UK and Republic of Ireland SIAM Section Annual Meeting

Held 6th January, 2006 in Cardiff.

This was the first annual meeting of the section held in Wales and
was very well attended with over 60 participants.
The meeting was hosted by the mathematics department at Cardiff University
and thanks to Marco Marletta who acted as a local organizer to the meeting.

The meeting was opened by the section president, Nick Trefethen, who gave
a brief overview of on the role of Europe, the UK and Republic of Ireland
for SIAM.

The first speaker was Ben Leimkuhler (Leicester) who spoke on enhancing
thermal exchange in molecular dynamics. This work has applications in
biochemical systems and atomisitic materials models. He discussed dynamics
based approaches and numerical methods.

Hinke Osinga (Bristol) was the next speaker and she gave an entertaining talk
on computing global stable and unstable manifolds. The algorithm was described
and she showed it possible to construct the stable and unstable manifolds for
the Lorenz euqations, not only on a computer but also by crocheting. The talk
included an interview for Channel 4 news with Jon Snow.

The business meeting and an excellent lunch (supported by an anonymous donor) followed.

Peter Clarkson (Kent) then spoke on special polynomials associated with
rational solutions of the Painleve equations. The Painlev\'e equations
(PI--PVI) are six nonlinear ordinary differential equations that have
been the subject of much interest in the past thirty years, which have
arisen in a variety of physical applications such as soliton equations
which are solvable by the inverse scattering method, including the
Korteweg-de Vries, modified Korteweg-de Vries, Boussinesq and nonlinear
Schr\"odinger equations.

Des Higham spoke on a new model for protein-protein interaction networks. These are typically viewed as large unweighted, undirected graphs that, when analyzed appropriately, may reveal important biological information. Researchers have considered high-level questions, such as ``can we describe these networks in terms of a few parameters?'' and low-level questions such as ``can we identify interesting groups of proteins?''. He described a new graph model that aims to contribute at both levels and presented results for real biological data sets.

Marty Golubitsky rounded off an enjoyable day with a talk on coupled cell models. These are a collection of interacting dynamical systems. Coupled cell models assume that the output from each cell is important and that signals from two or more cells can be compared so that patterns of synchrony can emerge. He asked: How much of the qualitative dynamics observed in coupled cells is the product of network architecture and how much depends on the specific equations? The ideas were illustrated with a number of examples and theorems.

Business meeting :
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The UKIE section president, Nick Trefethen, gave a brief overview of the past year and reminded the members that the post of secretary/treasurer becomes vacant at the end of March 2005 and nominations were solicited. The finances and activities funded in the year including the student prizes presented were reported on.

The next annual meeting will be in January 2007, probably Jan 5, at a venue to be decided although an offer was made from Oxford university.

Finally the SIAM President, Marty Golubitsky, reported from SIAM and in particular called for participation for nodes on the web on "Why Do Maths ?".

Gabriel Lord