

# Curriculum Vitae: Nils Deppe

## Contact Information

Website <http://nilsdeppe.com>  
 GitHub <https://github.com/nilsdeppe/>

## Education

2014-present Cornell University (CU), Ithaca, NY, USA: **PhD Physics**  
 2009-2014 The University of Winnipeg (UWinnipeg), Winnipeg, MB, Canada: **B.Sc. in mathematical physics**, honours

## Research Experience

2015-present **Graduate Research Assistant**, CU, advisor: Saul Teukolsky, Development of SpECTRE, an exascale relativistic astrophysics code, Gravitational collapse in 3+1D general relativity, and Gravitational collapse in anti-de Sitter spacetime  
 May-Aug 2014 NSERC **Undergraduate Student Research Award**, UWinnipeg, advisor: Gabor Kunstatter, Gravitational collapse in anti-de Sitter spacetime  
 Sept 13 - Apr 14 **Undergraduate honours thesis**, UWinnipeg, advisors: Gabor Kunstatter, Murray Alexander, On the initial value problem of general relativity  
 Sept 13-Apr 14 **Research Assistant**, UWinnipeg, advisor: Gabor Kunstatter, Critical collapse in higher dimensional General Relativity, Einstein-Gauss-Bonnet gravity and anti-de Sitter space-times  
 May-Aug 2013 NSERC **Undergraduate Student Research Award**, UWinnipeg, advisor: Gabor Kunstatter, Critical collapse in higher dimensional General Relativity, Einstein-Gauss-Bonnet gravity and anti-de Sitter space-times  
 Sept 12-Apr 13 **Research Assistant**, UWinnipeg, advisor: Gabor Kunstatter, Adaptive mesh refinement for coupled hyperbolic partial differential equations  
 May-Aug 2012 NSERC **Undergraduate Student Research Award**, UWinnipeg, advisor: Gabor Kunstatter, Critical collapse in Einstein-Gauss-Bonnet gravity in five and six dimensions

## Teaching Experience

Aug-Dec 2014 Teaching assistant, Cornell University: PHYS 2213 heat & electromagnetism  
 May-Aug 2013 Student Research Assistant Mentor, UWinnipeg, Mentor of student working in physics department  
 Jan-Apr 2013 Student Research Assistant Mentor, UWinnipeg, Mentor of collaborator's student at the University of Waterloo  
 2011-2014 Teaching Assistant, UWinnipeg, intro to physics lab, mathematical physics I & II, quantum mechanics I

## Grants, Awards and Honour

2015-2018 NSERC **Postgraduate Scholarship** - Doctoral Program  
 2017 Cornell University Graduate School Travel Grant  
 2016 XSEDE International High Performance Computing Summer School Full Funding  
 2015 Fields Institute Funding for Focus Week Workshop  
 2014 Golden Key Undergraduate Student Achievement Award  
 2014 McKenzie King Open Scholarship - Partial Award  
 2014 The University of Winnipeg Students' Association Travel Award

2014	The University of Winnipeg Gold Medal in Physics
2014	The University of Winnipeg O.T. Anderson Award
2014	NSERC <b>Canadian Graduate Scholarship</b> - Master's Program - declined
2014	NSERC <b>Undergraduate Student Research Award</b>
2014	The University of Winnipeg Undergraduate Student Research Travel Grant (Maximum Amount)
2013	Duckworth Scholarship in Physics
2013	Sir William Stephenson Scholarship
2013	Dean's Honour List, Student of Highest Distinction
2013	Canadian Association of Physicists, Division of Theoretical Physics Best Student Oral Presentation Award, Second Prize
2013	The University of Winnipeg Undergraduate Student Research Travel Grant (Maximum Amount)
2013	NSERC <b>Undergraduate Student Research Award</b>
2012	NSERC <b>Undergraduate Student Research Award</b>

### Professional Societies

2015-present	American Physical Society
2013-present	Golden Key International Honour Society
2012-present	Canadian Association of Physicists (CAP)

