Philip Chang - Curriculum Vitae

Contact Information

Department of Physics
University of Wisconsin-Milwaukee
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Milwaukee, WI 53201

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Education

University of California Santa Barbara, Physics	Ph.D 2005
University of California Santa Barbara, Physics	M.S. 2003
Harvard University, Physics	B.A. 1998

Positions Held

University of Wisconsin-Milwaukee Department Chair of Physics	9/2023 - present
Northwestern Mutual Data Science Institute Talent Subcommittee co-Chair	9/2023 - 8/2025
American Physical Society Academic Editor Physical Review D	4/2023 - present
University of Wisconsin-Milwaukee Professor of Physics	9/2022 - present
Flatiron Institute Visiting Scholar	8/2018 - 7/2019
University of Wisconsin-Milwaukee Associate Professor of Physics	9/2015 - 8/2022
University of Wisconsin-Milwaukee Assistant Professor of Physics	9/2011 - 8/2015
Canadian Institute for Theoretical Astrophysics Postdoctoral Researcher	9/2009-8/2011
Univ. of California, Berkeley Miller Research Fellow and TAC Fellow	9/2005-7/2009
Univ. of California, Santa Barbara Graduate Research and Teaching Assistant	9/2000-9/2005
New Associate Programmer Analyst, Internet Division Goldman Sachs Group Inc.	7/1998-9/2000

Awards

NSF Early Career Award	2013
CITA Postdoctoral Fellowship	2009
Theoretical Astrophysics Center Fellowship	2008
Miller Institute for Basic Research Fellowship	2005
B. A. Magna Cum Laude, Harvard University	1998

Supervision Activities

UWM Graduate Students

7. Sarah Villanova Borges Common Envelope Evolution and Planetary Nebulae*	5/2021 - present
6. Sinead Humphreys Tidal Disruption of White Dwarfs	9/2020 - present
5. Vinaya Valsen Long Term Common Envelope Evolution	06/2022 - 06/2024
4. Alexandra Spaulding Stellar Tidal Disruption on a Moving Mesh	11/2018 - 8/2023

3. Logan Prust — 06/2018 - 8/2022
   Common Envelope Evolution on a Moving Mesh
2. Uma Garg — 03/2014 - 7/2015
   Initiation of Detonations in White Dwarfs
1. Daniel Murray — 09/2012 - 6/2018
   Turbulent Collapse in Molecular Clouds

UWM Undergraduate Students

5. Nicholas Nelson — 6/2024-present
   Binary Interaction in Nova Ejection
4. Spencer Caldwell — 6/2016-7/2017
   Star Formation in Nearby Molecular Clouds
3. John Pittman — 7/2013-8/2014
   Star Formation in Turbulent Molecular Clouds
2. Lorne Forsythe and Christopher Storms — 10/2011 - 5/2012
   Eccentric Disks Around Supermassive Black Hole Binaries.
1. Nicholas Tillman — 10/2011 - 5/2012
   The Disruption of Molecular Clouds by Interstellar Shock Waves

UWM Postdoctoral Fellows

2. Alina Istrate — 2/2016 - 8/2018
   White Dwarf Mergers
1. Astrid Lamberts — 12/2012 - 8/2015
   The Cosmological Heating Rate of TeV Blazars

External Institutions

7. Shivam Goyal (Dartmouth University) — 6/2016 - 8/2016
   Jet Feedback in Star Formation
6. Liam McCarty (Brookfield Academy/Stanford University) — 6/2014 - 8/2014
   White Dwarf Collisions
5. Thomas Wozniak (RET intern) — 6/2013 - 8/2013
   White Dwarf Collisions
4. Eve Lee (with Prof. Norman Murray) — 5/2011 - 9/2011
   Star Formation in Turbulent Molecular Clouds
3. Heidi White (with Prof. Marten van Kerkwijk) — 9/2010 - 9/2011
   Detonation of white dwarf merger remnants.
2. Chenchong Zhu (with Prof. Marten van Kerkwijk) — 9/2010 - 6/2016
   Simulations of white dwarf mergers
1. Adam Lewis — 5/2010-9/2010
   "Jet Propagation and the Entrainment of Cold Clouds"

