

# Jacob B. Simon

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## RESEARCH INTERESTS

**Protoplanetary Disks:** Turbulence, Accretion Processes, Planet Formation  
**Planetary Science:** Planetesimal and Planet Formation, Asteroids, KBOs  
**Exoplanets:** Formation, Evolution, Dynamics  
**Compact Objects:** Accretion Physics, MHD Turbulence  
**Computational Astrophysics:** Magnetohydrodynamics, Godunov Schemes, Grid Codes, Particle-Mesh Methods

## EDUCATION

**University of Virginia**, Charlottesville, VA  
Ph.D., Astrophysics August 2010  
M.S., Astronomy May 2006

**University of Illinois**, Champaign-Urbana, IL  
B.S., Physics May 2004  
Minors in Astronomy & Mathematics  
Magna Cum Laude  
Highest Distinction in the Curriculum

## POSITIONS

Assistant Professor, Iowa State University Fall 2019-present

Senior Research Associate, University of Colorado & Visiting Scientist at Southwest Research Institute 2016-2019

NASA Sagan Fellow, Southwest Research Institute 2013-2016

JILA Postdoctoral Research Fellow 2010-2013

NESSF Graduate Research Fellow, University of Virginia 2008-2010

Graduate Research Assistant, University of Virginia 2004-2008

Undergraduate Research Assistant, University of Illinois 2000-2004

## HONORS, AWARDS, GRANTS

**Fellowships:**

- NASA Sagan Fellowship (\$300,837) 2013
- NASA Earth and Space Science Fellowship (\$60,000) 2008
- Virginia Space Grant Consortium Fellowship (\$10,000) 2008

**Research Grants:**

- PI: NASA Emerging Worlds 2018 “Planetesimal Formation in the Protosolar Disk: The Influence of Turbulence”  
(Award amount: \$394,000)
- PI: NASA Emerging Worlds 2017 “Pebbles to Planets: The Role of Pressure Traps”

- (Award amount: \$484,000)
- Co-I: NASA ATP 2017 “Magnetic Fields and Self-Gravity in Early Protostellar Disks”  
(Award amount: \$453,000)
- Co-I: NASA TCAN 2017 “Origin of the Giant Planet Dichotomy: Multi-scale Modeling of Planetary Envelope Accretion”  
(Award amount: \$1,497,749)

**Computing Grants:**

- PI: XSEDE Supercomp. Allocation, 2019-2020, 13 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2018, 24.5 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2016-17, 2.3 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2015-16, 10.4 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2014-15, 3.1 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2013-14, 15.3 Million CPU-Hours
- PI: XSEDE Supercomp. Allocation, 2012-13, 19.1 Million CPU-Hours
- PI: Janus Supercomputing Allocation, 2014, 2.85 Million CPU-Hours
- PI: Janus Supercomputing Allocation, 2013, 5.2 Million CPU-Hours
- Co-I: XSEDE Supercomputing Allocation, 2011-12, 6.1 Million CPU-Hours
- Co-I: XSEDE Supercomputing Allocation, 2010-11, 9 Million CPU-Hours

**Observing Grants:**

- Co-I: ALMA Cycle 7, “Protoplanetary Disk Magnetic Fields from the Zeeman Effect”
- Co-I: ALMA Cycle 6, “Constraining the Vertical and Radial Structure of the Turbulence around DM Tau”
- Co-I: ALMA Cycle 2, “ A 3-Dimensional View of Protoplanetary Disk Turbulence”

**Other:**

- University of Illinois James Scholar 2000-2004
- University of Illinois Dean’s List 2000-2004
- National Society of Collegiate Scholars

**RESEARCH  
ADVISING**

**Current:**

- Daniel Carrera (Postdoctoral Associate) 2019-present
- Matthew Small (Ph.D. student) 2019-present
- David Rea (Ph.D. student) 2019-present
- Drew Thomas (Undergraduate student) 2019-present

