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, 2018, 24.5 Million CPU-Hours ($100k equiv)
– PI: XSEDE Supercomp. Allocation, 2016-17, 2.3 Million CPU-Hours ($81k equiv)
– PI: XSEDE Supercomp. Allocation, 2015-16, 10.4 Million CPU-Hours ($385k equiv)
– PI: XSEDE Supercomp. Allocation, 2014-15, 3.1 Million CPU-Hours ($109k equiv)
– PI: XSEDE Supercomp. Allocation, 2013-14, 15.3 Million CPU-Hours ($536k equiv)
– PI: XSEDE Supercomp. Allocation, 2012-13, 19.1 Million CPU-Hours ($669k equiv)
– 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 6, "Protoplanetary Disk Magnetic Fields from the Zeeman Effect"
– Co-I: ALMA Cycle 6, "Constraining the Vertical and Radial Structure of the Turb ulence 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

Daniel Carrera (Postdoctoral Associate)	2019-present
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

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!" by the California Academy of Sciences	2016
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, IDL

PROFESSIONAL SERVICES

Referee for ApJ	
Referee for MNRAS	
Referee for Icarus	
Review Panelist for NASA	
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

Publications — Jacob B. Simon

*** Denotes student-led work**

Journal Articles

- Li, Rixin, Youdin, Andrew N., **Simon, Jacob B.,** "Demographics of Planetesimals Formed by the Streaming Instability", submitted to ApJ.
- Armitage, Philip J., Raymond, Sean N., **Simon, Jacob B.**, "A turbulent minimum planetesimal scale and implications for cratering in the Kuiper Belt", submitted to MNRAS Letters.
- Mishra, Bhupendra, Begelman, Mitchell C., Armitage, Philip J., **Simon, Jacob B.** "Strongly magnetized accretion disks: structure and accretion from global magnetohydrodynamic simulations", submitted to MNRAS.
- *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", accepted to ApJ.
- 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^+", 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

- "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

- "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 Numer 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.