

Frederick Gent – Curriculum Vitae

Aalto University
Department of Computer Science

Email: frederick.gent@aalto.fi
Homepage: <http://fagent.wikidot.com/>

Employment

Aalto University, Department of Computer Science, 01 Apr 2015 – present

Postdoctoral research associate,

Finnish Academy of Science Centre of Excellence, Research of Solar Long Term Variability Effects – MHD convection dynamo

Sheffield University, School of Mathematics and Statistics, 01 Nov 2012 – 31 Mar 2015

Postdoctoral research associate,

Heating of the solar corona – MHD waves

Education

Ph.D. applied mathematics & astrophysics, Newcastle University, 22 Sep 2008 – 20 Nov 2012

Supervisors: Prof. Anvar Shukurov, Dr. Graeme Sarson, Dr. Andrew Fletcher

Examiners: Prof. James Pringle, Dr. Paul Bushby

MMath First, Newcastle University, 26 Sep 2004 – 23 Jun 2008

Master Thesis: Gerbes and their application to magnetic helicity Supervisor: Prof. Ian Moss

Publications

H-index 4 citations 108 (ADS)

The supernova-regulated ISM. I. The multi-phase structure MNRAS, Jun 2013

Gent, F. A.; Shukurov, A.; Fletcher, A.; Sarson, G. R.; Mantere, M. J.

cited 46

The supernova-regulated ISM. II. The mean magnetic field MNRAS, Mar 2013

Gent, F. A.; Shukurov, A.; Sarson, G. R.; Fletcher, A.; Mantere, M. J.

cited 39

Magnetohydrostatic equilibrium. I: Three-dimensional open magnetic flux tube in the stratified solar atmosphere MNRAS, Oct 2013

Gent, F. A.; Fedun, V.; Mumford, S. J.; Erdélyi, R.

cited 11

Magnetohydrostatic equilibrium. II: Three-dimensional multiple open magnetic flux tubes in the stratified solar atmosphere ApJ, June 2014

Gent, F. A.; Fedun, V.; Erdélyi, R.

cited 5

Supernova driven turbulence in the interstellar medium PhD Thesis, Nov 2012

Gent, F. A.

cited 4

The distribution of mean and fluctuating magnetic fields in the multi-phase ISM MNRAS, Jan 2017

Evirgen, C. C.; Gent, F. A.; Shukurov, A.; Fletcher, A.; Bushby, P.

cited 3

The supernova-regulated ISM. V. Space- and time-correlations in supernova driven interstellar medium in print ApJ, Oct 2017

Hollins, J. F.; Sarson, G. R.; Shukurov, A.; Fletcher, A.; Gent, F. A.

cited 2

Galaxies in a box: A simulated view of the interstellar medium Space Sci Rev, May 2012
DOI 10.1007/s11214-011-9781-0
Gent, F. A. cited 2

The supernova-regulated ISM. IV. A comparison of simulated polarization with Planck observations
submitted A&A, Mar 2017
Väisälä, M. S.; Gent, F. A.; Juvela, M.; Käpylä, M. J.

The supernova-regulated ISM. III. Generation of Vorticity, Helicity and mean flows in print A&A,
Oct 2017
Käpylä, M. J. ; Gent, F. A. ; Sarson, G. R. ; Väisälä, M. S.

Long-term variations of turbulent transport coefficients in a solar-like convective dynamo simulation
in print Astro.Nacht., Sep 2017
Gent, F. A.; Käpylä, M. J.; Warnecke, J.

Guest editor

Geophysical & Astrophysical Fluid Dynamics

Referee

Monthly Notices of the Royal Astronomical Society
Astronomy & Astrophysics
Geophysical & Astrophysical Fluid Dynamics
Geofizika Journal

Grant success

STFC Consolidated Grant: multiple flux tube modelling. Apr 2015 3 years
Named RA with PI Prof. R. von Fáy-Siebenburgen, CoI Dr. V. Fedun (SP2RC, Sheffield)

Academy of Finland Centre of Excellence: ReSoLVE. Jan 2017 3 years
Prof. K. Mursula (Oulu University) and CoI Dr. M. Käpylä (dynamo team)

Research Activities

Invited Speaker

Leibniz Institute for Astrophysics Potsdam, Germany 05-Apr-2017:
Supernova driven turbulence - Magnetic field and multiphase structure of the interstellar medium

NORDITA, Nordic Institute for Theoretical Physics, Stockholm, Sweden 01-Feb-2017:
Supernova driven turbulence - Magnetic field and multiphase structure of the interstellar medium

Indian Institute of Astrophysics, Bangalore, India 24-Apr-2014:
Supernova driven turbulence: the galactic dynamo and identifying the mean field in the multi-phase interstellar medium

Indian Institute for Science Education and Research, Pune, India 16-Apr-2014:
Supernova driven turbulence: the galactic dynamo and identifying the mean field in the multi-phase interstellar medium

Inter University Centre for Astronomy & Astrophysics, Pune, India 11-Apr-2014:
Multiple flux tube equilibrium in the lower solar atmosphere

Applied seminar, School of Mathematics & Statistics, Glasgow University, Glasgow, Scotland 21-Feb-2013:

Supernova driven turbulence: the multi-phase structure, magnetic field and dynamo