**Past:**

- Lia Hankla (Ph.D. student) 2018-2019
- Charles Abod (Undergraduate student) 2017-2019
- Daniel Gole (Ph.D. student) 2014-2019
- Greg Salvesen (Ph.D. student) 2010-2016

**TEACHING  
EXPERIENCE**

**Iowa State University**

- Computational Physics Spring 2020

**Instructor, University of Colorado**

- Introduction to Astrophysics, Guest Lecturer Fall 2018
- Origin and Evolution of Planetary Systems, Guest Lecturer Fall 2016, 2018
- Radiative and Dynamical Processes Fall 2013

– High Energy Astrophysics Seminar Spring 2011

**Head Teaching Assistant, University of Virginia**

– Undergraduate Astronomy for Majors Spring 2009

**Teaching Assistant, University of Virginia**

– Introduction to the Sky and Solar System 2004-2006  
– Introduction to the Stars, Galaxies, and the Universe 2004-2006  
– Introduction to Astronomical Observation Spring 2005  
– Archeo-Astronomy Fall 2004

**OUTREACH**

Simulations featured in planetarium show “Incoming!” 2016  
by the California Academy of Sciences  
University of Virginia Astronomy Public Night Tour Guide 2004-2010  
Lecturer: Jefferson Institute for Lifelong Learning 2007  
KidVention Program: Solar system science for grade school children 2006

**COMPUTING**

**Numerical Methods:**

– Numerical Magnetohydrodynamics  
– Grid codes: Finite Differencing, Finite Volume, Godunov schemes  
– Particle-Mesh methods & Coupled Hydro-Particle integration  
– Numerical solutions to Poisson’s equation

**High Performance Computing:**

– MPI parallelization up to 100,000 cores  
– Scalability and benchmarking up to 100,000 cores  
– Experience with numerous national level (e.g., NSF XSEDE) supercomputers  
– Experience with University-scale computing clusters

**Codes:** ATHENA++, ATHENA, PLUTO, ZEUS, RADMC-3D, LIME

**Languages:** Fortran 90/95, C, Python, IDL

**PROFESSIONAL SERVICES**

Referee for ApJ  
Referee for MNRAS  
Referee for Icarus  
Referee for Science  
Review Panelist for NASA  
Review Panelist for NSF  
Review Panelist for XSEDE  
CASA/JILA Lunch Seminar Chair 2011-2013  
University of Virginia Astronomy Journal Club Founder 2008  
University of Virginia Astronomy Graduate Representative 2007-2008  
University of Virginia Astronomy Computing Policy Committee 2006-2010

**MEMBERSHIPS**

American Astronomical Society  
National Society of Collegiate Scholars  
Phi Beta Kappa Society