Service Activities

UWM Department of Physics Committee Work:

• Data Committee (chair)	9/2019-present
• Graduate Financial Committee (chair)	9/2013-8/2018
• Astronomy & Planetarium	9/2011-8/2014
• Undergraduate & RET	9/2012-8/2015
• Academic Planning Exercise Ad Hoc (Chair)	11/2012-10/2013
• Open House	9/2011-9/2012
• Safety	9/2011-9/2012

UWM Department of Physics Organizational Work:

• Organizer of the UWM Astrophysics Reading Group	2/2013-6/2013

External Service Work:

• Invited Reviewer for NASA ATP	10/2017,10/2019,9/2021
• Invited Reviewer for Fermi Cycle 6	3/2013
• Invited Reviewer for NASA/NSF TCAN Program	5/2013
• Reviewer for Israeli Science Foundation	3/2012, 3/2013
• Ongoing Reviewer for the Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics	
• Academic Editor Physical Review D	

References

Associate Dean, Emeritus Daad Saffarini, UW-Milwaukee daads@uwm.edu
Prof. Shane Davis, Univ. of Virginia swd8g@virginia.edu
Prof. Thomas Quinn, UWashington trq@astro.uwashington.edu

Philip Chang - List of Publications

Refereed Publications

74. "Galactic structure from binary pulsar accelerations: Beyond smooth models"

    T. Donlon, S. Chakrabarti, L. Widrow, M. Lam, **P. Chang**, A.C. Quillen, 2024, *PRD*, 110, 23026

73. "Envelope ejection and the transition to homologous expansion in common-envelope events"

    V. Valsan, S. V. Borges, L. Prust, **P. Chang**, 2023, *MNRAS*, 526, 5365

72. " a noninteracting galactic black hole candidate in a binary system with a main-sequence star"

    S. Chakrabarti et. al., 2023, *ApJ*, 166, 21

71. "Radio emission from simulated tidal disruption events"

    A. Spaulding & **P. Chang**, 2022, *MNRAS*, 515, 1699

70. "Constraining blazar heating with the $2 < z < 3$ Lyman-α forest"

    A. Lamberts, E. Puchwein, C. Pfrommer, P. Chang, M. Shalaby, A. Broderick, P. Tiede, G. Rudie, 2022, *MNRAS*, 512, 3045

69. "Eclipse Timing the Milky Way's Gravitational Potential"

    S. Chakrabarti, D. J. Stevens, J. Wright, R.R. Rafikov, **P. Chang**, T. Beatty, D. Huber, 2022, *ApJL*, 928, L17

68. " A Measurement of the Galactic Plane Mass Density from Binary Pulsar Accelerations"

    S. Chakrabarti, **P. Chang**, M. Lam, S. Vigeland, & A. Quillen, 2021, *ApJL*, 907, 26

67. "The Effect of Impact Parameter on Tidal Disruption Events"

    A. Spaulding & **P. Chang**, 2021, *MNRAS*, 501, 1748

66. "Toward a Direct Measure of the Galactic Acceleration"

    S. Chakrabarti, J. Wright, **P. Chang**, et. al. 2020, *ApJ*, 902, L28

65. "General Relativistic Hydrodynamics on a Moving-mesh I: Static Spacetimes"

    P. Chang & Z. Etienne 2020, *MNRAS*, 496, 206

64. "Simulation of a compact object with outflows moving through a gaseous background"

    X. Li, **P. Chang**, Y. Levin, C. Matzner, & P. Armitage 2020, *MNRAS*,494, 2327

63. "Time Dependent Radiation Hydrodynamics on a Moving Mesh"

    P. Chang, S. Davis & Y. Jiang, 2020, *MNRAS*, 493, 5397

62. "The effect of diffusive nuclear burning in neutron star envelopes on cooling in accreting systems"

    M. J. P. Wijngaarden, W. Ho, **P. Chang**, et. al. 2020, *MNRAS*, 493, 4936

61. "The growth of the longitudinal beam-plasma instability in the presence of an inhomogeneous background"

