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About

David Cheneler is a post-doctoral research fellow within the Bio-medical and Micro Engineering Research Centre and a Science City Research Fellow within the Advanced Materials II laboratory in the School of Chemical Engineering. He has over 38 publications including 21 papers in peer-review journals. He is employed as part of the NanoBioTouch consortium developing MEMS-based and bio-hybrid tactile sensors for integration into robotic systems. He was previously employed by the EUMINAfab consortium, which seeks to provide access to innovative technologies to research facilities and SMEs across Europe.

Qualifications

- MEng (Hons) in mechanical engineering, University of Birmingham, 2005
- PhD in microrheology, University of Birmingham, 2010

Research

Research interests

- Systems analysis
- Synergistic micro fabrication methods
- Micro sensors
- Bio-hybrid sensors
- Mechanical modelling of complex biological materials

Publications

Books

1. Chapman, D., Cheneler, D., Metje, N., Thomas, A. and Ward, M., (2009), Smart Sensors for Buried Utility Location and Performance Monitoring, UKWIR, ISBN: 1 84057 546 8

Book chapters

1. Bowen, J., Cheneler, D., Ward, M. C. L. and Adams, M. J., (2011), The Influence of Wetting on the Buoyancy of Particles. In Wu, C.-Y. and Ge, W. Particulate Materials: Synthesis, Characterisation, Processing and Modelling, Royal Society of Chemistry, pp. 213-218, ISBN 978-1849733663
2. Cheneler, D., (2012), Analysis of a Coupled-Mass Microrheometer. In: Advances in Microfluidics edited by Ryan T. Kelly, Intech (Bejing, China), pp. 50-70, ISBN 978-95351-0106-2
3. Bowen, J., Cheneler, D., Andrews, J. W., Wu, C-Y., Ward, M. C. L. and Adams, M. J., (2012), Rebound of a particle from a surface with a viscous and nonlinear viscoelastic liquid in the contact zone , in Wu, C-Y. (Ed.), Discrete Element Modelling of Particulate Media, RSC Publishing (Cambridge, UK), pp. 86-94, ISBN: 978-1-84973-360-1

Book reviews

1. Cheneler, D., (2008), Introduction to Polymer Viscoelasticity (M.T. Shaw and W.J. MacKnight), Appl. Rheol., Vol. 17, No. 1, pp. 10-11
2. Cheneler, D., (2012), Colloidal Suspension Rheology (J. Mewis and N.J. Wagner), Appl. Rheol., Vol. 22, No. 1, pp. 12-13

Peer reviewed

1. Cheneler, D., Ward, M. C. L., Adams, M. J. and Zhang, Z., (2008), Measurement of Dynamic Properties of Small Volumes of Fluid Using MEMS, Sensors and Actuators B: Chemical, Vol. 130, No. 2, pp. 701-706
2. Prewett, P. D., Anthony, C. J., Cheneler, D. and Ward, M. C. L., (2008), Stress-Induced Curvature of Focused Ion Beam Fabricated Microcantilevers, Micro & Nano Lett., Vol. 3, No. 1, pp. 25-28
3. Ren, J., Cheneler, D., Ward, M. C. L. and Kinnell, P., (2008), The Mechanical Behaviour of Silicon Diaphragms for Micromachined Capacitive Pressure Sensor, Adv. in Sci. and Tech., Vol. 54, pp. 422-427
4. Yan Y., Zhang Z., Stokes J. R., Cheneler, D. and M. J. Adams, (2009), The Influence of Flow Confinement on the Rheological Properties of Complex Fluids, Rheologica Acta, Vol. 49, No. 2, pp. 104-115
5. Bowen, J., Cheneler, D., Walliman, D., Arkless, S. G., Zhang, Z., Ward., M. C. L. and Adams, M. J., (2010), On the Calibration of Rectangular Atomic Force Microscope Cantilevers Modified by Particle Attachment and Lamination, Measurement Science and Technology, Vol. 21, 115106
6. Cheneler, D., Teng, J., Adams, M. J., Anthony, C. J., Carter, E. L. and Ward, M. C. L., (2011), Printed Circuit Board as a MEMS Platform for Focused Ion Beam