## Journal Articles

- Gole, Daniel A., **Simon, Jacob B.**, Li, Rixin, Youdin, Andrew N., Armitage, Philip J., “Turbulence Regulates the Rate of Planetesimal Formation via Gravitational Collapse”, submitted to ApJ.
- Mishra, Bhupendra, Begelman, Mitchell C., Armitage, Philip J., **Simon, Jacob B.** “Strongly magnetized accretion disks: structure and accretion from global magnetohydrodynamic simulations”, 2020 MNRAS, 492, 1855-1868
- Li, Rixin, Youdin, Andrew N., **Simon, Jacob B.**, “Demographics of Planetesimals Formed by the Streaming Instability”, 2019, ApJ, 885, 69-85
- Abod, Charles P., **Simon, Jacob B.**, Li, Rixin, Armitage, Philip J., Youdin, Andrew N., Kretke, Katherine A. “The Mass and Size Distribution of Planetesimals Formed by the Streaming Instability. II. The Effect of the Radial Pressure Gradient”, 2019, ApJ, 883, 192-208
- Nesvorný, David, Li, Rixin, Youdin, Andrew N., **Simon, Jacob B.**, Grundy, William M. “Trans-Neptunian Binary Evidence for Planetesimal Formation by the Streaming Instability”, 2019, Nature Astronomy, Vol. 3, 808-812
- Gole, Daniel A., **Simon, Jacob B.** “The Nature of Turbulence in the Outer Regions of Protoplanetary Disks”, 2018, ApJ, 869, 84-95
- **Simon, Jacob B.**, Bai, Xue-Ning, Flaherty, Kevin M., Hughes, A. Meredith “Origin of Weak Turbulence in the Outer Regions of Protoplanetary Disks”, 2018, ApJ, 865, 10-20
- Li, Rixin, Youdin, Andrew N., **Simon, Jacob B.**, “On the Numerical Robustness of the Streaming Instability: Particle Concentration and Gas Dynamics in Protoplanetary Disks”, 2018, ApJ, 862, 14-30
- Flaherty, Kevin M., Hughes, A. Meredith, Teague, Richard, **Simon, Jacob B.**, Andrews, Sean M., Wilner, David J. “Turbulence in the TW Hya Disk”, 2018, ApJ, 856, 117-129
- **Simon, Jacob B.**, Armitage, Philip J., Youdin, Andrew N., Li, Rixin “Evidence for Universality in the Initial Planetesimal Mass Function”, 2017, ApJL, 847, L12-L17
- Flaherty, Kevin M., Hughes, A. Meredith, Rose, Sanaea, **Simon, Jacob B.**, Qi, Chunhua, Rosenfeld, Katherine A., Andrews, Sean M., Kóspál, Ágnes, Wilner, David J., Chiang, Eugene, Armitage, Philip J., Bai, Xue-Ning “A Three-Dimensional View of Turbulence: Constraints on Turbulent Motions in the HD 163296 Protoplanetary Disk using DCO<sup>+</sup>”, 2017, ApJ, 843, 150-169
- Armitage, Philip J., Eisner, Josh A., **Simon, Jacob B.** “Prompt Planetesimal Formation Beyond the Snow Line”, 2016, ApJL, 828, L2-L6
- **Simon, Jacob B.** “The Influence of Magnetic Field Geometry on the Formation of Close-In Exoplanets”, 2016, ApJL, 827, L37-L41
- Gole, Daniel A., **Simon, Jacob B.**, Lubow, Stephen H., Armitage, Philip J., “Turbulence, Transport and Waves in Ohmic Dead Zones”, 2016, ApJ, 826, 18-30
- **Simon, Jacob B.**, Armitage, Philip J., Li, Rixin, Youdin, Andrew N. “The Mass and Size Distribution of Planetesimals Formed by the Streaming Instability. I. The Role of Self-Gravity”, 2016, ApJ, 822, 55-72
- Salvesen, Greg, Armitage, Philip J., **Simon, Jacob B.**, Begelman, Mitchell C., “Strongly magnetized accretion discs require poloidal flux”, 2016, MNRAS, 460, 3488-3493