    M. Shalaby, A. Broderick, **P. Chang**, C. Pfrommer, E. Puchwein, A. Lamberts 2020, J. Plasma Physics, 86, 5301

60. "Constraints on the Intergalactic Magnetic Field from Bow Ties in the Gamma-Ray Sky"

    P. Tiede, A. E. Broderick, M. Shalaby, C. Pfrommer, E. Puchwein, **P. Chang**, A. Lamberts 2020, *ApJ*, 892, 123

59. "Antlia2's role in driving the ripples in the outer gas disk of the Galaxy"

    S. Chakrabarti, **P. Chang**, A. Price-Whelan, J. Read, L. Blitz, L. Hernquist 2019, *ApJ*, 886, 67

58. "Common Envelope Evolution on the Moving-mesh"

    L. J. Prust & **P. Chang** 2019, *MNRAS*, 486, 5809

57. "Diffusive nuclear burning in cooling simulations and application to new temperature data of the Cassiopeia A neutron star"

    M. Wijngaarden, W. Ho, **P. Chang**, C. Heinke, D. Page, M. Beznogov, D. Patnaude, 2019, *MNRAS*, 484, 974

56. "Relating the H I gas structure of spiral discs to passing satellites"

    A. Lipnicky, S. Chakrabarti & **P. Chang** 2018, *MNRAS*, 481, 2590

55. "Missing Gamma-ray Halos and the Need for New Physics in the Gamma-ray Sky"

    A. Broderick, P. Tiede, **P. Chang**, A. Lamberts, C. Pfrommer, E. Puchwein, M. Shalaby, M. Werhahn 2018, *ApJ*, 868, 87

54. "The Effects of Protostellar Jet Feedback on Turbulent Collapse"

    D. Murray, S. Goyal & **P. Chang**, 2018, *MNRAS*, 475, 1023

53. "The Accelerating Pace of Star Formation"

    S. Caldwell & **P. Chang** 2018, *MNRAS*, 474, 4818

52. "GW170817: A Neutron Star Merger in a Mass-Transferring Triple System"

    P. Chang & N. Murray 2018, *MNRAS*, 474, L12

51. "Growth of Beam–Plasma Instabilities in the Presence of Background Inhomogeneity"

    M. Shalaby, A. E. Broderick, **P. Chang**, C. Pfrommer, A. Lamberts, E. Puchwein 2018, *ApJ*, 859, 45

50. "Bow Ties in the Sky II: Searching for Gamma-ray Halos in the Fermi Sky Using Anisotropy"

    P. Tiede, A. Broderick, M. Shalaby, C. Pfrommer, E. Puchwein, **P. Chang**, A. Lamberts, 2017, *ApJ*, 850, 157

49. "A Moving-Mesh Hydrodynamic Solver for ChaNGa"

    P. Chang, T. Quinn, & J. Wadsley 2017, *MNRAS*, 471, 3577

48. "The Contribution of Outer H I Disks to the Merging Binary Black Hole Population"

    S. Chakrabarti, **P. Chang**, R. O'Shaughnessy, A. Brooks, S. Shen, J. Bellovary, W. Gladysz, C. Belczynski, 2017 *ApJ*, 850, L4

47. "Importance of Resolving the Spectral Support of Beam-plasma Instabilities in Simulations"

    M. Shalaby, A. E. Broderick, **P. Chang**, C. Pfrommer, A. Lamberts, E. Puchwein 2017, *ApJ*, 848, 81

46. "SHARP: A Spatially Higher-order, Relativistic Particle-in-Cell Code"

    M. Shalaby, A. Broderick, **P. Chang**, C. Pfrommer, A. Lamberts, E. Puchwein, 2017, *ApJ*, 841, 52

45. "Collapse in Self-gravitating Turbulent Fluids"

    D. Murray, **P. Chang**, N. Murray, J. Pittman, 2017, *MNRAS*, 465, 1316

44. "A Semi-analytic Criterion for the Spontaneous Initiation of Carbon Detonations in White Dwarfs"

