

## SIAM UK and Republic of Ireland Section Annual Meeting

University of Reading University  
8<sup>th</sup> January 2013

The 17<sup>th</sup> Annual General Meeting of the SIAM UK & Republic of Ireland Section was held at the University of Reading on the 8<sup>th</sup> of January 2013. The aims of the annual meetings are to present a picture of the diverse and wide-ranging activities in applied and industrial mathematics in the UK and Ireland and to enable discussions between friends and colleagues, as well as to report on the current status of the Section. This year a large audience of over 70 participants attended the meeting, attracted by the excellent programme of speakers.

The proceedings were opened by the current president of the SIAM UKIE Section, Nancy Nichols, from the University of Reading, who chaired the morning session. The first talk was given by Coralia Cartis, from the University of Edinburgh, who spoke on “Optimal Newton-type algorithms for non-convex smooth optimization”, presenting promising new approaches for improving complexity bounds for large scale problems by cubic regularization of Newton’s method. The next talk was given by Arieh Iserles, from the University of Cambridge, on "Computing the Schrödinger equation with no fear of commutators", in which he developed an elegant asymptotic analysis of the linear Schrödinger equation, based in Lie algebra, leading to a practical high-order computational algorithm.

After lunch and a lively poster session, the afternoon talks were chaired by Andy Wathen from the University of Oxford, a founding member along with David Silvester from Manchester, of the SIAM UKIE Section. Speaking first was Franciose Tisseur from the University of Manchester on “An Algorithm for the Complete Solution of Quadratic Eigenvalue Problems”, with a discussion of the important issues in the derivation of a backward stable eigensolver for polynomial eigenvalue problems of arbitrary degree. Clifford Nolan from Limerick continued the programme with a fascinating talk on “Microlocal analysis of radar imaging of a dynamic reflectivity function”, in which he explained imaging techniques for modelling the scattering of electromagnetic waves from a moving object and methods for suppressing artifacts that arise from backprojection techniques.

Following a break for tea and further views of the posters, the final session of the day was chaired by the current vice-president of the Section, Jared Tanner, from the University of Oxford. Our visiting speaker, Sebastian Reich from Potsdam in Germany, described state-of-the-art methods for combining scientific modelling with available data by the simulation of Bayes’ formula in his talk on “Assimilating data into scientific models: An optimal transportation perspective.” Concluding the talks was an exemplary exposition by Endre Süli, from the University of Oxford, on “Navier--Stokes--Fokker--Planck systems: analysis and approximation”, charting a map through the mathematical and computational challenges involved in the approximate solution of the the Fokker--

Planck equation, a high-dimensional, transport-diffusion equation with degenerate diffusion.

In the business meeting, held just before lunch, a brief report on the finances and activities funded in the past year was presented by the secretary and treasurer of the Section, Melina Freitag, from the University of Bath. Membership of the Section has grown to 532 in total, including 268 student members. All members of SIAM residing in the UK and the Republic of Ireland are automatically members of the Section. The growth in Student Chapters has also continued, with three new chapters formed. A very popular and well-attended National Student Chapter Conference was held at the University of Manchester in May, 2012, with support from the Section, and a second national student conference is planned for 2013, to be held at the University of Warwick. Thanks go this year to members of the University of Reading Student Chapter who helped at the Annual Meeting, providing technical assistance and visitor information.

The reciprocal agreement between SIAM and the UK Institute of Mathematics and its Applications was also discussed. This agreement allows for a discounted membership rate of 70% for regular members. Conference fees may also be reduced for members of the reciprocal organizations. During 2012 a first meeting between officers and representatives of the SIAM UKIE Section and the IMA was held to consider additional paths for co-operation. Mutual advertising is one mechanism that was agreed and discussions between the organizations are expected to continue.

The SIAM UKIE Section also provides for student prizes at meetings in the UK and Ireland, which in 2012 and 2013 include the British Applied Mathematics Colloquium, the Biennial Numerical Analysis Conference in Strathclyde, and the Numerical Analysis Summer School in Durham. Requests for support for other meetings and activities are welcomed. The members were also reminded that the posts of president and vice-president of the Section become vacant at the end of March and nominations were solicited. By kind offer, the next annual meeting of the SIAM UKIE Section will be organized by Timo Betcke of University College (UCL) and held in London on Thursday 9<sup>th</sup> January 2014.

*Report by Nancy K Nichols, University of Reading, 2013*