- Salvesen, Greg, **Simon, Jacob B.**, Armitage, Philip J., Begelman, Mitchell C., “Accretion disc dynamo activity in local simulations spanning weak-to-strong net vertical magnetic flux regimes”, 2016, MNRAS, 457, 857-874
- **Simon, Jacob B.**, Lesur, Geoffroy, Kunz, Matthew W., Armitage, Philip J., “Magnetically driven accretion in protoplanetary discs”, 2015, MNRAS, 454, 1117-1131
- Flaherty, Kevin M., Hughes, A. Meredith, Rosenfeld, Katherine A., Andrews, Sean M., Chiang, Eugene, **Simon, Jacob B.**, Kerzner, Skylar, Wilner, David J. “Weak Turbulence in the HD 163296 Protoplanetary Disk Revealed by ALMA CO Observations”, 2015, ApJ, 813, 99-119
- **Simon, Jacob B.**, Hughes, A. Meredith, Flaherty, Kevin M., Bai, Xue-Ning, Armitage, Philip J., “Signatures of MRI-Driven Turbulence in Protoplanetary Disks: Predictions for ALMA Observations”, 2015, ApJ, 808, 180-199
- **Simon, Jacob B.**, Armitage, Philip J., “Efficiency of Particle Trapping in the Outer Regions of Protoplanetary Disks”, 2014, ApJ, 784, 15-21
- Salvesen, Greg, Beckwith, Kris, **Simon, Jacob B.**, O’Neill, Sean M., Begelman, Mitchell C., “Quantifying energetics and dissipation in magnetohydrodynamic turbulence”, 2014, MNRAS, 438, 1355-1376
- Armitage, Philip J., **Simon, Jacob B.**, Martin, Rebecca G., “Two Timescale Dispersal of Magnetized Protoplanetary Disks”, 2013, ApJL, 778, L14-L18
- **Simon, Jacob B.**, Bai, Xue-Ning, Armitage, Philip J., Stone, James M., Beckwith, Kris, “Turbulence In the Outer Regions of Protoplanetary Disks. II. Strong Accretion Driven by a Vertical Magnetic Field”, 2013, ApJ, 775, 73-85
- **Simon, Jacob B.**, Bai, Xue-Ning, Stone, James M., Armitage, Philip J., Beckwith, Kris, “Turbulence In the Outer Regions of Protoplanetary Disks. I. Weak Accretion with No Vertical Magnetic Flux”, 2013, ApJ, 764, 66-81
- Forgan, Duncan, Armitage, Philip J., **Simon, Jacob B.**, “Turbulent Linewidths as a Diagnostic of Self-Gravity in Protostellar Discs”, 2012, MNRAS 426, 2419-2426
- **Simon, Jacob B.**, Beckwith, Kris, Armitage, Philip J., “Emergent Mesoscale Phenomena in Magnetized Accretion Disc Turbulence”, 2012, MNRAS, 422, 2685-2700
- **Simon, Jacob B.**, Armitage, Philip J., Beckwith, Kris, “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, 2011, ApJ, 743, 17-25
- Beckwith, Kris, Armitage, Philip J., **Simon, Jacob B.**, “Turbulence in Global Simulations of Magnetized Thin Accretion Disks”, 2011, MNRAS, 416, 361-382
- **Simon, Jacob B.**, Hawley, John F., Beckwith, Kris, “Resistivity-driven State Changes in Vertically Stratified Accretion Disks”, 2011, ApJ, 730, 94-113
- Zhu, Zhaohuan, Hartmann, Lee, Gammie, Charles F., Book, Laura G., **Simon, Jacob B.**, Engelhard, Eric, “Long-term Evolution of Protostellar and Protoplanetary Disks. I. Outbursts”, 2010, ApJ, 713, 1134-1142
- **Simon, Jacob B.**, Hawley, John F., “Viscous and Resistive Effects on the MRI with a Net Toroidal Field”, 2009, ApJ, 707, 833-843
- **Simon, Jacob B.**, Hawley, John F., Beckwith, Kris, “Simulations of Magnetorotational Turbulence with a Higher-Order Godunov Scheme”, 2009, ApJ, 690, 974-997
- Guan, Xiaoyue, Gammie, Charles F., **Simon, Jacob B.**, Johnson, Bryan M., “Locality of MHD Turbulence in Isothermal Disks”, 2009, ApJ, 694, 1010-1018

- Stone, James M., Gardiner, Thomas A., Teuben, Peter, Hawley, John F., **Simon, Jacob B.**,  
“Athena: A New Code for Astrophysical MHD”, 2008, ApJS, 178, 137-177