    U. Garg & **P. Chang**, 2017, *ApJ*, 836, 189

43. "The Linear Instability of Dilute Ultrarelativistic $e^{\pm}$ Pair Beams"

    P. Chang, A. Broderick, C. Pfrommer, E. Puchwein, A. Lamberts, M. Shalaby, G. Vasil, 2016, *ApJ*, 833, 118

42. "Bow Ties in the Sky I: The Angular Structure of Inverse Compton Gamma-ray Halos in the Fermi Sky"

    A. Broderick, P. Tiede, M. Shalaby, C. Pfrommer, E. Puchwein, **P. Chang**, A. Lamberts, 2016, *ApJ* 832, 109

41. "Patchy Blazar Heating: Diversifying the Thermal History of the Intergalactic Medium"

    A. Lamberts & **P. Chang**, C. Pfrommer, A. Broderick , E. Puchwein & M. Shalaby, 2015, *ApJ*, 811, 19

40. "Magnetized Moving Mesh Merger of a Carbon-Oxygen White Dwarf Binary"

    C. Zhu, R. Pakmor, M. van Kerkwijk & **P. Chang**, 2015, *ApJ*, 806, 1

39. "Star Formation in Self-Gravitating Turbulent Fluids"

    N. Murray & **P. Chang**, 2015, *ApJ*, 804, 44

38. "Time Varying Dynamical Star Formation"

    E. Lee, **P. Chang**, & N. Murray, 2014, *ApJ*, 800, 49

37. "Suppression of Star Formation in NGC 1266"

    K. Alatalo et al. 2014, *ApJ*, 798, 31

36. "The Effect of Nonlinear Landau Damping on Ultrarelativistics Beam Plasma Instabilities"

    P. Chang, A. Broderick, C. Pfrommer, E. Puchwein, A. Lamberts, & M. Shalaby, 2014, *ApJ*, 797, 110

35. "Lower Limits upon the Anisotropy of the Extragalactic Gamma-Ray Background implied by the 2FGL and 1FHL Catalogs"

    A. Broderick, C. Pfrommer, E. Puchwein, **P. Chang**, & K. Smith, 2013, *ApJ*, 796, 12

34. "Implications of Plasma Beam Instabilities for the Statistics of the Fermi Hard Gamma-ray Blazars and the Origin of the Extragalactic Gamma-Ray Background"

    A. E. Broderick, C. Pfrommer, E. Puchwein, & **P. Chang**, 2014, *ApJ*, 790, 137

33. "NGC 1266 as a Local Candidate for Rapid Cessation of Star Formation"

    K. Alatalo et al. 2014, *ApJ*, 780, 186

32. "A Parameter-Space Study of Carbon-Oxygen White Dwarf Mergers"

    C. Zhu, **P. Chang**, M. van Kerkwijk, & J. Wadsley, 2013, *ApJ*, 767, 164

31. "The Cosmological Impact of Luminous TeV Blazars III: Implications for Galaxy Clusters and the Formation of Dwarf Galaxies"

    C. Pfrommer, **P. Chang**, & A. Broderick 2012, *ApJ*, 752, 24

30. "The Lyman α forest in a blazar-heated Universe"

    E. Puchwein, C. Pfrommer, V. Springel, A. E. Broderick, P. Chang, 2012, *MNRAS*, 423, 149

29. "The Cosmological Impact of Luminous TeV Blazars II: Rewriting the Thermal History of the Intergalactic Medium"

    P. Chang, A. Broderick, & C. Pfrommer 2012, *ApJ*, 752, 23

28. "The Cosmological Impact of Luminous TeV Blazars I: Implications of Plasma Instabilities for the Intergalactic Magnetic Field and Extragalactic Gamma-Ray Background"

    A. Broderick, **P. Chang**, & C. Pfrommer 2012, *ApJ*, 752, 22

27. "Star Formation in Massive Clusters via Bondi Accretion"

    N. Murray & **P. Chang** 2012, *ApJ*, 746, 75

26. "Stellar Structure and Tests of Modified Gravity"