Inter University Centre for Astronomy & Astrophysics, Pune, India 10-Jul-2012:

Supernova driven turbulence: multi-phase structure and identifying the mean field

Department of Astronomy, Radboud University, Nijmegen, Netherlands 2012-Jun-05:

Multiphase structure and identifying the mean field in the interstellar medium

Recent and highlighted oral presentations

Max-Planck-Princeton Center for Plasma Physics meeting, Greifswald, Germany, 20-Sep-2017

Physics Days 2017, Physics in Society, Helsinki, Finland, 22-Mar-2017

Solarnet IV meeting, Lanzarote, Spain, 16-Jan-2017

Space Climate 6 Symposium, Levi, Finland 08-Apr-2016

India-UK Research Seminar, Nainital, India 28-Mar-2014

International Space Science Institute Workshop Bern Switzerland 04-Mar-2010

UKMHD Conference Sheffield 24-May-2012 – First prize student talk

Recent conferences and workshops attended

MPPC (Max Planck-Princeton) meeting
Greifswald, Germany
19-22 Sep 2017

IAU Symposium 335 Space Weather ...
Exeter University, UK
17-21 Jul 2017

13th Pencil Code User Meeting
Newcastle University, UK
10-14 Jul 2017

Physics Days 2017, Physics in Society
Aalto University, Helsinki, Finland
22-24 Mar 2017

Solarnet IV Meeting, The Physics of the Sun ...
Lanzarote, Spain
16-20 Jan 2017

17th MHD Days
MPS, Göttingen, Germany
30 Nov-2 Dec 2016

Global modelling of the space weather chain
Aalto University, Espoo, Finland
24-28 Oct 2016

12th Pencil Code Meeting
Space Research Institute, Graz, Austria
8-12 Aug 2016

Space Climate 6 Symposium
Levi, Finnish Lapland
4-7 Apr 2016

Recent professional activities

Convenor, CS-Forum guest speaker series, Aalto Dept. of Computer Science 2015-Aug – present

Co-chair 4th ReSoLVE Science Meeting 28-29 Oct 2015

Co-chair NAM2014 UKSP session – "Observation and Modelling of the Dynamic Interface Region"

Recent research visits

Dr. Detlef Elstner, Leibniz Institute for Astrophysics, Potsdam, Germany 3-7 Apr 2017

Dr. Dhrubaditra Mitra & Dr. Lars Mattsson NORDITA, Stockholm, Sweden 30-Jan – 03 Feb 2017

Dynamo Group Max-Planck, Göttingen, Germany 13-21 Mar 2017

MHD Group, Newcastle University, 15-25 Nov 2016

Teaching Experience

Lecturing

Computational Engineering Mathematics (3rd year civil engineers), Semester I 2013 – 14, 2014 – 15
24 hour lectures, 12 hour tutorials, setting & marking the exam and project,
University of Sheffield, School of Mathematics and Statistics.

Marine Statistics (statistics for 1st year marine engineers), Semester II 2011 – 12,
12 hour lectures, 6 hours each minitab & tutorials, setting & marking the exam and coursework,
Newcastle University, School of Mathematics and Statistics.

Numerical Methods (lecture cover for absence to 2nd year engineers), Semester II 2012 – 13,
3 hour lectures, 1 hour tutorial
University of Sheffield, School of Mathematics and Statistics.

Tutorial, marking, computer lab, lead and support as postgrad and postdoc 2008 – present

Supervision

Co-supervision with Dr. Käpylä of Aalto CS masters students April 2016 – present

Co-supervision with Dr. Tammi of Metsähovi Observatory of masters student projects from Sep 2017

Co-supervision with Dr. Käpylä of Helsinki doctoral student April 2015 – present

Co-supervision with Prof. Shukurov of Newcastle doctoral students August 2013 – present

Co-supervision with Dr. Käpylä of Helsinki doctoral student April 2015 – present

Professional affiliations

Member, The Institute of Mathematics and its Applications, 2008 – present.

Member, The Institute of Physics 2009 – present.

Fellow, The Royal Astronomical Society 2010 – present.

Member, The European Physical Society 2014 – present.

Member, The Finnish Physical Society 2017 – present.

References

Robert von Fay-Siebenburgen
Professor of Applied Mathematics and Solar
Physics
University of Sheffield
(+44114) 222 3832
Robertus@sheffield.ac.uk

Anvar Shukurov
Professor of Astrophysical Fluid Dynamics
Newcastle University
(+44191) 222 5398
anvar.shukurov@ncl.ac.uk

Andrew Soward FRS
Emeritus Professor
Exeter University
(+441392) 723664
A.M.Soward@Exeter.ac.uk or
andrew.soward@ncl.ac.uk

Graeme Sarson
Senior Lecturer in Mathematics and Statistics
Newcastle University
(+44191) 222 5375
g.r.sarson@ncl.ac.uk

Andrew Fletcher
Lecturer in Applied Mathematics
Newcastle University
(+44191) 222 7316
andrew.fletcher@ncl.ac.uk

Maarit Käpylä
Research Group Leader, SOLSTAR
Max Planck, Göttingen
(+49 151) 15876515
kapyla@mpg.mps.de

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<http://fagent.wdfiles.com/local-files/nav:side/cv.pdf>