Technology, Microelectronic Engineering, Vol. 88, pp. 121–126

7. Cheneler, D., Bowen, J., Evans, S. D., Gorzny, M., Adams, M. J. and Ward, M. C. L., (2011), Characteristics and Durability of Fluoropolymer Thin Films , Polymer Degradation and Stability, Vol. 96, No. 4, pp. 561-565
8. Cheneler, D., Bowen, J., Ward, M. C. L. and Adams, M. J., (2011), Micro Squeeze Flow Rheometer for High Frequency Analysis of Nano-Litre Volumes of Viscoelastic Fluid, Microelectronic Engineering, Vol. 88, No. 8, pp. 1726-1729
9. Cheneler, D., Bowen, J., Ward, M. C. L. and Adams, M. J., (2011), Principles of a MSFR for the Analysis of Extremely Small Volumes of Liquid, Journal of Micromechanics and Microengineering, Vol. 21, pp. 1-14, 045030
10. Anthony, C. J., Torricelli, G., Prewett, P. D., Cheneler, D., Binns, C. and Sabouri, A., (2011), Effect of focused ion beam milling on microcantilever loss, Journal of Micromechanics and Microengineering., Vol. 21, pp. 1-7, 045031
11. Cheneler, D., Bowen, J., Leigh, S. J., Purssell, C. P., Billson, D. R., Hutchins, D. A. and Ward, M. C. L., (2011), Fabrication and Analysis of Cylindrical Resin AFM Microcantilevers, Ultramicroscopy, Vol. 111, No. 8, pp. 1214-1223
12. Metje N., Chapman D., Cheneler D., Ward M. and Thomas A., (2011), Smart Pipes – Instrumented Water Pipes, Can this be Made a Reality?, Sensors, Vol. 11, pp. 7455-7475
13. Bowen, J., Cheneler, D., Andrews J. W., Avery, A. R., Zhang, Z., Ward, M. C. L. and Adams, M. J., (2011), Application of Colloid Probe AFM to the Adhesion of Thin Films of Viscous and Viscoelastic Silicone Fluids, Langmuir, Vol. 27, No. 18, pp. 11489-11500
14. Bowen, J., Cheneler, D., Robinson, A., (2012), Direct E-Beam Lithography of PDMS, Microelectronic Engineering, Vol. 97, pp. 34-37
15. Cheneler, D., Ward, M. C. L. and Anthony, C. J., (2012), Bio-hybrid Tactile Sensor for the Study of the Role of Mechanoreceptors in Human Tactile Perception, Microelectronic Engineering, Vol. 97, pp. 297-300
16. Bowen, J., and Cheneler, D., (2012), A Dynamic Model of the Jump-To Phenomenon During AFM Analysis, Langmuir, Vol. 28, No. 50, pp.17273-17286
17. Cheneler, D. and Bowen, J., (2013), Degradation of Polymer Films, Soft Matter, Vol. 9, pp. 344-358
18. Bowen, J., Cheneler, D. and Adams, M. J., (2013), Controlling Thin Liquid Film Viscosity Via Modification of Substrate Surface Chemistry, J. Coll. Int. Sci., Vol. 418, pp. 112-116
19. Metje, N., Kolonko, A., Chapman, D., Cheneler, D. and Kukureka, S., (2013), Methodology for the Preparation of Polymer Samples Containing Silicon Microchips for Mechanical Testing, Polymer-Plastics Technology and Engineering, Vol. 52, No.5, pp. 461-471
20. Andrews, J., Bowen, J. and Cheneler, D., (2013), Optimised Determination of Viscoelastic Properties using Compliant Measurement Systems, Soft Matter, accepted
21. Cheneler, D., Mehrban, N. and Bowen, J., (2013), Spherical Indentation Analysis of Stress Relaxation for Thin Film Viscoelastic Materials, Rheologica Acta, accepted, DOI: 10.1007/s00397-013-0707-5
22. Cheneler, D., Bowen, J., Ward, M. C. L. and Adams, M. J., (2013), Closed Form Expressions for Contact Angle Hysteresis Effects on Capillary Forces and Their Application to Squeeze Flow Rheometry, J. Coll. Int. Sci., in draft
23. Andrews, J., Cheneler, D., Bowen, J. and Adams, M. J., (2013), An approximate model for the separation of a sphere from a flat in the presence of a thin film, Physics of Fluids, in draft
24. Cheneler, D. and Bowen, J., (2013), Deflection of a Cantilever due to Unmatched Surface Stresses and Lattice Parameter Mismatch, Mech. Mat., in draft