    P. Chang & L. Hui, 2011, *ApJ*, 732, 25

25. "Warm Saturns: On the Nature of Rings of Extrasolar Planets that Reside Inside the Ice Line"

    H. E. Schlichting & **P. Chang**, 2011, *ApJ*, 734, 117

24. "Diffusive Nuclear Burning of Helium on Young Neutron Stars"

    P. Chang, P. Arras, & L. Bildsten, 2010, *ApJ*, 723, 719

23. "Sub-Chandrasekhar White Dwarf Mergers as the Progenitors of Type Ia Supernovae"

    M. H. van Kerkwijk, **P. Chang**, & Stephen Justham, *ApJL*, 722, 157

22. "Dark Subhaloes and Disturbances in Extended HI Discs"

    P. Chang & S. Chakrabarti, 2011, *MNRAS*, 416, 618

21. "Finding Dwarf Galaxies from Their Tidal Imprints"

    S. Chakrabarti, F. Bigiel, **P. Chang**, & L. Blitz, 2011, *ApJ*, 743, 35

20. "The Electromagnetic Precursor to Binary Black Hole Mergers"
    P. Chang, L. E. Strubbe, K. Menou, & E. Quataert, 2010, *MNRAS*, 407, 2007

19. "On the Stability of Dust-laden Protoplanetary Vortices"
    P. Chang & J. Oishi, 2010, *ApJ*, 721, 1593

18. "Buoyancy Instabilities in Degenerate, Collisional, Magnetized Plasmas"
    P. Chang & E. Quataert, 2010, *MNRAS*, 403, 246

17. "Shock Breakout from Type 1a Supernova"
    A. L. Piro, **P. Chang**, & N. Weinberg, 2010, *ApJ*, 708, 598

16. "The Migration of Star Clusters in Nuclear Rings"
    G. Van der Ven & **P. Chang**, 2009, *Ap. J.*, 697, 619

15. "The Effectiveness of the Kozai Mechanism in the Galactic Centre"
    P. Chang, 2009, *MNRAS*, 393, 224

14. "Long Term Evolution of Magnetic Turbulence in Relativistic Collisionless Shocks: Electron-Positron Plasmas"
    P. Chang, A. Spitkovsky, & J. Arons, 2008, *Ap. J.*, **674**, 378.

13. "The Origin of the Young Stars in the Nucleus of M31"
    P. Chang, R. Murray-Clay, E. Chiang, & E. Quataert, 2007, *Ap. J.*, **668**, 236.

12. "Gas Shepherding by an Infalling Satellite"
    P. Chang, 2008, *Ap. J.*, **684**, 236

11. "Convection in Type 1a Progenitors"
    A. Piro & **P. Chang**, 2008, *Ap. J.*, **678**, 1158.

10. "From Thin to Thick: The Impact of X-Ray Irradiation on Accretion Disks in Active Galactic Nuclei"
    P. Chang, E. Quataert, & N. Murray, 2007, *Ap. J.*, **662**, 94.

9. "Magnetic hydrogen atmosphere models and the neutron star RX J1856.5-3754"
    W. C. G. Ho, D. L. Kaplan, **P. Chang**, M. van Adelsberg, A. Y. Potekhin, 2007, *MNRAS*, **375**, 821

8. "Rotational Broadening of Atomic Spectral Features from Neutron Stars"
    P. Chang, S. Morsink, L. Bildsten, & I. Wasserman, 2006, *Ap. J.*, **636**, L117

7. "Formation of Resonant Atomic Lines during Thermonuclear Flashes on Neutron Stars"
    P. Chang, L. Bildsten, & I. Wasserman, 2005, *Ap. J.*, **629**, 998

6. "Hydrogen Burning on Magnetar Surfaces"
    P. Chang, P. Arras, & L. Bildsten, 2004, *Ap. J.*, **616**, L147

5. "Magnetar Spin-Down, Hyperenergetic Supernovae, and Gamma-Ray Bursts"
    T. Thompson, **P. Chang** & E. Quataert, 2004, *Ap. J.*, **611**, 380

4. "Evolution of Young Neutron Star Envelopes"
    P. Chang & L. Bildsten, 2004, *Ap. J.*, **605** , 830.