## Invited Talks

- “Accretion Disks: From Black Holes to Planets”, Montana State University Physics Colloquium, October 4, 2019.
- “The Size-Frequency Distribution of Planetesimals: Results from Numerical Simulations”, Main Belt Conference, Villasimius, Italy, June 4, 2019.
- “Numerical Simulations of Planetesimal Formation”, Theoretical and Computational Challenges in Planet Formation, CCA, New York, NY, May 21, 2019.
- “Formation of Oblate Planetesimals: Implications for MU69”, New Horizons Science Plenary Meeting, Southwest Research Institute (SwRI) Colloquium, Boulder, CO, May 9, 2019.
- “Planetesimal Formation and the Universality of the Initial Mass Function”, ATHENA++ User Workshop, Las Vegas, NV, March 22, 2019.
- “Accretion Disks: From Black Holes to Planets”, Iowa State University Physics & Astronomy Colloquium, March 4, 2019.
- “Accretion Disks: From Black Holes to Planets”, University of Georgia Physics & Astronomy Colloquium, February 28, 2019.
- “Accretion Disks: From Black Holes to Planets”, Michigan Tech University Physics Colloquium, February 7, 2019.
- “Accretion Disks: From Black Holes to Planets”, Rochester Institute of Technology Astronomy Colloquium, January 28, 2019.
- “Accretion Disks: From Black Holes to Planets”, University of Cincinnati Physics Colloquium, January 24, 2019.
- “What Drives Accretion in Protoplanetary Disks?”, Waves, Turbulence, and Large-scale Structures in Rotating Magnetic Fluids, NCAR, Boulder, CO, September 14, 2018.
- “Unveiling the Physics of Planet Formation with Computational Astrophysics”, Astronomy Seminar Series, Los Alamos National Laboratory, September 6, 2018.
- “The Nature of Planet Formation”, TCU Physics & Astronomy Colloquium, April 17, 2018.
- “The Nature of Planet Formation”, Missouri S&T Physics Colloquium, March 1, 2018.
- “The Nature of Planet Formation”, American Museum of Natural History Astrophysics Seminar, February 27, 2018.
- “The Nature of Planet Formation”, Rutgers University Astrophysics Seminar, February 22, 2018.
- “The Formation of Asteroids, Comets, and Kuiper Belt Objects”, Rutgers University Student Seminar, February 21, 2018.
- “The Nature of Planet Formation”, University of Memphis Physics Colloquium, February 16, 2018.
- “Accretion and Planet Formation in Protoplanetary Disks”, University of Florida Astrophysics Colloquium, February 12, 2018.
- “What Drives Angular Momentum Transport in Protoplanetary Disks?”, Ball Aerospace Seminar Series, August 4, 2017.

