

Sarah Nickerson

Ph.D. in Astrophysics, University of Zürich

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Nationality: Canadian

Education

- 2010-2018: Ph.D. at the University of Zürich, computational astrophysics
Beauty Out of Darkness: a New Model for Molecular Hydrogen in Galaxy Simulations
- 2008-2010: M.Sc. at McMaster University, computational astrophysics
Shedding Light on Dark Satellites
- 2003-2008: B.Sc. at the University of Toronto with High Distinction, double specialist in physics and astrophysics

Research Experience

- 2010-2018: Implementing non-equilibrium molecular hydrogen chemistry in galaxy-scale hydrodynamical simulations with radiative transfer
Institute for Computational Science, University of Zürich
Supervised by Professor Romain Teyssier
- 2008-2010: Solving the missing satellite problem in a cosmological context
McMaster University, Department of Physics and Astronomy
Supervised by Professor Hugh Couchman and Dr. Greg Stinson
- 2007- 2008: Modelling the Giant Southern Stream in the Andromeda Galaxy
Department of Astronomy and Astrophysics, University of Toronto
Supervised by Professor John Dubinski
- 2008: Correlating ice core measurements to climate in the Gulf of Alaska
Department of Physics, University of Toronto
Supervised by Professor G. W. Kent Moore
- 2007: How dark matter satellites provoke galactic structure
Department of Astronomy and Astrophysics, University of Toronto
Supervised by Professor John Dubinski
- 2006: The classification of airplane emissions in the Earth's tropopause
Centre for Global Change Science, University of Toronto
Supervised by Profs. Theodore Shepherd and Michaela Hegglin
- 2005: The mystery of young, stellar miniclusters in the Galactic Centre
Canadian Institute for Theoretical Astrophysics
Supervised by Professor Yuri Levin

Conferences and Workshops

- 2018: *Speaker*, Ramses User Meeting, Lyon
Poster, Forum on Gas in Galaxies, Beijing
- 2017: International Conference on Computational Science, Zürich
- 2013: UC-HiPACC International Summer School, Santa Cruz
Speaker Ramses Users Meeting, Zürich
Poster Radiative Transfer Treatments, Leiden
- 2012: *Poster* Galactic Scale Star Formation, Heidelberg
Poster Gas Flows in Galaxies, Baltimore
Speaker New Horizons in Computational Astrophysics, Davos
- 2011: Parallel Programming Summer School, Manno
Speaker Advances in Computational Astrophysics, Cefalù
- 2010: The Wengen 2 Workshop, Wengen
Speaker The 10th Great Lakes Cosmology Workshop, Chicago
Speaker The Canadian Astronomical Society conference, Halifax
- 2009: *Speaker* Extreme Star Formation in Dwarf Galaxies, Ann Arbor
Poster The Canadian Astronomical Society conference, Toronto

Scholarships and Awards

- 2017-2018: University of Zürich Candoc scholarship
- 2010-2015: Swiss National Science Foundation research scholarship
- 2009: Best poster at the CASCA conference
- 2008- 2010: Departmental Scholarships at McMaster University
- 2008: Royal Astronomical Society of Canada Gold Medal
Trinity College Scholar
- 2007: Natural Sciences and Engineering Research Council of Canada
- 2006: Centre for Global Change Science scholarship
- 2005: Natural Sciences and Research Engineering Council of Canada
- 2004: Chancellor's Scholarship from Trinity College
- 2003: Elliott Scholarship from Trinity College

Teaching Experience

- 2011-2013: University of Zürich, teaching assistant in math and computer science
- 2008-2010: McMaster University, teaching assistant in physics

Computational Experience

Fortran, IDL, Python, Latex, Linux, Shell Scripting, High Performance Computing, C, C++, HTML, Visual Basic, MatLab, Maple, Mathematica, Java

Refereed Publications

Nickerson, Sarah; Teyssier, Romain; Rosdahl, Joakim, *The complete census of molecular hydrogen in a simulated disc galaxy*, arXiv:1809.01657, submitted to Monthly Notices of the Royal Astronomical Society

