes, tutorials and laboratory manuals
- Coordinating the tutorial sessions and supervising the tutors
- Composing and evaluating student assessments and provide effective feedback
- Supervising and mentoring undergraduate students in their projects

Courses

Mechanics of Materials 1 (MECHENG 242): Part II, Spring semester.

Engineering Design 2 (MECHENG 234): Part II, Spring semester.

Dynamics (MECHENG 222): Part II, Fall semester, (Course director).

System Dynamics Modelling (MECHENG 224): Part II, Fall semester.

Composite Materials (MECHENG 743): Part IV, Spring semester, (Course director).

Manufacturing & Industrial Processes (MECHENG 747): Part IV, Fall semester.

Advanced Mechanics of Materials (MECHENG 771): Postgraduate, Fall semester.

Referred Publications

Published over 75 papers in edited books, international journals and conferences.

Book Chapters and Edited Volumes

1. Cleary, P.W., Prakash, M., Sinnott, M.D., Rudman, M. and **Das, R.**, 2011. Large scale simulation of industrial, engineering and geophysical flows using particle methods. *Edited volume " Particle-Based Methods: Fundamentals and Applications", eds. E. Oñate and R. Owen. Publisher: Springer*. ISSN 1871-3033.
2. **Das, R**., and Cleary, P.W., 2009. Simulating Brittle Fracture of Rocks using Smoothed Particle Hydrodynamics. In *Current Themes in Engineering Science* (*Edited volume*), ed. A.M. Korsunsky, Ch 1, pp. 1-12. America Institute of Physics, ISBN: 978-0-7354-0675-9.
3. Cleary, P.W., and **Das, R.**, 2008. The Potential for SPH Modelling of Solid Deformation and Fracture. In *IUTAM Symposium book series on "Theoretical, Computational and Modelling Aspects of Inelastic Media"*, ed. B. Daya Reddy, volume 11, pp. 287-296. Springer Netherlands, ISBN: 978-1-4020-9090-5 (online), 978-1-4020-9089-9 (print).

Journal Articles

1. **Das, R.** and Cleary, P.W., 2012. Modelling stress wave propagation under uniaxial loading using SPH. *International Journal of Numerical Methods in Engineering* (submitted). **Impact factor (5 year): 2.083.**
2. **Das, R.**, and Jones, R., 2012. Characteristics of the design surface of damage tolerance parameters and their relation to shape optimisation. *International Journal of Fatigue* (in press, accepted on 25 April, 2012). **Impact factor (5 year): 2.031.**
3. **Das, R.**, Bhattacharjee, K.S., and Rao, S., 2012. Welding heat transfer analysis using Element Free Galerkin Method. *Advanced Materials Research, Trans Tech Publications, Switzerland*, vol. 410, pp. 298-301 (DOI: 10.4028/www.scientific.net/AMR.410.298)**.**
4. Fagan, T., **Das, R.**, Lemiale, V., and Estrin, Y., 2012. Modelling of Equal Channel Angular Pressing using a Mesh-free Method, *Journal of Materials Science*, vol. 47(11), pp. 4514-4519. **Impact factor (5 year): 1.723.**
5. Islam, S., Ibrahim, R.N., **Das, R.** and Fagan, T., 2012. Novel approach for modelling of nanomachining using a mesh-less method, *Applied Mathematical Modelling* (accepted on 4 January, 2012). DOI: 10.1016/j.apm.2012.01.005. **Impact factor (5 year): 1.502.**
6. Chai, M.W., Bickerton, S., Bhattacharyya, D. and **Das, R**., 2012. Influence of Natural Fibres on the Flammability of Composites from Bio-derived Materials, *Composites Part B: Engineering*, (accepted on 14 November, 2011). **Impact factor (5 year): 2.235**.
7. Cleary, P.W., Prakash, M., **Das, R.** and Ha, J., 2012. Modelling of Metal Forging using SPH. *Applied Mathematical Modelling*, vol. 36(8), pp. 3836–3855. DOI: 10.1016/j.apm.2011.11.019. **Impact factor (5 year): 1.502.**
8. Elambasseril, J., Ibrahim, R.N. and **Das, R.**, 2011. Evaluation of fracture characteristics of ceramic coatings on stainless steel substrates using circumferentially notched tensile specimens, *Composites Part B: Engineering*, vol. 42(6), pp. 1596-1602, DOI: 10.1016/j.compositesb.2011.04.007. **Impact factor (5 year): 2.235**.
9. Karekal, S., **Das, R.,** Losse, L. and Cleary, P.W., 2011. Application of a mesh-free continuum method for simulation of rock caving processes. *International Journal of Rock Mechanics and Mining Sciences*, vol. 48(5), pp. 703-711. **Impact factor (5 year): 1.688**.

