

## Mark L. MacDonald

MLM@math.ubc.ca  
www.math.ubc.ca/~mlm

*Birth date:* 1 October 1982  
*Nationality:* Canadian

- EDUCATION**
- University of British Columbia, Canada**  
Post-doctoral fellow. Supervisor: Zinovy Reichstein 2008-present
- University of Cambridge, United Kingdom**  
Ph.D. *Cohomological invariants of Jordan algebras*. Supervisor: Burt Totaro 2005-2008  
Masters of Advanced Study in Mathematics 2004-2005
- University of Waterloo, Canada**  
B.Math. Double Major in Pure and Applied Mathematics, Dean's Honours List. 2000-2004
- HONOURS AND AWARDS**
- University of British Columbia, Canada  
Post-doctoral teaching award 2010  
NSERC Post-doctoral fellowship 2009-2011
- University of Cambridge, United Kingdom  
Rayleigh-Knight essay prize 2007  
Cambridge Commonwealth Trust Scholarship 2005-2008  
Overseas Research Studentship 2005-2008  
Corpus Christi Research Scholarship 2005-2008  
NSERC Post-graduate scholarship D (declined) 2005  
NSERC Post-graduate scholarship A (declined) 2004
- University of Waterloo, Canada  
E.T. Davies Memorial Prize 2004  
Mike Vangoch Memorial Award 2004  
NSERC Undergraduate Research Assistant, three consecutive summers 2002-2004  
R.A. Wentzell Memorial Award 2002  
Special K Prize 2001  
Descartes National Scholarship 2000-2004
- Publications**
- M.L. MACDONALD. *Upper bounds for the essential dimension of  $E_7$* , (in preparation).
- M.L. MACDONALD. *Essential  $p$ -dimension of the normalizer of a maximal torus*. Transformation Groups (to appear).
- R. LÖTSCHER, M.L. MACDONALD, A. MEYER, Z. REICHSTEIN. Essential dimension of algebraic tori. *J. Reine Angew. Math.* (to appear).
- M.L. MACDONALD. *Cohomological invariants of Jordan algebras with frames*. *Journal of Algebra*, **323** (2010), 1665–1677.
- M.L. MACDONALD. *Projective homogeneous varieties birational to quadrics*, *Documenta Mathematica* (2009), 47–66.
- M.L. MACDONALD. *Cohomological invariants of odd degree Jordan algebras*. *Math. Proc. Cambridge Philos. Soc.* **145** (2008), no. 2, 295–303.

D.Ž. DJOKOVIĆ and M.L. MACDONALD. *Orthogonal invariants of a matrix of order four and applications*. J Pure Appl. Alg. **202** (2005), 259-283.

CONFERENCES  
AND TALKS

- Conference: *Ramification in Algebra and Geometry* May 2011  
Talk: *Essential  $p$ -dimension of normalizers of maximal tori*  
Emory University, Atlanta, USA.
- Cohomological invariants* April 2011  
University of British Columbia graduate seminar.
- Algebraic groups on étale sites* February 2011  
University of British Columbia graduate seminar.
- Essential  $p$ -dimension of maximal tori and their normalizers* November 2010  
University of British Columbia seminar.
- Simple algebraic groups and their essential dimensions* November 2010  
University of British Columbia seminar.
- Conference: *Workshop on Torsors, Lie algebras and Galois Cohomology* March 2010  
Talk: *Canonical dimension of projective homogeneous varieties*  
University of Ottawa, Canada.
- Canonical dimension of projective homogeneous varieties* March 2010  
University of British Columbia seminar.
- Essential  $p$ -dimension of generic tori* March 2010  
University of British Columbia seminar.
- Conference: *Linear Algebraic Groups and Related Structures* September 2010  
Talk: *Essential  $p$ -dimension of algebraic tori*  
Banff, Canada.
- Conference: *Quadratic Forms and Linear Algebraic Groups* May 2009  
Talk: *Projective homogeneous varieties birational to quadrics*  
Oberwolfach, Germany.
- Chow motives of quadrics* March 2009  
University of British Columbia seminar.
- Introduction to Galois cohomology and cohomological invariants* September 2008  
Two talks in a seminar series, University of British Columbia.
- Chow motives* July 2008  
Graduate seminar, University of Cambridge.
- Conference: *Essential dimension and canonical dimension* June 2008  
Talk: *Essential dimension of Jordan algebras*  
Université d'Artois, Lens, France.
- Essential dimension* October 2007  
Graduate seminar, University of Cambridge.
- Cohomological invariants of Jordan algebras* October 2007  
Departmental seminar. University of Southampton, England.
- Conference: *LMS Workshop on Motives, Quadratic Forms and Algebraic Groups* August 2007  
Queen's University, Belfast.
- Conference: *Linear algebraic groups and cohomology* May 2007  
Emory University, Atlanta, USA.

	<i>Cohomological invariants of G-torsors</i> Graduate seminar, University of Cambridge.	November 2006
	Conference: <i>Quadratic forms</i> Université d'Artois, Lens, France.	June 2006
	Conference: <i>Canadian Undergraduate Mathematics Conference</i> Talk: <i>Trains, Mirrors and the speed of light</i> York University, Canada.	May 2003
	Gave approximately ten undergraduate talks, on various topics. Pure Math Club, University of Waterloo.	2002-2004
<b>Teaching</b>	Supervisor for an undergraduate research student (joint with Z. Reichstein).	2011
	Courses taught, University of British Columbia	
	Differential calculus for scientists and engineers	2011
	Differential calculus for commerce students	2009
	Integral calculus for scientists and engineers	2009
	Volunteer at university-run math education events for school students.	2009-2011
	Instructional Skills Workshop. Completed a week-long teaching course at the University of British Columbia.	2008
	Weekly volunteer assistant in a Grade 7 class at a Vancouver school.	2008
	Teaching assistant for two undergraduate courses. <i>Algebraic topology</i> and <i>Geometry</i> , University of Cambridge.	2006-2007
	Teaching assistant as an assignment marker. Five advanced level algebra courses, University of Waterloo.	2001-2004
<b>Service and other experience</b>	Refereed articles for <i>Springer Developments in Mathematics</i> and <i>Transformation Groups</i>	2010, 2011
	Canadian national mathematics contest grader ( <i>Descartes</i> and <i>Euclid</i> )	2003, 2004, 2009-2011
	University of Cambridge	
	Event organizer for the Graduate Mathematics Society	2005-2008
	Organizer for college events, including a post-graduate seminar series	2006-2008
	Member of college post-graduate committee	2007-2008
	University of Waterloo	
	Talk and event organizer for the Pure Math Club, including two student conferences	2002-2003
	Math Orientation Week Leader	2001-2004
	Undergraduate research positions	
	University of Waterloo. Supervisor: Dragomir Djoković.	May-August 2004
	University of Waterloo. Supervisors: Brian Forrest and Laurent Marcoux.	May-August 2003
	University of Waterloo. Supervisor: Achim Kempf.	May-August 2002
	University of Western Ontario. Supervisor: Dan Christensen.	May-July 2001