3. "Atomic Spectral Features during Thermonuclear Flashes on Neutron Stars"
   L. Bildsten, **P. Chang**, & F. Paerels, 2003, *Ap. J.*, **591** , 29.
2. "Diffusive Nuclear Burning in Neutron Star Envelopes"
   P. Chang & L. Bildsten, 2003, *Ap. J.*, **585** , 464.
1. "Variability in the Thermal Emission from Accreting Neutron Star Transients"
   E. F. Brown, L. Bildsten, & **P. Chang** , 2002, *Ap. J.*, **574** , 920.

Submitted Papers

1. "Detection of a dark matter sub-halo near the Sun from pulsar timing"
   S. Chakrabarti, **P. Chang**, S. Profumo, & P. Craig, 2025, *PRL*, in review

Works in Preparation

2. "General Relativistic Hydrodynamics on a Moving-mesh II: Dynamic Spacetimes"
   P. Chang & Z. Etienne 2025
1. "Magnetic Field Amplification at the Onset of CEE with GLM Divergence Cleaning"
   L. Prust & **P. Chang** 2025

Conference Proceedings

4. "The Physics and Cosmology of TeV Blazars in a Nutshell"
   C. Pfrommer, A. Broderick, **P. Chang**, E. Puchwein, & V. Springel, 2013, Proceedings of "Rencontres de Moriond 2013: Very High Energy Phenomena in the Universe" (La Thuile, March 9th - 16th, 2013)
3. "Properties of Carbon-Oxygen White Dwarf Merger Remnants"
   C. Zhu, **P. Chang**, M. van Kerkwijk, & J. Wadsley, 2012, to appear in IAU 281 Proceedings "Binary Paths to Type Ia Supernovae Explosions"
2. "Long Term Evolution of Magnetic Turbulence in Relativistic Collisionless Shocks"
   P. Chang, A. Spitkovsky, & J. Arons, 2008, contributed talk at the workshop: High Energy Phenomena in Relativistic Outflows (HEPRO), Dublin, 24-28 September 2007
1. "Diffusive Nuclear Burning in Neutron Star Envelopes"
   P. Chang & L. Bildsten, 2003, in ASP Conf. Ser., Radio Pulsars, ed. M. Bailes, D. J. Nice, & S. E. Thorsett (proceedings of August 2002 meeting in Crete)

External Funding Record

Awarded

13. 2024, "Collaborative Research: From Simulation to Observation in Common Envelope Evolution", (PI), NSF, 727K for 2024-2027
12. 2023, "Collaborative Research: The Radiation Magnetohydrodynamics of Tidal Disruption Events", (PI), NSF, 317K for 2023-2026

11. 2022, “Cybertraining: Implementation: Small: CIberCATSS, A Comprehensive, Applied and Tangible CyberInfrastructure Summer School in Southeastern Wisconsin”, (PI), NSF, 500K for 2022-2025
10. 2021, “Collaborative Research: Toward Binary Neutron Star Mergers on a Moving Mesh”, (PI), NSF, 273K for 2021-2023
9. 2021, “CC* Compute: A Balanced Cluster for Science and Engineering in the Great Lakes Region”, (PI), NSF, 400 K for 2021-2023
8. 2020, “The Power of Probabilistic Thinking: Contextual Bandits and the Digital Leads Program”, (PI), Northwestern Mutual, 50K for 2020-2021
7. 2019, “A Framework for Data Intensive Discovery in Multimessenger Astrophysics”, (SI, PI Brady), NSF, 2.8M for 2019-2021, 0.6M to UWM, 3K to SI Chang
6. 2018, “Scalable Cyberinfrastructure for Multimessenger Astrophysics”, (Co-I, PI Brady), NSF, 750K for 2018-2020, 262K to UWM, 10K to SI Chang
5. 2018, “Stellar Mergers on a Moving Mesh”, (PI), NASA ROSES 2017: Astrophysics Theory Program, 334 K for 2018-2021
4. 2013, “CAREER: The Physics and Cosmology of TeV Blazars” (PI) NSF Early Career, 456 K for 2013-2018
3. 2012, “The Physics of White Dwarf Mergers and Detonations: A Path to Type Ia Supernova” (PI) NASA ROSES 2012: Astrophysics Theory Program, 254 K for 2013-2017
2. 2012, “The Plasma Physics of TeV Blazars” (PI) NASA ROSES 2011: Fermi Cycle 5 grant, 49 K for 2012-2013
1. 2012, “The Plasma Physics and Cosmological Impact of TeV Blazars” (PI) UWM Research Growth Initiative, 109 K for 2012-2013

