

Ph.D. Position

Mathematical Modeling of Inkjet Printing

Numerical Analysis and Computational Mechanics group
Department of Applied Mathematics
University of Twente, Enschede, The Netherlands.

Research: Inkjet printing is a versatile technique for high quality printing, on paper but also on other surfaces for novel high-tech applications, such as the fabrication of electronic circuits and micro-devices, and the generation of tissues and bones. Advanced numerical models are essential to better understand and control various processes in inkjet printing, such as droplet formatting, pinch-off and deposition, including effects of airflow on the droplet path. The aim of the current project is to develop an accurate and efficient level set and cut cell discontinuous Galerkin finite element model, which can describe these fundamental processes and improve control of the printer head operation. The research will include complicated free surface motion using level set techniques, and implementation in our C++ based finite element toolkit hpGEM. Finally, extensive comparisons with experimental data from related projects will be conducted to validate the simulation model developed.

Qualification: You have recently graduated (M.Sc./M.Eng.) in mathematics/physics/engineering sciences with interest in (computational) fluid dynamics and numerical analysis. You have significant experience in mathematical analysis and numerical modeling, basic knowledge of fluid dynamics, and are very interested in the specific application. You work accurately and independently, are creative, a team player and have excellent communication skills, particularly in written and spoken English.

Contact: Please send your full CV with specification of relevant education and work experience; including a list of courses completed and grades obtained, references; and, a statement of your research interests, by e-mail to j.j.w.vandervegt@math.utwente.nl preferably before February 15, 2010, but the job opening will remain till the position is filled.

For more information please contact Prof. Jaap van der Vegt or Dr. Onno Bokhove, see also www.math.utwente.nl/~vegtjjw or [/~bokhoveo](http://www.math.utwente.nl/~bokhoveo)