

CURRICULUM VITAE

Name: Dr. Dermot Brabazon, CEng, MIEI, MIMechE, MIOm

Position held: Associate Dean of Research, Faculty of Engineering & Computing, DCU.

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Education

BEng (Hon)	University College Dublin	June 1995
PhD	University College Dublin	Nov. 2001
Thesis	"Properties and processing of rheocast alloys".	

Employment history

Laboratory Instructor	Mech. Engineering, University College Dublin	1995-1997
Lecturer	Sch. Mech and Manu., Dublin City University	2000 - 2006
Senior Lecturer	Sch. Mech and Manu., Dublin City University	2006 - present
Deputy Head	Sch. Mech and Manu., Dublin City University	2006 – 2007
Dean of Research	Faculty of Engineering & Computing, DCU	2009-present

Biography

Dermot Brabazon completed his undergraduate degree in Mechanical Engineering at University College Dublin in 1995 and his PhD in 2001. From 1995 to 2000 he worked with Materials Ireland solving industrial related materials problems. In February 2000, he joined Dublin City University (DCU) as a lecturer in the School of Mechanical and Manufacturing Engineering and was appointed as senior lecturer in the School in 2007. From September 2007 to September 2008 he was appointed as Deputy Head of the School of Mechanical and Manufacturing Engineering and was appointed as Associated Dean for Research in the Faculty of Engineering & Computing in January 2009. In 2009 Dermot was awarded the President's Research Award in Science & Technology. He was Chair of the Mechanical & Manufacturing division of Engineers Ireland and the Republic of Ireland branch of the Institution of Mechanical Engineers, 2008-2010.

Most of his research falls into the four broad areas of rapid prototyping, material forming, material glazing, and analysis of constructive educational techniques. Many of the research projects, as well as crossing these four areas, also involve multi-discipline aspects with close involvement from colleagues from across DCU and the wider research community creating a hub of research collaboration. Specific current research interests include Semi-Solid Material Forming, Laser Micro-Machining/Rapid Prototyping, Nano-Crystalline/Glass Metal Application and Educational Methodologies. Large scale research project work has included EU work on semi-solid steel forming; soft and hard synthetic biological tissue scaffold fabrication; and laser forming of glass and polymer micro-voxel networks. Dermot has published more than one hundred peer reviewed research papers and supervised more than 15 research postgraduates to completion. He has acted on many occasions as external reviewer to programmes of research, honours engineering degree programmes, and PhD candidates. He is currently on the editorial board of the following leading International Journals: the

International Journal of NanoParticles, InterScience; the International Journal of Nano and Biomaterials, InterScience; the Open Industrial and Manufacturing Engineering Journal, Bentham; the Open Materials Science Journal, Bentham; and the International Journal of Nanomedicine and Nanoengineering. His recent publication work includes editing of a special issue of the International Journal of NanoParticles, on the Characterisation, Measurement and Analysis of NanoParticles; and writing books chapters in Emerging Nanotechnologies for Manufacturing, Elsevier; Modelling of Semi-Solid Processing, Shaker Verlag; and Emerging Nanotechnologies in Dentistry, Elsevier.

Key Metric Overview

Books: 3; Book Chapters: 9; Journals: 41; Conference papers: 83
Research Funding to date: > €2 M

Major Research Projects

- Irish Separation Science Cluster, 2008-2013.
- IRSCET Award, 2007-2010
- EU Cost Action MP0903, NanoAlloy, 2009-2012.
- EI Innovation Partnership, ABS Pumps, 2005-2008
- EU Marie Curie Project, “Novelscaff - MEST-CT-2005-020621”, 2006-2010.
- EU Cost Action 541, Semi-solid Processing of Steels: Thixosteel, 2006- 2010.
- Brite Euram, BE97-5049, Development of a high speed online inspection system with novel electro-optical deflector, 1999 - 2002.
- Consultancy projects on fluid flow analysis, corrosion, laser processing, product design, system control, material selection, welding, and quality control procedures.