10. **Das, R.**, and Jones, R., 2011. Optimal topology design of industrial structures using an evolutionary algorithm. *Optimization and Engineering,* vol. 12(4), pp. 681-717 (DOI: 10.1007/s11081-010-9132-0). **Impact factor (5 year): 1.414.**
11. **Das, R.**, and Jones, R., 2011. Residual strength optimisation of a vent hole in an aircraft component using a heuristic method. *Advanced Materials Research,* vol. 275, pp. 105-108 (DOI:10.4028/www.scientific.net/AMR.275.105).
12. Islam, S. Ibrahim, R.N. and **Das, R.**, 2011. Study of abrasive wear mechanism through nano machining. *Key Engineering Materials*, vol. 462-463, pp. 931–936.
13. **Das, R.** and Cleary, P.W., 2010. Effect of rock shapes on brittle fracture using Smoothed Particle Hydrodynamics. *Theoretical and Applied Fracture Mechanics,* vol. 53, pp. 47-60 (DOI: 10.1016/j.tafmec.2009.12.004). **Impact factor (5 year): 1.267.**
14. **Das, R.** and Cleary, P.W., 2010. Application of SPH for modelling heat transfer and residual stress generation in arc welding, *Materials Science Forum, Trans Tech Publications, Switzerland,* vol. 654-656, pp. 2751-2754.
15. Elambasseril, J., Ibrahim, R.N. and **Das, R.**, 2010. Determination of mechanical properties of TiN coating using a notched cylindrical stainless steel substrate. *Materials Science Forum, Trans Tech Publications, Switzerland,* vol. 654-656, pp. 1860-1863.
16. **Das, R.**, and Jones, R., 2009. Fatigue life enhancement of structures using shape optimisation. *Theoretical and Applied Fracture Mechanics*, vol. 52, pp. 165–179 (DOI: 10.1016/j.tafmec.2009.09.006). **Impact factor (5 year): 1.267.**
17. Wu, F.W., Ibrahim, R.N., **Das, R.** and Singh Raman, R.K., 2009. Fracture toughness for CNT specimens from numerically obtained critical CTOD values. *Theoretical and Applied Fracture Mechanics*, vol. 52, pp. 50-54 (DOI: 10.1016/j.tafmec.2009.06.003). **Impact factor (5 year): 1.267**.
18. **Das, R.**, and Jones, R., 2009. Designing cutouts for optimum residual strength in plane structural elements. *International Journal of Fracture,* vol. 156(2), pp. 129-153 (DOI 10.1007/s10704-009-9352-5). **Impact factor (5 year): 1.271.**
19. Wu, F.W., Ibrahim, R.N., Singh Raman, R.K., and **Das, R.**, 2009. Using thermo-mechanical conditioning cycles to improve fracture toughness of low carbon steel. *Metallurgical and Materials Transactions A*, vol. 40(5), pp. 1118-1125. **Impact factor (5 year): 1.948.**
20. **Das, R.**, and Jones, R., 2009. Damage tolerance based design optimisation of a Fuel Flow Vent Hole in an aircraft structure. *Structural and Multidisciplinary Optimization,* vol. 38(3): pp. 245-265. **Impact factor (5 year): 1.715.**
21. **Das, R.**, and Jones, R., 2008. Development of a 3D Biological Method for Fatigue Life based Optimisation and its Application to Structural Shape Design. *International Journal of Fatigue,* vol. 31(2), pp. 309-321. **Impact factor (5 year): 2.031.**
22. Ibrahim, R.N., **Das, R.**, Wu, F.W., and Singh Raman, R.K., 2008. Two-step linear elastic finite element analysis: A new approach for evaluating fracture toughness for CNT specimens. *International Journal of Materials and Structural Integrity*, vol. 2(4), pp. 319-331. ISSN: 1745-0055.
23. **Das, R.**, Jones, R. and Chandra, S., 2007. Damage tolerance based shape design of a stringer cutout using Evolutionary Structural Optimisation. *Engineering Failure Analysis*, vol. 14(3), pp. 118-137. ISSN: 1350-6307. **Impact factor (5 year): 0.817.**
24. **Das, R.**, Jones, R. and Peng, D., 2006. Optimisation of damage tolerant structures using 3D biological algorithm. *Engineering Failure Analysis*, vol. 13(3), pp. 362-379. ISSN: 1350-6307. **Impact factor (5 year): 0.817.**