- “Planetesimal Formation”, Atmospheres of Disks and Planets, Ringberg Castle, Germany, April 27, 2017.
- “Planetesimal Formation in Protoplanetary Disks: Implications for our Solar System and Beyond”, University of Utah HEAP Seminar Series, April 7, 2017.
- “Turbulence vs. Wind, How is angular momentum transported in protoplanetary disks?”, KITP Accretion Disks Program, February 23, 2017.
- “Planetesimal Formation in Protoplanetary Disks: Implications for our Solar System and Beyond”, Ball Aerospace Seminar Series, January 13, 2017.
- “Planetesimal Formation in Protoplanetary Disks: Implications for our Solar System and Beyond”, UC Santa Cruz Astrophysics FLASH Talk, December 9, 2016.
- “Unraveling the Mysteries of Star and Planet Formation”, Clemson University Physics & Astronomy Colloquium, December 6, 2016.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary disks: Connecting Theory with Observations”, Clemson University Astrophysics Research Seminar, December 5, 2016.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary Disks: Connecting Theory with ALMA Observations”, Theory Lunch Seminar, Northwestern University, November 4, 2016.
- “Planetesimal Formation in Protoplanetary Disks: Implications for our Solar System and Beyond”, Northern Arizona University Astronomy Colloquium, September 12, 2016.
- “The Role of Turbulence in Protoplanetary Disks”, Turbulence and Waves in Flows Dominated by Rotation, NCAR, Boulder, CO, August 18, 2016.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary Disks: Connecting Theory with ALMA Observations”, Sagan Fellows Symposium, Pasadena, CA, May 7, 2015.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary Disks: Connecting Theory with ALMA Observations”, University of Washington, May 5, 2015.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary Disks: Connecting Theory with ALMA Observations”, University of Nevada, Las Vegas Astronomy Colloquium, March 17, 2015.
- “Probing the Nature of Accretion and Planet Formation in Protoplanetary Disks: Connecting Theory with ALMA Observations”, University of Texas Astronomy Colloquium, February 3, 2015.
- “Observational Signatures of MRI-driven Turbulence in Protoplanetary Disks: Connecting Numerical Simulations with ALMA”, NOAO Flash Seminar Series, November 14, 2014.
- “Observational Signatures of MRI-driven Turbulence in Protoplanetary Disks: Connecting Numerical Simulations with ALMA”, University of Colorado Astrophysics and Planetary Sciences Colloquium, October 20, 2014.
- “Observational Signatures of MRI-driven Turbulence in Protoplanetary Disks: Connecting Numerical Simulations with ALMA”, Non-ideal MHD, Stability, and Dissipation in Protoplanetary Disks, Niels Bohr Institute, Copenhagen, Denmark, August 7, 2014.
- “Observational Signatures of MRI-driven Turbulence in Protoplanetary Disks: Connecting Numerical Simulations with ALMA”, From the MRI to the Sun, Chamonix, France, July 14, 2014.
- “Characterizing the Mesoscale Regime in Magnetized Accretion Disks”, Stability, Energetics and Turbulent Transport in Astrophysical Fusion and Solar Plasmas, Princeton, April 10, 2013.
- “Turbulence in Protoplanetary Disks: Defining the Environment for Planet Formation”, University of Wyoming Astronomy Colloquium, March 1, 2013.



- “Mesoscale Structures in Magnetized Accretion Disks”, Astronomy Seminar Series, Los Alamos National Lab, January 23, 2013.
- “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, CITA Seminar, Canadian Institute for Theoretical Astrophysics, June 18, 2012.
- “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, Star and Planet Formation Seminar, Space Telescope Science Institute, May 22, 2012.
- “Mesoscale Structures in Magnetized Accretion Disks”, Astrophysics Plasma Seminar Series, Princeton University, April 13, 2012.
- “Protoplanetary Disks from First Principles”, TAC Seminar, University of California, Berkeley, February 6, 2012.
- “Turbulence in Protoplanetary Disks: Defining the Environment for Planet Formation”, Southwest Research Institute (SwRI) Colloquium, Boulder, CO, October 25, 2011.
- “Turbulent Accretion in Magnetized Disks”, CASA/JILA Seminar, University of Colorado, Boulder, November 13, 2009.
- “MRI Simulations with Athena”, MRI Turbulence workshop, Grenoble, France, March 27, 2007.

## Contributed Talks

- “Pebbles to Planetesimals: The Role of Pressure Bumps”, AAS Meeting #235, January 6, 2020.
- “Pebbles to Planetesimals: The Role of Pressure Bumps”, Great Barriers in Planet Formation, Palm Cove, Australia, July 25, 2019.
- “What Drives Accretion in Protoplanetary Disks?”, Take a Closer Look, Garching, Germany, October 17, 2018.
- “What Drives Accretion in Protoplanetary Disks?”, Astrophysical Frontiers in the Next Decade and Beyond, Portland, Oregon, June 26, 2018.
- “What Drives Angular Momentum Transport in Protoplanetary Disks?”, Planet Formation and Evolution, Jena, Germany, September 26, 2017.
- “Planetesimal Formation in Protoplanetary Disks”, Accretion: Building New Worlds, Houston, TX, August 17, 2017.
- “The Formation of Close-in Exoplanets”, AAS Meeting #229, January 6, 2017.
- “Planetesimal Formation in Protoplanetary Disks: Implications for our Solar System and Beyond”, LASP Seminar, University of Colorado, September 22, 2016.
- “Probing the Nature of Turbulence in Protoplanetary Disks with ALMA”, Resolving Planet Formation in the era of ALMA and Extreme AO, Santiago, Chile, May 16, 2016.
- “From Dust Grains to Planetesimals: The Role of the Streaming Instability in Protoplanetary Disks”, Workshop on Young Solar Systems, Sant Cugat, Spain, April 20, 2016.
- “From Dust Grains to Planetesimals: The Importance of the Streaming Instability in Protoplanetary Disks”, AAS Meeting #227, January 5, 2016.
- “New Simulations of Planetesimal Formation”, Southwest Research Institute (SwRI) Lunch Talk, Boulder, CO, November 4, 2015.
- “Probing the Nature of Accretion in Protoplanetary Disks”, CASA/JILA Seminar, Boulder, CO, October 30, 2015.