Conference Proceedings

1. Bowen, J., Cheneler, D., Ward, M. C. L., Adams, M. J. and Zhang, Z., (2009), The Influence of Viscoelasticity on Interparticle Adhesion, 9th International Symposium on Agglomeration and 4th International Granulation Workshop, Sheffield
2. Cheneler, D., Thomas, A., Chapman, D., Ward, M. C. L. and Metje, N., (2009), The Smart Pipes Project: Developing a New Generation of Intelligent Water Infrastructure, 128th American Water Works Association's Annual Conference and Exposition, verbal presentation
3. Cheneler, D., Bowen, J., Ward, M. C. L. and Adams, M. J., (2010), Micro Squeeze Flow Rheometer for High Frequency Analysis of Nano-litre Volumes of Viscoelastic Fluid, MNE 2010, 36th International Conference on Micro and Nano Engineering, Genoa, poster presentation
4. Adams, M. J., Bowen, J., Cheneler, D., Andrews, J. W., Avery, A. R., Zhang, Z. and Ward, M. C. L., (2011), The Measurement and Analysis of the Adhesion Arising from Non-Newtonian Liquid Bridges, Proceedings of 5th International Granulation Workshop, Lausanne, Switzerland
5. Bowen, J., Cheneler, D., Ward, M. C. L. and Adams, M. J., (2011), The Influence of Wetting on the Buoyancy of Particles, UK-China Particle Technology Forum III, Birmingham, UK
6. Cheneler, D., Ward, M. C. L. and Anthony, C. J., (2011), Bio-hybrid Tactile Sensor for the Study of the Role of Mechanoreceptors in Human Tactile Perception, MNE 2011, 37th International Conference on Micro and Nano Engineering, Berlin, poster presentation
7. Bowen, J., Cheneler, D. and Robinson, A., (2011), Direct E-Beam Lithography of PDMS, MNE 2011, 37th International Conference on Micro and Nano Engineering, Berlin, poster presentation
8. Junaid, S., Cheneler, D., Ghaffari, S., Hukins, D. W., Anthony and C. J., Shepherd, D., (2012), Can MEMS Accelerometers be used to Directly Monitor Relative Fracture Movement?, ORS 2012, San Francisco, poster presentation
9. Cheneler, D., Buselli, E., Oddo, C. M., Kaklamani, G., Beccai, L., Carrozza, M. C., Grover, L., Anthony, C. J., Ward, M. C. L. and Adams, M. J., (2012), Bio-hybrid tactile sensor and experimental set-up for investigating and mimicking the human sense of touch, HRI 2012, Boston
10. Adams, M. J., Bowen, J., Cheneler, D., Zhibing, Z., Andrews, J. and Ward, M. C. L., (2012), Non-Newtonian liquid bridges, International Symposium on Discrete Element Modelling of Particulate Media, 29 - 30 March 2012, Birmingham, UK, Keynote presentation
11. Bowen, J. and Cheneler, D., (2012), Optimisation of Nanoscale Surface Topography Analysis RSC Postgraduate Symposium on Nanotechnology, Birmingham, UK, 14th December 2012, poster presentation