Selected recent publications

Books

Byrne, E., Fitzpatrick, J., Cronin, K., Brabazon, D., A., Eds. Proceedings of the Third International Symposium for Engineering Education, ISEE-2010. 30th June – 2nd July 2010, University College Cork, Cork, Ireland; ISSN 2009 3225.

Brabazon, D., Chapter 7: Nanocharacterisation techniques for dental implant development. In Emerging Nanotechnologies in Dentistry, Eds. K. Subramaniam and W. Ahmed, 2011, 1st Ed., Elsevier, In Press, pp. 345-393.

Brabazon, D., Naher, S., Münstermann, S., Immich, P., Rassili, A., Fischer, D., Klemm, H., Chapter 6: Die Development. In Thixoforming Steel, Ed. H. Atkinson and A. Rassili, 2010, Shaker-Verlag, ISBN: 978-3-8322-9133-4.

Brabazon, D., and Rafferty, A., Chapter 3: Advanced Characterisation Techniques for Nanostructures. In ‘Emerging Nanotechnologies for Manufacturing’, Eds. W. Ahmed and M. Jackson, 2009, 1st Ed., Elsevier, p.59-92, ISBN: 978-0-81-551583-8.

Brabazon, D., Experimental Determination of Parameters for Modelling Semi-Solid Metal Flow, Chapter 7 in ‘Modelling of Semi-Solid Processing’, Ed. H. Atkinson, 2008, Shaker-Verlag, pp. 153-182, ISBN: 978-3-8322-7212-8.

Journals

Piasecki, T., Macka, M., Paull, B., Brabazon, D., Numerical model for light propagation and light intensity distribution inside coated fused silica capillaries, *Optics and Lasers in Engineering*, 2011, doi:10.1016/j.optlaseng.2011.02.009.

Naher, S., Orpen, D., Brabazon, D., Poulsen, C.R., Morshed, M.M., Effect of micro-channel geometry on fluid flow and mixing, *Simulation Modelling Practice and Theory*, Vol. 19, Iss. 4, 2011, pp. 1088-1095.

Afridi, H.I., Brabazon, D., Kazi, T.G., Naher, S., Nesterenko, E., Comparative Metal Distribution in Scalp Hair of Pakistani and Irish Referents and Hypertensive Patients, *Biological Trace Element Research*, 2011, pp. 1-16

Afridi, H.I., Brabazon, D., Kazi, T.G., Naher, S., Evaluation of Essential Trace and Toxic Elements in Scalp Hair Samples of Smokers and Alcohol User Hypertensive Patients, *Biological Trace Element Research*, 2011, pp. 1-18

Brennan, S., Ryan K., Brabazon, D., O'Byrne, J., Effect of vibration on the shear strength of impacted bone in revision hip surgery, *Irish Journal of Medical Science*, Vol.: 179, 2010, pp. 33-34

Collins, F., Brabazon, D., Moran, K. The dynamic viscoelastic characterisation of the impact behaviour of the GAA sliotar, *The Engineering of Sport*, Volume 2, Issue 2, 2010, pp 2991-2997.

Lipowiecki, M., and Brabazon, D., Design of bone scaffolds structures for rapid prototyping with increased strength and osteoconductivity, *Advanced Materials Research, Advances in Materials and Processing Technologies*, Vol. 83-86, 2010, pp. 914-922.

Ryvolová, M., Mirek, M., Brabazon, D., and Preisler, J., Portable capillary-based (non-chip) capillary electrophoresis, *TrAC Trends in Analytical Chemistry*, Vol. 29, No. 4, 2010, pp. 339-353.

Naher, S., Orpen, D., Brabazon, D., Morshed, M.M., An overview of microfluidic mixing applications, *Advanced Materials Research*, Vol. 83-86, 2010, pp.931-939.

Eosoly, S., Brabazon, D., Lohfeld, S., and Looney, L., Selective laser sintering of hydroxyapatite/poly- ϵ -caprolactone scaffolds, *Acta Biomaterialia*, Vol. 6, Iss. 7, 2010, pp. 2511-2517.