Nickerson, Sarah; Teyssier, Romain; Rosdahl, Joakim, *A simple model for molecular hydrogen chemistry coupled to radiation hydrodynamics*, 2018, Monthly Notices of the Royal Astronomical Society, 479, 3206

Butler, Michael J.; Tan, Jonathan C.; Teyssier, Romain; Rosdahl, Joakim; Van Loo, Sven; **Nickerson, Sarah**, *Kiloparsec-scale Simulations of Star Formation in Disk Galaxies. IV. Regulation of Galactic Star Formation Rates by Stellar Feedback*, 2017, The Astrophysical Journal, 841, 82B

Kim, Ji-hoon; Agertz, Oscar; Teyssier, Romain; Butler, Michael J.; Ceverino, Daniel; Choi, Jun-Hwan; Feldmann, Robert; Keller, Ben W.; Lupi, Alessandro; Quinn, Thomas; Revaz, Yves; Wallace, Spencer; Gnedin, Nickolay Y.; Leitner, Samuel N.; Shen, Sijing; Smith, Britton D.; Thompson, Robert; Turk, Matthew J.; Abel, Tom; Arraki, Kenza S.; Benincasa, Samantha M.; Chakrabarti, Sukanya; DeGraf, Colin; Dekel, Avishai; Goldbaum, Nathan J.; Hopkins, Philip F.; Hummels, Cameron B.; Klypin, Anatoly; Li, Hui; Madau, Piero; Mandelker, Nir; Mayer, Lucio; Nagamine, Kentaro; **Nickerson, Sarah**; O'Shea, Brian W.; Primack, Joel R.; Roca-Fàbrega, Santi; Semenov, Vadim; Shimizu, Ikkoh; Simpson, Christine M.; Todoroki, Keita; Wadsley, James W.; Wise, John H., *The AGORA High-resolution Galaxy Simulations Comparison Project. II. Isolated Disk Test*, 2016, The Astrophysical Journal, 833, 202

Nickerson, S.; Stinson, G.; Couchman, H. M. P.; Bailin, J.; Wadsley, J., *The luminosity function of diverse satellite galaxy systems*, 2013, Monthly Notices of the Royal Astronomical Society, 429, 452

Nickerson, S.; Stinson, G.; Couchman, H. M. P.; Bailin, J.; Wadsley, J., *Mechanisms of baryon loss for dark satellites in cosmological smoothed particle hydrodynamics simulations*, 2011, Monthly Notices of the Royal Astronomical Society, 415, 257

Stinson, G. S.; Bailin, J.; Couchman, H.; Wadsley, J.; Shen, S.; **Nickerson, S.**; Brook, C.; Quinn, T., *Cosmological galaxy formation simulations using smoothed particle hydrodynamics*, 2010, Monthly Notices of the Royal Astronomical Society, 408, 812

Conference Proceedings

Nickerson, S.; Stinson, G.; Couchman, H. M. P.; Bailin, J.; Wadsley, J., *Dark Satellites: How They Lost Their Baryons*, 2012, Astronomical Society of the Pacific Conference Proceedings, 453, 305

Dubinski, John; Gauthier, Jean-Rene; Widrow, Larry; **Nickerson, Sarah**, *Spiral and bar instabilities provoked by dark matter satellites*, 2008, Astronomical Society of the Pacific Conference Proceedings, 396, 321

Literary Publications

As S. L. Nickerson:

The Queen in the Poplar Forest, April 2015, Tesseract 18

Only the Loons Know, Winter 2014, Pulp Literature

Bone Deep, September 2014, Interzone

Blessings by the Shade, Winter 2013, The Colored Lens

The Crocus and the Clocktower, Fall 2011, Kaleidotrope

The Planet Hunters, April 2010, Analog: Science Fiction and Fact

Poetry, Issue 13, The Prairie Journal of Canadian Literature

References

Professor Romain Teyssier
Institute for Computational Science
University of Zürich
romain.teyssier (at) uzh.ch

Professor Hugh Couchman
Department of Physics and Astronomy
McMaster University
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Dr. Joakim Rosdahl
Centre de Recherche Astrophysique de Lyon
University of Lyon
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