Selected Invited Talks

12/2004: TAC Seminar, Berkeley
”Redshift Measurements from Bursting Neutron Stars: Theory and Observation”

12/2006: Astrophysics Seminar, CITA, Toronto
“X-Ray Irradiation on Accretion Disks in AGN”

2/2008: University of Chicago Astronomy and Astrophysics Colloquium
”Star Formation and Gasdynamics in the Nuclear Regions of Galaxies”

10/2008: Harvard University: ITC Seminar
”Migration of Star Clusters in Nuclear Rings”

04/2009: UCLA: Astronomy Colloquium
“The Origin of the Young Stars in M31”

02/2010: Georgia Tech: Physics Colloquium
”Electromagnetic Precursors of Binary Supermassive Black Hole Mergers”

03/2010: Leiden Observatory: Colloquium
”Morphological Mysteries on Multiple Scales”

04/2010: UC Berkeley: TAC Seminar
”Heavy Vortices and Dark Subhaloes”

07/2010: Lorentz Center: Type I X-ray Bursts
”Spectral Features from Bursting Neutron Stars”

10/2010: Cornell University: Colloquium
”Shedding Light on the Dark Sector”

11/2010: Caltech: Colloquium
"Heavy Vortices and Dark Energy"

11/2010: UC Santa Cruz: Colloquium
"Shedding Light on the Dark Sector"

12/2010: UW-Milwaukee: Colloquium
"The electromagnetic precursor of binary black hole mergers"

2/2011: Florida Atlantic University: Colloquium
"Shedding Light on the Dark Sector"

03/2011: Perimeter Institute Seminar
"The electromagnetic precursor of binary black hole mergers"

10/2011: University of Illinois, Urbana-Champagne Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

10/2011: University of Virginia Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

10/2011: MIT Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

11/2011: UT Austin Colloquium
"The Physics and Cosmology of TeV Blazars"

2/2012: Columbia University Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

4/2012: Northwestern Colloquium
"The Physics and Cosmology of TeV Blazars"

6/2012: Caltech Colloquium
"The Physics and Cosmology of TeV Blazars"

9/2012: University of Minnesota Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

2/2013: Rochester Institute of Technology Colloquium
"The Physics and Cosmology of TeV Blazars"

10/2013: Iowa State University Colloquium
"The Physics and Cosmology of TeV Blazars"

3/2015: Institute for Advanced Study Informal Astrophysics Seminar
"The Physics and Cosmology of TeV Blazars"

5/2015: Space Telescope Science Institute
"The Physics and Cosmology of TeV Blazars"

3/2016: University of Waterloo Astronomy Seminar
"The Turbulent Formation of Stars"

12/2016: UW-Madison Astronomy Colloquium
"The Turbulent Formation of Stars"

10/2017: UW-Madison Astronomy Colloquium
"The Physics and Cosmology of TeV Blazars"

Public Talks

6/2013: Manfred Olson Planetarium: Astrobreak
"Formation of Stellar Mass Black Holes"

7/2013: Delafield Public Library
"Phil and TED's Excellent Adventure"

9/2013: Astronomy Magazine Video Interview on the Big Bang

6/2014: Manfred Olson Planetarium: Astrobreak
"A Star is Born"

10/2014: Manfred Olson Planetarium: Astrobreak
"Earth 2.0: Searching for Worlds like Our Own"

Media Appearances

12/2022: Spectrum 1 News, CBS58
Local news interview on significance of fusion energy breakthrough