25. **Das, R.**, Jones, R. and Xie, Y. M., 2005. Design of structures for optimal static strength using ESO. *Engineering Failure Analysis*, vol. 12(1), pp. 61-80. ISSN: 1350-6307. **Impact factor (5 year): 0.817.**

Refereed Conference Papers

1. Panamoottil, S.M., **Das, R.**, and Jayaraman, K., 2012. Investigating failure in flax-polypropylene natural composites using discrete textile models and continuum damage mechanics approach. In *Proceedings of the 19th European Conference on Fracture (ECF-19)* Kazan, Russia, 26-31 August.
2. **Das, R.**, and Jones, R., 2012. Design space exploration for optimisation of damage tolerant structures. In *Proceedings of the 10th World Congress on Computational Mechanics (WCCM 2012)*, São Paulo, Brazil, 8-13 July.
3. **Das, R.**, and Jones, R., 2012. Extending the Fatigue Life of a Fuel Flow Vent Hole in an Aircraft Component using Shape Optimisation. In *Proceedings of the 3rd International Conference on Engineering Optimization (EngOpt 2012)*, Rio de Janeiro, Brazil, 1-5 July.
4. Davey, S., **Das, R.**, Cantwell, W.J., and Kalyanasundaram, S., 2012. Forming studies of carbon fibre composite sheets in dome forming processes. In *Proceedings of the International conference on Mechanics of Nano, Micro and Macro Composite Structures*, Torino, Italy, 18-20 June.
5. Rao, S., Upadhyay, J., Liu, D., **Das, R.,** and Bhattacharyya, D., 2012. Sandwich films with graphene oxide nanocores. In *Proceedings of the 15th European Conference on Composite Materials (ECCM 15)*, Venice, Italy, 24-28 June.
6. Davey, S., Cantwell, W.J., **Das, R.**, and Kalyanasundaram, S., 2012. Investigation into the formability of carbon fibre/polyether ether ketone composite sheets in stamp forming processes. In *Proceedings of the 15th European Conference on Composite Materials (ECCM 15)*, Venice, Italy, 24-28 June.
7. Davey, S., **Das, R.**, Cantwell, W.J., and Kalyanasundaram, S., 2012. Forming studies of carbon fibre composite sheets in dome forming processes. In *Proceedings of the International conference on Mechanics of Nano, Micro and Macro Composite Structures*, Torino, Italy, 18-20 June.
8. Goutard, M., **Das, R.**, Battley, M., Allen, T., Norris, S., 2012. Evaluation of the influence of hydro-elasticity in slamming of elastic panels using a coupled FE-FV method. In *Proceedings of the Fourth High Performance Yacht Design Conference*, Auckland, New Zealand, 12-14 March.
9. **Das, R.**, Bhattacharjee, K.S., and Rao, S., 2011. Welding heat transfer analysis using Element Free Galerkin Method. In *Proceedings of the 20th International Conference on Processing and Fabrication of Advanced Materials (PFAM XX)*, Hong Kong, 15 -18 December.
10. **Das, R.**, Versalko, D., and Ari-Gur, J., 2011. Evaluating the use of elastomers in improving blast resistance of fibre-metal composites. In *Proceedings of the 18th International Conference on Composite Materials (ICCM-18)*, Jeju Island, Korea, 21-26 August.
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