Karazi, S.M., Brabazon, D., Analysis and prediction of dimensions and cost of laser micro-machining internal channel fabrication process, *European Physical Journal*, Volume 6, July 2010, 25002, pp.1-8, ISBN:978-2-7598-0565-5, DOI:10.1051/epjconf/20100625002.

Chikarakara, E., Aqida, S., Brabazon, D., Naher, S., Picas, J.A., Punset, M., Forn, A., Surface Modification of HVOF Thermal Sprayed WC-CoCr Coatings by Laser Treatment, *International Journal of Material Forming*, Vol. 3, 2010, pp.801 -804; DOI: 10.1007/s12289-010-0891-0

Chikarakara, E., Naher, S., Brabazon, D., Process Mapping of Laser surface modification of AISI 316L Stainless Steel for Biomedical Applications, *Applied Physics A*, Vol. 101, No. 2, 2010, 367-371; DOI : - 10.1007/s00339-010-5843-5.

Aqida, S. N., Calosso, F., Brabazon, D., Naher, S., and Rosso, M., Thermal fatigue properties of laser treated steels at semi-solid processing temperature. *International Journal of Material Forming*, Vol. 3 2010, 797– 800.

Aqida, S.N., Brabazon, D., Naher, S., Kovacs, Zs., & Browne, D.J., Laser micro-machining of Cu45Zr48Al7 bulk metallic glass, *Applied Physics A: Materials Science & Processing*, Vol. 101, No. 2, 2010, pp.357-360; DOI 10.1007/s00339-010-5829-3.

Moore, D., Krishnamurthy, S., Chao, Y., Wang, Q., Brabazon, D., and McNally, P.J., Characteristics of silicon nanocrystals for photovoltaic applications, *Physica Status Solidi A*, 1-4, 2010 / DOI 10.1002/pssa.201000381

Moran, K.A., Clarke, M., Reilly, F., Wallace, E.S., Brabazon, D., Marshall, B., Does endurance fatigue increase the risk of injury when performing drop jumps?, *Journal of Strength and Conditioning Research*, Vol. 23, Iss. 5, 2009, pp. 1448-1455.

Aqida, S. N., Maurel, M., Brabazon, D., Naher, S., & Rosso, M., Thermal stability of laser treated die material for semi-solid metal forming. *International Journal of Material Forming*, Vol. 2, 2009, 761–764.

Karazi, S.M., Issa, A., Brabazon, D., Comparison of ANN and DoE for the prediction of laser machined micro-channel dimensions, *Optics and Lasers in Engineering*, 2009, Vol. 47, 2009, pp. 956–964; DOI information: 10.1016/j.optlaseng.2009.04.009

Eosoly, S., Lohfeld, S., and Brabazon, D., Effect of hydroxyapatite on biodegradable scaffolds fabricated by SLS, *Key Engineering Materials*, Vols. 396-398, 2009, pp 659-662.

Szucs, T., and Brabazon, D., Effect of saturation and post processing on 3D printed calcium phosphate scaffolds, *Key Engineering Materials*, Vols. 396-398, 2009, pp 663-666.

Rafferty, A., Bakir, S., Brabazon, D., and Prescott, T., Calibration and characterisation with a new laser-based magnetostriction measurement system, *Materials and Design*, Vol. 30, 2009, pp. 1680–1684.

Conference papers

Brabazon, D., Naher, S., Karazi, S., and Murphy, G., Analysis of international graduate programme structures for engineering education, 3rd International Symposium for Engineering Education, 2010, University College Cork, Ireland, pp. 231-238.

Naher, S., McMorrow, D. and Brabazon, D., Employer and student perspectives on skills for engineers in the twenty first century and beyond, 3rd International Symposium for Engineering Education, 2010, University College Cork, Ireland, pp. 543-550.

Collins, F., Brabazon, D., Moran, K., The dynamic viscoelastic characterisation of the impact behaviour of the GAA sliotar, 8th Conference of the International Sports Engineering Association (ISEA), Vienna, *Procedia Engineering*, Vol. 2, July 2010, pp. 2991–2997.

