

European GdR Dynamo

University of Cambridge, September 1 to 4, 2014.

Monday 1 September

- 8:30 – 9:50 Registration at CMS
- 9:50 – 10:20 **INVITED**
Mean Field MHD: Some New Twists
D.W. Hughes
- 10:20 – 10:40 Magnetic field amplification by the magnetorotational instability
in core collapse supernovae
J. Guilet
- 10:40 – 11:00 Dissipative effects on the sustainment of MRI dynamo in Keplerian shear flow
A. Riols
- 11:00 – 11:30 *Coffee/tea (refreshments)*
- 11:30 – 11:50 Azimuthal MRI as a dissipation-induced instability
O. Kirillov
- 11:50 – 12:10 Experimental Results on The Azimuthal MRI - Confirmations and Surprises
M. Seilmayer
- 12:10 – 12:30 The Tayler instability at low magnetic Prandtl numbers
F. Stefani
- 12:30 – 14:00 *Lunch*
- 14:00 – 14:20 Instability of induction-type electromagnetically forced flow
C. Gissinger
- 14:20 – 14:40 Hall MHD in neutron star crusts
T. Wood
- 14:40 – 15:00 Electron-MHD Evolution in Neutron Star Crusts
K.N. Gourgouliatos
- 15:00 – 15:30 *Coffee/tea (refreshments)*
- 15:30 – 16:00 **INVITED**
Interactions in Dynamos at High R_m
S. Tobias
- 16:00 – 16:20 Influence of the Mass Distribution on the Magnetic Field Topology
R. Raynaud
- 16:20 – 16:40 Anelastic dynamo models with variable conductivity - a mean field dynamo?
W. Dietrich
- 16:40 – 17:00 A Dynamo Model of Jupiter's Magnetic Field
C.A. Jones
- 17:00 – 17:20 Magnetism in hot Jupiter Atmospheres
T. Rogers
- 17:20 – 17:40 A wave turbulence theory for rotating MHD and planetary dynamos
S. Galtier

Tuesday 2 September

- 9:30 – 10:00 **INVITED**
Energy transfers in large-scale and small-scale dynamos
M. Verma
- 10:00 – 10:20 Planetary dynamos driven by inertial waves
P.A. Davidson
- 10:20 – 10:40 Transition between viscous dipolar and inertial multipolar dynamos
L. Oruba
- 10:40 – 11:00 Ultra low viscosity dynamos
A. Jackson
- 11:00 – 11:30 *Coffee/tea (refreshments)*
- 11:30 – 11:50 Variational data assimilation for a forced, inertia-free magnetohydrodynamic dynamo model
K. Li
- 11:50 – 12:10 Thermal convection in rotating spherical shells: From travelling waves to chaotic flows.
Ferran Garcia Gonzalez
- 12:10 – 12:30 Interactions between large-scale vortices and magnetic field in rotating convection
C. Guervilly
- 12:30 – 14:00 *Lunch*
- 14:00 – 14:20 Turbulence and dynamo in a librating ellipsoid
B. Favier
- 14:20 – 14:40 Ellipsoidal Dynamos
D. Ivers
- 14:40 – 15:00 Inertial modes & Latitudinal libration in a triaxial ellipsoid
S. Vantieghem
- 15:00 – 15:30 *Coffee/tea (refreshments)*
- 15:30 – 16:00 **INVITED**
Some effects of fluctuations on the dynamo effect
F. Petrelis
- 16:00 – 16:20 Optimal perturbations to trigger kinematic dynamo in 1D shear flows
W. Herreman
- 16:30 – 17:30 **POSTER SESSION**
- Compressible Convection and Dissipation
T. Alboussiere
- Precession driven dynamos in a full sphere
Y. Lin
- Optimization of the Magnetic Dynamo in a Cube
L.C. Long
- Numerical studies of the kinematic evolution of magnetic fields in the Earth's outer core subject to quasi-geostrophic flows
S. Maffei
- Toward a multiscale approach for geodynamo models
F. Marcotte
- SpiNaCH, the upcoming ETH rapidly rotating liquid sodium experiment.
J. Noir
- Towards a von Karman plasma experiment
N. Plihon
- Low frequency and double supply frequency pulsations in annular induction electromagnetic pumps
P. Rodriguez Imazio

Wednesday 3 September

- 9:30 – 10:00 **INVITED**
Dynamo experiments: some results, several open problems
S. Fauve
- 10:00 – 10:20 Numerical study of impeller-driven von Karman flows and dynamo action
via a penalization method
S. Kreuzahler
- 10:20 – 10:40 Instability of electrically-driven MHD flow in a modified cylindrical annulus
Z. Stelzer
- 10:40 – 11:00 Tayler instability in liquid metal columns and in liquid metal batteries
C. Nore
- 11:00 – 11:30 *Coffee/tea (refreshments)*
- 11:30 – 12:00 **INVITED**
Plasma-Based Dynamo Experiments
C.B. Forest
- 12:00 – 12:30 **INVITED**
The self-sustaining process in Taylor-Couette flow
L. Tuckerman
- 12:30 – 14:00 *Lunch*
- 14:00 – 14:20 A spherical Couette experiment to observe inductionless MHD instabilities
at medium Reynolds numbers
E.J. Kaplan
- 14:20 – 14:40 Crystallization processes in turbulent background flows
S. Miralles
- 14:40 – 15:00 Multiphase flow computations with MHD-code SFEMaNS
L. Cappanera
- 15:00 – 15:30 *Coffee/tea (refreshments)*
- 15:30 – 16:00 **INVITED**
Large and Small Scales in Field-Guided MHD Turbulence
J. Mason
- 16:00 – 16:20 Mean flow generation in rotating two-dimensional magnetoconvection
L. Currie
- 16:20 – 16:40 Self-organisation in forced MHD turbulence
V. Dallas
- 16:40 – 17:00 $1/f$ spectrum in MHD turbulence
J. Herault

Thursday 4 September

- 10:00 – 10:20 Structures and Lagrangian statistics of the Taylor-Green Dynamo
Y. Ponty
- 10:20 – 10:40 Exact two-dimensionalization of turbulent flows subject to a strong external magnetic field
B. Gallet
- 10:40 – 11:00 Dynamo action driven by a periodically perturbed Beltrami-flow
A. Giesecke
- 11:00 – 11:30 *Coffee/tea (refreshments)*
- 11:30 – 12:00 **INVITED**
Hybrid Euler-Lagrange methods for the Braginsky dynamo; glm versus GLM
A.M. Soward
- 12:00 – 12:20 Formation of magnetic bipolar structures: state of the art
I. Rogachevskii
- 12:20 – 12:30 *Closing remarks*
- 12:30 – 14:00 *Lunch*