University of Birmingham

Dr Jamal Uddin

Lecturer in Applied Mathematics

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About

Jamal Uddin is a Lecturer in Applied Mathematics.

Jamal's primary area of interest in Fluid Mechanics and in particular the stability of flows with a free surface. He also has an interest in investigating non-Newtonian flows with applications to industry. He is a member of the Centre for Mathematical Modelling and Chemical Engineering and also works closely with the Doctoral Training Centre in Hydrogen Fuel Cell Modelling.

He is also very keen to take mathematics to a wider audience and regularly gives popular talks at local schools and colleges.

Jamal's personal web page (web.mat.bham.ac.uk/~uddinj (http://web.mat.bham.ac.uk/~uddinj)) contains notes and other useful information for students.

Qualifications

- PhD in Mathematics 2007, University of Birmingham
- M.Sci in Mathematics 2004, University of Birmingham

Biography

Jamal graduated with a M.Sci in Mathematical Sciences from the University of Birmingham in 2004. He went on to study for a PhD in Applied Mathematics in the breakup of liquid jets. After the completion of his doctorate he took up a Research Fellowship in Hydrodynamics at Birmingham and began teaching undergraduate mathematics. In 2009 he received the Excellence in Teaching Award for his innovative style of teaching undergraduates. Towards the end of his fellowship he was appointed as a Lecturer in Applied Mathematics in 2010.

Jamal teaches Asymptotics and Chaos and is regularly involved with organising the departmental seminars.

Teaching

- Perturbation Theory & Asymptotics
- Nonlinear Systems and Chaos

Postgraduate supervision

PhD Supervisor to 6 PhD students and 2 M.Sci students.

Research

RESEARCH THEMES

- Fluid mechanics
- Free surface flows
- Non-Newtonian fluids
- Fuel cell modelling
- Industrial Mathematics

Other activities

Associate Member of the Institute of Mathematics and its Applications.

Publications

J. Uddin, S.P. Decent and M.J. Simmons (2006) The instability of shear thinning and shear thickening spiralling liquid jets: linear theory. J. of Fluids Eng, Vol 128.

J. Uddin, S.P. Decent and M.J. Simmons (2008) The effect of surfactants on the instability of a rotating liquid jet. Fluid Dynamics Research, Vol 40, 827-851.

J. Uddin, S.P. Decent and M.J. Simmons (2008) Non-linear waves along rotating non-Newtonian liquid jets. Int. J. Eng. Sci., Vol 46, 1253-1265.

J. Uddin and S.P. Decent (2009) Curved non-Newtonian liquid jets with surfactants. J. Fluids Eng., Vol 131, 901203.

S.P. Decent, A. C King, MJH Simmons, El Parau, CJ Gurney and J Uddin (2009) 'The trajectory and stability of a spiralling liquid jet: viscous theory. Applied Mathematical Modelling, Vol 33, 4283-4302.

J. Uddin and S. P. Decent (2009) Non-Newtonian jets curved by gravity. Mathematics in Industry (2008), Springer.

V. Hawkins, CJ Gurney, SP Decent, MJH Simmons and J Uddin (2010) Unstable waves on a curved non-Newtonian liquid jet. Journal of Physics A, Vol 43, 055501.

J. Uddin & S.P. Decent (2010) Breakup of compound liquid jets falling under gravity. Journal of Physics A.

J. Sandells, J. Uddin & S.P. Decent (2011) Boundary layer flow over a reacting plate with electrochemistry. Submitted.

J Uddin & SP Decent (2011), `Drop formation in rotating non-Newtonian jets with surfactants,' to appear in IMA J. App. Math.

M Mohsin, J Uddin, SP Decent & MJH Simmons, (2011), 'Breakup and droplet formation in shear thinning compound liquid jets,' to appear IMA J. App. Math

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