- “The Complex Dynamics of Protoplanetary Disks”, Protoplanetary Disk Dynamics and Planet Formation, JAMSTEC, Japan, September 30, 2015.
- “MRI-Driven Turbulence in Protoplanetary Disks: Predictions for ALMA and Implications for Planet Formation”, Star and Planet Formation in the Southwest, Oracle, AZ, March 24, 2015.
- “Observational Signatures of MRI-driven Turbulence in Protoplanetary Disks: Connecting Numerical Simulations with ALMA”, AAS Meeting #225, January 7, 2015.
- “Observational Signatures of Turbulence in Protoplanetary Disks: Connecting Simulations and ALMA”, Southwest Research Institute (SwRI) Lunch Talk, Boulder, CO, February 12, 2014.
- “Particle Trapping in the Outer Regions of Protoplanetary Disks”, AAS Meeting #223, January 8, 2014.
- “The Importance of Vertical Magnetic Fields in Protoplanetary Disks”, JSI Conference: “Putting Accretion Theory to the Test”, Annapolis, MD, November 4, 2013.
- “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, University of Maryland, October 18, 2013.
- “Weak Accretion in the Outer Regions of Protoplanetary Disks”, AAS Meeting #221, January 7, 2013.
- “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, Planet Formation and Evolution 2012, LMU, Munich, Germany, September 4, 2012.
- “Turbulence in Protoplanetary Disks: Defining the Environment for Planet Formation”, The Origins of Stars and their Planetary Systems, McMaster University, June 12, 2012.
- “Turbulent Linewidths in Protoplanetary Disks: Predictions from Numerical Simulations”, Astrophysics Theory Lunch, University of Virginia, May 24, 2012.
- “Simulations of Protoplanetary Disk Turbulence: Connecting Theory and Observations”, JILA/CASA Postdoctoral Symposium, University of Colorado, Boulder, November 16, 2011.
- “Accretion Variability in Turbulent Disks”, Max Planck Institute for Astrophysics (MPA), Garching, Germany, February 14, 2011.
- “Accretion Variability in Turbulent Disks”, AAS Meeting #217, January 12, 2011.
- “Numerical Simulations of Accretion Flows”, JILA/CASA Postdoctoral Symposium, University of Colorado, Boulder, October 28, 2010.
- “Accretion Variability in Turbulent Disks”, CASA/JILA Seminar, University of Colorado, Boulder, October 8, 2010.
- “Local Simulations of Magnetized Accretion Disks”, Dissertation Defense, University of Virginia, Charlottesville, VA, July 7, 2010.
- “Turbulent Accretion in Magnetized Disks”, University of Virginia Astronomy Research Symposium, Charlottesville, VA, January 29, 2010.
- “Angular Momentum Transport in Magnetized Accretion Disks via the Magnetorotational Instability”, Dissertation Talk, AAS Meeting #215, January 7, 2010.
- “Prandtl Number Effects for MRI-driven Turbulence with Athena”, MRI workshop, Ringberg Castle, Germany, April 17, 2009.
- “Locality of Turbulence in Magnetized Accretion Disks”, University of Virginia Astronomy Research Symposium, Charlottesville, VA, January 23, 2009.