Ben Azouz, A., O'Connor, R., Vasquez, M., Brabazon, D., and Paull, B., Cyclic olefin copolymer strip processing for freeform fabrication of multi-layered microfluidic sensing systems, *Solid Freeform Fabrication (SFF) 2010*, 9th-11th Aug 2010, Austin TX, USA, pp. 128-139.

Karazi, S.M., Brabazon, D., Ben Azouz A., Dimensions and cost prediction modelling of Nd:YVO4 laser internal micro-channel fabrication in PMMA, *Nanotech 2010 Conference*, Vol. 2, 21st-24th June 2010, Anaheim, California, USA, pp. 492-495, 2010, ISBN 978-1-4398-3402-2, pp. 492-495.

Ben Azouz, A. and Karazi, S., Brabazon, D., Vázquez, M., Macka, M., Paull, B., Effect of laser processing parameters and glass type on topology of micro-channels, Nanotech 2010 Conference, Vol. 2, 21ST-24th June 2010, Anaheim, CA, USA, pp. 496-499, 2010, ISBN 978-1-4398-3402-2, pp. 496-499.

Brabazon, D., Kennedy, D., and Tyrell, M., Development of technique for 3D printed mould intricate rapid casting, Solid Freeform Fabrication (SFF) 2010, 9th-11th Aug 2010, Austin TX, USA, pp. 800-808.

Aqida, S. N., Calosso, F., Brabazon, D., Naher, S., and Rosso, M., Thermal fatigue properties of laser treated steels at semi-solid processing temperature. 13th International ESAFORM Conference on Material Forming, University of Brescia, Brescia, Italy, 7th-9th April, 2010, pp. 432-438.

Aqida, S.N., Brabazon, D., Naher, S., Laser Surface Modification of Die Steels, UK-Malaysia- Ireland Engineering Science Conference 2010, Queen's University Belfast, Northern Ireland, 23rd - 25th June 2010, p. 4.

Aqida, S.N., Brabazon, D. and Naher, S., Designing Pulse Laser Surface Modification of H13 Steel using Response Surface Method, Advances in Materials and Processing Technologies, Paris, France, 24th-27th October 2010, AIP Conference Proceedings, Volume 1315, pp. 1371-1376.

Ben Azouz, A., Piasecki, T., Brabazon, D., Vázquez, M., Macka, M., and Paull, B., Laser Induced plasma and glass type effect on the process of micro-channel fabrication using CO2 laser, 37th EPS Conference on Plasma Physics, 21ST-25th June 2010, Dublin, Ireland, P5.318, pp.1-4.
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Moore, D., Brabazon, D., McNally, P.J., The effects of laser induced glass texturing on the absorption of light for photovoltaic applications, 4th Int. Conf on Sustainable Energy and Environmental Protection, Politecnico di Bari, Italy 29th June – 2nd July 2010, pp.1-6.

Chikarakara, E., Aqida, S., Brabazon, D., Naher, S., Picas, J.A., Punset, M., Forn, A., Surface Modification of HVOF Thermal Sprayed WC-CoCr Coatings by Laser Treatment, International Journal of Material Forming, 13th International ESAFORM Conference on Material Forming, University of Brescia, Brescia, Italy, April 2010, pp. 439-442.

Karazi, S.M., Brabazon, D., Analysis and prediction of dimensions and cost of laser micro-machining internal channel fabrication process, 14th International Conference on Experimental Mechanics (ICEM14), Poitiers, France, 4-9th July 2010, (25002), pp.1-8; DOI:10.1051/epjconf/20100625002.

Kovacs, Zs., Aqida, S.N., Naher, S., Brabazon, D., Stratton, D., and Browne, D.J., Laser micro-channel inscription on Cu-Zr-based bulk metallic glass, Proc. WPI-INPG-Europe Workshop on Metallic Glass, Grenoble, France, 25-28 August 2009, pp. 45-51.