

Toby Wood

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Current Position

Assistant Specialist in Applied Mathematics and Statistics,
Baskin School of Engineering, UCSC

Research Interests

- Current research The dynamics of the solar ‘tachocline’ — angular momentum balance at the interface between the convection zone and radiative interior.
How this balance is affected (and sustained) by a global-scale magnetic field within the radiative interior.
Chemical transport in the Sun and other stars.
- Other interests The role of turbulence in atmospheric dynamics and MHD.
Instabilities in magnetic fields and dynamo processes.
Stellar structure and dynamics.

Publications

- “Confinement of the Sun’s interior magnetic field: some exact boundary-layer solutions”, T. S. Wood & M. E. McIntyre in *Unsolved Problems in Stellar Physics*, Cambridge University Press
<http://www.damtp.cam.ac.uk/user/mem/papers/SQB0/woodmcintyre-preprint.pdf>
- “Confinement of the Sun’s interior magnetic field, with implications for lithium burning”, T. S. Wood & M. E. McIntyre *submitted to the Astrophysical Journal*
- “Confinement of the Sun’s interior magnetic field by laminar magnetostrophic flow”, T. S. Wood & M. E. McIntyre *submitted to the Journal of Fluid Mechanics*

Education and Awards

- Baskin School of Engineering, UCSC**
- June 2010 – present Assistant specialist in Applied Mathematics and Statistics
- Queens’ College, University of Cambridge**
- 2006 – 2010 PhD student in Solar Physics at DAMTP
- 2007 Smith–Knight & Rayleigh–Knight essay prize – Class I
- 2005 – 2006 *Certificate of Advanced Studies in Mathematics*
Part III (With Distinction)
- 2002 – 2005 *BA (Hons) in Mathematics*
Part II (First Class) — Awarded College Exhibition
Part IB (First Class) — Awarded College Exhibition
Part IA (First Class) — Awarded Foundation Scholarship

Conferences and Workshops

2009 “Waves and Instabilities” workshop in Porquerolles, France
2008 Euro MHD, Nice, France
2008 GFD Summer Program, Woods Hole, Massachusetts
2008 UK MHD meeting in Salford, England
2008 British Applied Mathematics Colloquium, Manchester, England
2007 Unsolved Problems in Stellar Physics, Cambridge, England
2007 Heliophysics Summer School at Boulder, Colorado
2007 UK MHD meeting in Newcastle, England
2006 High Powered Computing school at University of St Andrews, Scotland

Seminars

“Magnetic Confinement in the Solar Tachocline” invited seminar at University of Leeds 2009
“The Sun’s Interior Magnetic Field” at Porquerolles 2009
“The Solar Interior: Rotation, Stratification and Magnetic Fields” invited seminar at ENS, Paris 2009
“Problems with Surface Tension” at the Woods Hole GFD program 2008
“Tachocline Confinement of The Sun’s Internal Magnetic Field” at UK MHD 2008
“The Sun’s Interior Magnetic Field” at BAMC 2008
DAMTP Astrophysical Fluid Dynamics group seminar, Cambridge 2007
“Magnetic Confinement in the Solar Interior” at UK MHD 2007
“Spindown of the Solar Interior”, part of the Directions in Research series at Cambridge, 2008
Lead organizer for the 2007 and 2008 Part III Mathematics seminar series

Teaching

Tutoring of 2nd year maths undergraduates in fluid dynamics, electrodynamics and quantum mechanics
Private tutoring of 1st year mathematics in vector calculus

Extra-curricular

President of the Cambridge University Graduate Mathematics Society, 2007/2008

Computing Skills

Programming	C, Perl, Visual Basic, Shell scripting
Systems	\LaTeX , Matlab

July 20, 2010