- “Turbulent Energy Flow and Dissipation in Magnetized Accretion Disks”, University of Virginia Astronomy Research Symposium, Charlottesville, VA, January 25, 2008.
- “Accretion Physics with Athena”, University of Virginia Astronomy Research Symposium, Charlottesville, VA, February 2, 2007.
- “Disks around Young, Low-Mass Stars: The Study of Accretion and Angular Momentum Transport”, University of Illinois Undergraduate Physics Research Symposium, Urbana, IL, January 23, 2004.

## Posters

- Simon, Jacob B., Flaherty Kevin M., Bai, Xue-Ning, Hughes, A. Meredith, “What Drives Accretion in Protoplanetary Disks?”, Origins of Solar Systems, Gordon Conference, South Hadley, MA, June 18-23, 2017.
- Simon, Jacob B., Flaherty Kevin M., Bai, Xue-Ning, Hughes, A. Meredith, “What Drives Accretion in Protoplanetary Disks?”, Disks, Dynamos, and Data: Confronting MHD Accretion Theory with Observations, KITP, Santa Barbara, CA, February 6-10, 2017.
- Simon, Jacob B. “Formation of Close-in Exoplanets”, Exoplanets I, Davos, Switzerland, July 3-8, 2016.
- Simon, Jacob B., Armitage, Philip J., Youdin, Andrew N., Li, Rixin “The Physics of Planetesimal Formation”, Extreme Solar Systems III, Waikoloa Beach, HI, November 29 - December 4, 2015.
- Simon, Jacob B., Hughes, A. Meredith., Flaherty, Kevin M., Bai, Xue-Ning, Armitage, Philip J., Gole, Daniel, Youdin, Andrew N., “Planetesimal Formation and Turbulence in Protoplanetary Disks”, Origins of Solar Systems, Gordon Conference, South Hadley, MA, June 28 - July 3, 2015.
- Simon, Jacob B., Hughes, A. Meredith., Flaherty, Kevin M., Bai, Xue-Ning, Armitage, Philip J., “Observing Turbulence in Protoplanetary Disks”, Circumstellar Disks and Planet Formation, Ann Arbor, MI, October 12-14, 2014.
- Simon, Jacob B., Bai, Xue-Ning, Armitage, Philip J., Stone, James M., Beckwith, Kris, “Turbulence in Protoplanetary Disks”, Protostars and Planets VI, Heidelberg, Germany, July 15-20, 2013.
- Simon, Jacob B., Bai, Xue-Ning, Armitage, Philip J., Stone, James M., Beckwith, Kris, “Turbulence in Protoplanetary Disks”, IAU Symposium #299, Victoria, B.C., Canada, June 2-7, 2013.
- Simon, Jacob B., Armitage, Philip J., Beckwith, Kris, “Simulations of Protoplanetary Disk Turbulence: Connecting Theory and Observations”, AAS Meeting #219, January 11, 2012.
- Simon, Jacob B., Hawley, John F., Beckwith, Kris, “Accretion Variability Driven by Resistive MHD Turbulence”, YSO Accretion Conference, Ringberg Castle, Germany, February 7-11, 2011.
- Simon, Jacob B., Hawley, John F., “Saturation of the MRI via Viscosity and Resistivity”, Accretion Disks Conference, Cambridge, UK, September 6-8, 2009.
- Simon, Jacob B., Hawley, John F., Beckwith, Kris, “Energy Flow and Dissipation in MRI Turbulence”, MRI workshop, Princeton, NJ, June 16-18, 2008.
- Simon, Jacob B., Hawley, John F., Beckwith, Kris, “Angular Momentum Transport in Protostellar Disks”, ALMA Conference, Charlottesville, VA, June 22-24, 2007.
- Simon, Jacob B., Gammie, Charles F., “Disks around Young, Low-Mass Stars: The Study of Accretion and Angular Momentum Transport”, University of Illinois Undergraduate Physics Poster Session, Urbana, IL, October, 2003.