LMS ANNUAL GENERAL MEETING
Friday 11 November 2016
BMA House, Tavistock Square, London WC1H 7JP

Programme – Annual General Meeting, Black Suite

15.00   Opening of the Meeting & Society Business

15.30   **Alan R. Champneys (Bristol)**
Bumps, blips and bulges; the theory of localised pattern formation
This talk will introduce work carried out over the past 20 years or more, starting with work in Bath with John Toland on localised solutions to certain partial differential equations and how they can explain a wide variety of different physical phenomena. One of the key results is the theory of so-called homoclinic snaking, on how an infinity of different stable solutions naturally arise. Applications occur in elastic buckling problems, nonlinear optics, fluid mechanics and plant biology. I shall show how, at least in one spatial dimension, techniques from dynamical systems theory can be used to show existence and qualitative properties of the bumps, blips or bulges. The theory also guides the kind of numerical techniques that can be used to efficiently compute them. More precise mathematical results tend to require an understanding of beyond-all-orders asymptotic methods, which will be described in Jon Chapman's prize-winning talk.

16.30   Coffee/Tea

16.55   Election results

17.00   **S. Jon Chapman (Oxford) – Naylor Lecture**
Asymptotics beyond all orders: the devil's invention?
"Divergent series are the invention of the devil, and it is shameful to base on them any demonstration whatsoever." — N. H. Abel.
The lecture will introduce the concept of an asymptotic series, showing how useful divergent series can be, despite Abel's reservations. We will then discuss Stokes' phenomenon, whereby the coefficients in the series appear to change discontinuously. We will show how understanding Stokes phenomenon is the key which allows us to determine the qualitative and quantitative behaviour of the solution in many practical problems. Examples will be drawn from the areas of surface waves on fluids, crystal growth, dislocation dynamics, localised pattern formation, and Hele-Shaw flow.

18.00   Close of meeting

18.15   Wine reception at BMA House, Paget Suite

The meeting will include the presentation of certificates to all 2016 LMS prizewinners.

The meeting will be followed by a reception as well as the Society's Annual Dinner, which will also be held at BMA House.

For further details about the AGM, please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk)

The cost to attend the dinner is £53 per person. To book, please Carol Chessis by Friday 28th October: AnnualDinner_RSVP@lms.ac.uk