Malcolm Roberts   **Résumé**

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INFORMATION   www.malcolmiwroberts.com

EDUCATION   PhD in Applied Mathematics, **University of Alberta**, 2011
                 MSc in Applied Mathematics, **University of Alberta**, 2006
                 BSc, Honors Applied Mathematics, **University of Alberta**, 2001

WORK HISTORY   Postdoctoral Researcher, **IRMA**, Université de Strasbourg, France, since
                 2014.
                 - Implement a discontinuous Galerkin solver in `OpenCL` to numerically
                   solve general hyperbolic conservation laws using `CPU`s, `GPU`s, and `MIC`s.
                 - Publish articles in peer-reviewed journals and present at conferences.

                 Postdoctoral Researcher, **Laboratoire de M2P2**, Aix-Marseille University, France, 2012 to 2014.
                 - Design software for simulating magneto-hydrodynamic turbulence in a
                   grid computing environment using spectral methods and penalisation.

                 Sessional Lecturer, **University of Alberta**, Canada, 2010.
                 - Lectured differential equations in a team-teaching environment.

                 Graduate Student, **University of Alberta**, Canada, 2003 to 2011.
                 - Develop a coherent research program in applied mathematics.
                 - Publish results in peer-reviewed journals and present at conferences.
                 - Run undergraduate math labs and help sessions.

                 English Teacher, Private Academy, South Korea, 2003 to 2004.

                 Undergraduate Researcher, **University of Alberta**, 1998 to 2000.

PEER-   *Adaptive Matrix Transpose Algorithms for Distributed Multicore Proces-*
REVIEWED   *sors*, with John C. Bowman. Interdisciplinary Topics in Applied Math-
ARTICLES   ematics, Modeling and Computational Science, Springer Proceedings in
                 Mathematics & Statistics 117, 97-103 (2015).

                 Self-organisation of helicaly forced MHD flows in confined cylindrical ge-
                 ometries, with M. Leroy, J. Morales, W. Bos, and K. Schneider. Fluid
                 Dynamics Research, (2014).

                 Multithreaded Implicitly Dealiased Pseudospectral Convolutions, with John
                 C. Bowman. Proceedings of the 20th Annual Conference of the CFD
                 Society of Canada (2012)

Pseudospectral Reduction of Incompressible Two-Dimensional Turbulence, with John C. Bowman. Communications in Nonlinear Science and Numerical Simulation **17:5**, 2008-2013 (2012)

Dealiased Convolutions for Pseudospectral Simulations, with John C. Bowman. Proceedings of the 13th European Turbulence Conference (2011)

Efficient Dealiased Convolutions without Padding, with John C. Bowman. SIAM Journal on Scientific Computing, **33:1**, 386-406 (2011)

Links between dissipation, intermittency, and helicity in the GOY model revisited, with John C. Bowman, Charles R. Doering, Bruno Eckhardt, Jahanshah Davoudi, and Jörg Schumacher. Physica D **218**, 1-10 (2006)

OTHER PUBLICATIONS
Notes for Differential Equations, with S. Marion (2015)

FFTW++: *Fast Fourier Transform C++ Header Class for FFTW3*, with John C. Bowman. fftwpp.sourceforge.net, (2010)

schnaps: *An OpenCL discontinuous Galerkin solver*, with P Helluy et al. schnaps.gforge.inria.fr, (2015)

VOLUNTEERING & COMMITTEES
Thousand Faces Performance Art Festival
- President of the Board 2011 to 2013

PIMS Mathematical and Statistical Graduate Education Round table
- Brought together faculty, students, and administration from seven universities, resulting in new policies and programs being implemented.

Canadian Young Researchers Conference in Mathematics and Statistics
- Organizing Committee (2006, 2008, 2010)

Volunteer Mechanic/Instructor, Edmonton Bicycle Commuter's Association, 2009 to 2013, Collectif Vélos en Ville, 2012 to 2013

University of Alberta Mathematics and Statistics Grad Association
- President 2005 to 2006, Treasurer 2006 to 2007

University of Alberta Math Fair and Math Outreach, 2004 to 2011

TECHNICAL SKILLS
Project management and public speaking.
C++, C, OpenCL, Python, and FORTRAN, using OpenMP and MPI.
Linux scripting, version control systems, grid computing environments.
Data analysis and visualization: LaTeX, Asymptote, HDF, and Paraview.