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This page is no longer being updated. My current research website is [here](#).

Education

- BSc. Combined Honours in Physics and Mathematics, University of British Columbia (2014)

Research Interests

- Lie Groups and Symmetry Methods for Control of Networks
- Quantum Control
- Controllability of Networked and Distributed Systems
- Spacecraft Trajectory Optimization and Planning
- Spacecraft Radiation Shielding and Radiation Mitigation Methods
- Graph Theory and Combinatorics

Publications

Papers

- Mathias Hudoba de Badyn, Siavash Alemzadeh, Mehran Mesbahi. Controllability and Data-Driven Identification of Bipartite Consensus on Nonlinear Signed Networks. To appear in the Proc. of the 2017 IEEE Conference on Decision and Control.
- Siavash Alemzadeh, Mathias Hudoba de Badyn, Mehran Mesbahi. Controllability and Stabilizability Analysis of Signed Consensus Networks. To appear in the Proc. of the 2017 IEEE Conference on Control Technology and Applications. [arXiv:1707.01964](#)
- Mathias Hudoba de Badyn, Mehran Mesbahi. Large-scale distributed Kalman filtering via an optimization approach. (2017). Proc. of the 2017 IFAC World Congress. [arXiv:1704.03125](#)
- Mathias Hudoba de Badyn, Mehran Mesbahi. [Growing Controllable Graphs via Whiskering and Submodular Optimization](#). (2016) In Proc. of the 55th IEEE Conference on Decision and Control. [arXiv:1609.08733](#).
- Mathias Hudoba de Badyn, Richard Marchand, Richard D. Sydora. Using Orbital Tethers to Remediate Geomagnetic Radiation Belts. (2016) [J. Geophys. Res-Space 121: 1114-1123](#).
- Mathias Hudoba de Badyn, Airlie Chapman, Mehran Mesbahi. [Network Entropy: A System-Theoretic Perspective](#). (2015) In Proc. of the 54th IEEE Conference on Decision and Control, pp. 5512-5517.

- Mathias Hudoba de Badyn, Joanna L. Karczmarek, Philippe Sabella-Garnier, Ken Huai-Che Yeh. Emergent geometry of membranes. (2015) [JHEP 2015:89](#).
- Mathias Hudoba de Badyn, Adam Tahir. Orbital Electromagnetic Field Generators as a Method for Removing Small and Untrackable Space Debris. [AIAA SPACE 2015](#).
- James E. Owen, Mathias Hudoba de Badyn, Cathie J. Clarke, Luke Robins. Characterizing thermal sweeping: a rapid disc dispersal mechanism. (2013) [MNRAS 436 \(2\): 1430-1438](#).

Conference Abstracts

- Mathias Hudoba de Badyn. Algebraic graph theoretic methods in control theory. [2016 Joint Mathematics Meeting](#). (January 2016).
- Mathias Hudoba de Badyn, Richard Marchand, Richard Sydora. The use of orbital tethers to remediate geomagnetic radiation belts. [56th APS DPP Meeting](#). (October 2014).
- Mathias Hudoba de Badyn, James E. Owen, Cathie J. Clarke, Luke Robins. Characterizing thermal sweeping: a rapid disc dispersal mechanism. [APS Pacific Northwest Meeting](#). (May 2014).
- Mathias Hudoba de Badyn. Two methods of determining the critical β of the 2-D Potts model. [Canadian Undergraduate Mathematics Conference](#). (July 2013).
- James E. Owen, Mathias Hudoba de Badyn, Barbara Ercolano, Cathie J. Clarke. Thermal sweeping: a rapid disc dispersal mechanism. [Protostars and Planets VI](#). (July 2013).
- James E. Owen, Mathias Hudoba de Badyn, Luke Robins, Cathie J. Clarke, Barbara Ercolano. The final stages of disc clearing. [Planet Formation and Evolution](#) (Sept. 2012)

Undergraduate Theses

- Mathias Hudoba de Badyn. On the Hilbert-Pólya and Pair Correlation Conjectures. [UBC ciRcle Archive](#) (January 1, 2014)
- Mathias Hudoba de Badyn. Born-Infeld Action Geometries. [UBC ciRcle Archive](#). (May 1, 2014)

Awards

- NSERC Alexander Graham Bell Canada Graduate Scholarship - Doctoral (Offered); NSERC Postgraduate Scholarship - Doctoral (Held, 2017)
- Conference on Decision and Control Travel Award (2016)
- Dean's Fellowship, Faculty of Engineering at the University of Washington (2014). Comprised of:
 - ? Alfred & Geraldine Cohn Fellowship
 - ? Louis & Katherine Marsh Fellowship
 - ? Max E. Gellert Fellowship
- American Physical Society Department of Plasma Physics Travel Grant (2014)
- John Collison Memorial Scholarship in Mathematics and Aeronautics, University of British Columbia (2014)
- University Physics Contest, Bronze Medal (2013)
- Walter Gage Memorial Grant (2013)

- University of Alberta Research Experience Grant in Space & Plasma Physics (2013)
- Summer Student Grant, Canadian Institute for Theoretical Astrophysics (2012)
- Seanna and Nicole Strongman Memorial Scholarship (2010)
- President's Entrance Scholarship, University of British Columbia (2010)
- Pacific Institute for the Mathematical Sciences Prize, GVRSF (2010)
- Bronze + Silver Medal, Senior Physics and Mathematics, GVRSF (2009-2010)
- Fermat, Cayley and Euclid Medals. University of Waterloo Mathematics Contests (2008-2010)