### Publications

Peer-reviewed	Lawrence E. Kidder et al. SpECTRE: A Task-based Discontinuous Galerkin Code for Relativistic Astrophysics. <i>J. Comput. Phys.</i> , 335:84–114, 2017.
	Nils Deppe, Allison Kolly, Andrew R. Frey, and Gabor Kunstatter. Black Hole Formation in AdS Einstein-Gauss-Bonnet Gravity. <i>JHEP</i> , 10:087, 2016.
	Nils Deppe and Andrew R. Frey. Classes of Stable Initial Data for Massless and Massive Scalars in Anti-de Sitter Spacetime. <i>JHEP</i> , 12:004, 2015.
	Nils Deppe, Allison Kolly, Andrew Frey, and Gabor Kunstatter. Stability of AdS in Einstein Gauss Bonnet Gravity. <i>Phys. Rev. Lett.</i> , 114:071102, 2015.
	N. Deppe, C. D. Leonard, T. Taves, G. Kunstatter, and R. B. Mann. Critical Collapse in Einstein-Gauss-Bonnet Gravity in Five and Six Dimensions. <i>Phys. Rev.</i> , D86:104011, 2012.
In Preparation	Brad Cownden, Nils Deppe, and Andrew R. Frey. Phase Diagram of Stability for Massive Scalars in Anti-de Sitter Spacetime.
	Nils Deppe. On the stability of anti-de Sitter spacetime.
Software	Simulating eXtreme Spacetimes Collaboration. SpECTRE:An Exascale Relativistic Astrophysics and Multiphysics Code. <a href="https://github.com/sxs-collaboration/spectre">https://github.com/sxs-collaboration/spectre</a>
	N. Deppe. tuples: A high-performance, C++ standards compliant tuple implementation. <a href="https://github.com/nilsdeppe/tuples">https://github.com/nilsdeppe/tuples</a>
	N. Deppe. gtools: A graphing plugin for excel. <a href="http://ion.uwinnipeg.ca/~iburley/physics-lab-web/">http://ion.uwinnipeg.ca/~iburley/physics-lab-web/</a> , Mar 2011.
Lab Manuals	N. Deppe. Foundations of Physics II Instructors Lab Manual PHYS. 2303/6. University of Winnipeg, Department of Physics, August 2011.

S. Klassen and N. Deppe. Foundations of Physics II Lab Manual PHYS. 2303/6. University of Winnipeg, Department of Physics, August 2011.

### Conference Presentations

- Jun 2017 Eastern Gravity Meeting, Pennsylvania State University, “Critical Collapse of a Massless Scalar Field in 3+1D General Relativity”
- Apr 2017 15th Annual Charm++ Workshop, University of Illinois Urbana-Champaign, “SpECTRE: A Next-Generation Relativistic Astrophysics Code”
- Jun 2014 Canadian Association of Physicists Annual Congress, Laurentian University, “Critical Phenomena in Higher Dimensional Gravity Using Adaptive Mesh Refinement”
- May 2014 Canadian Conference for General Relativity and Relativistic Astrophysics, University of Winnipeg, “Critical Phenomena in Higher Dimensional Gravity Using Adaptive Mesh Refinement”
- Aug 2013 Winnipeg Institute for Theoretical Physics Summer Symposium, University of Winnipeg, “Adaptive Mesh Refinement for Constrained 1D Hyperbolic Systems”
- Jun 2013 16th Eastern Gravity Meeting, University of Toronto, “Gravitational Collapse in Higher Dimensional Lovelock Gravity”
- May 2013 Canadian Association of Physicists Annual Congress, Université de Montréal, “Gravitational Collapse in Higher Dimensional Lovelock Gravity”
- May 2013 Theory Canada 8 Conference, Université de Sherbrooke, “Gravitational Collapse in Higher Dimensional Lovelock Gravity”
- Oct 2012 Canadian Undergraduate Physics Conference, University of British Columbia, “Critical Phenomena in Einstein-Gauss-Bonnet Gravity”
- Aug 2012 Winnipeg Institute for Theoretical Physics Summer Symposium, University of Winnipeg, “Critical Phenomena in Einstein-Gauss-Bonnet Gravity”
- Aug 2012 3rd Conference of the CPTPN, First Nations University, “Critical Phenomena in Einstein-Gauss-Bonnet Gravity”

### Invited Seminars, Conference Talks and Colloquia

- Jun 2015 Fields Institute, University of Toronto, Black Hole Stability Focus Week, “Two-Mode Data and Massive Scalars in AdS”
- Jun 2015 University of Michigan “(In)stability of Anti-de Sitter Spacetime”
- Jun 2013 University of Waterloo “Gravitational Collapse in Lovelock Gravity Using Adaptive Mesh Refinement”

### Volunteer Work

- 2012-2014 Let’s Talk Science and University of Winnipeg Physics Department, Science Rendezvous, Demonstrator and In Costume Volunteer
- 2012-2014 Let’s Talk Science, Demonstrator
- 2011-2014 Volunteer Note Taker, Accessibility Services UWinnipeg
- 2011-2014 University of Winnipeg Physics Students’ Association, Co-President & Fundraiser Organization