

Fani Dosopoulou

PhD Astrophysics

Contact

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Research areas

Stellar/Binary evolution
Exoplanet dynamics
Galactic dynamics
Massive black hole
binaries
Computational
astrophysics

Languages

Greek mother tongue
English fluency

Computer programming

Python, C, C++,
Fortran, Mathematica,
Matlab, LaTeX

Education

- 2018 – **Postdoctoral fellow**
Princeton Center for Theoretical Science (PCTS), Princeton University
Lyman Spitzer, Jr. fellow
Department of Astrophysical Sciences, Princeton University
- 2012–2018 **Ph.D.** in Astrophysics, 06/22/2018
Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)
Department of Physics and Astronomy, Northwestern University (NU), USA
Thesis: Dynamical evolution of eccentric systems. From binary star and planetary systems to massive black hole binaries
Advisor: Vicky Kalogera (Northwestern University)
- 2011–2012 **MSc.** in Advanced Physics
Department of Physics, University of Crete (UOC), Greece
Thesis: Vorticity production and survival in radiative magnetized Friedman Universes
Advisors: Christos G. Tsagas (Aristotle University of Thessaloniki), T. Tomaras (University of Crete)
- 2006–2011 **BSc.** in Physics and Astrophysics
Department of Physics, Aristotle University of Thessaloniki (AUTH), Greece
Thesis: Rotating, magnetized, relativistic media
Advisor: Christos G. Tsagas (Aristotle University of Thessaloniki)

Fellowships-awards-distinctions

- 2018 **NASA Hubble Fellowship Program (NHFP) - Einstein fellowship (declined)**
- 2018 **Harvard CfA Postdoctoral Fellowship (declined)**
- 2018 **Stanford/SLAC postdoctoral fellowship (declined)**
- 2018 **Berkley/TAC postdoctoral fellowship (declined)**
- 2018 **CITA postdoctoral fellowship (declined)**
- 2018-2021 **Postdoctoral fellowship** Princeton Center for Theoretical Science (PCTS), Princeton University
- 2021-2023 **Lyman Spitzer, Jr. fellowship** Department of Astrophysical Sciences, Princeton University
- 2017 **The Holt award**
The Graduate School at Northwestern University
Recognition of a graduate student woman in the STEM fields who is nearing completion of their studies.
- 2016-2018 **NSF GK-12 Fellowship**
Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)
Department of Physics and Astronomy, Northwestern University (NU), USA
NSF GK-12 Fellow for three consecutive years
(<http://gk12.ciera.northwestern.edu/about/>).
- 2014 **The Constantine and Patricia Mavroyannis Scholarship in Theoretical Physics**
Awarded to a Greek PhD student in theoretical physics on an annual basis in the fall semester.
(<http://greekamericafoundation.org/specialized-scholarships/>)
- 2012 **Northwestern University Fellowship and research supplement**
Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)
Department of Physics and Astronomy, Northwestern University (NU), USA
Awarded for the first year of graduate studies.
- 2011-2012 **Maria M. Manassaki Scholarship** University of Crete, Department of Physics, Greece
Awarded to support graduate studies to a Greek National with the highest GPA among applicants.
- 2009 **State Scholarship (IKY)** Aristotle University of Thessaloniki, Department of Physics, Greece
Won the scholarship funded by the State Scholarship Foundation (IKY) (highest GPA for the two semesters of the year 2009 course program).
- 2008 **State Scholarship (IKY)** Aristotle University of Thessaloniki, Department of Physics, Greece
Won the scholarship funded by the State Scholarship Foundation (IKY) (highest GPA for the two semesters of the year 2008 course program).
- 2007 **State Scholarship (IKY)** Aristotle University of Thessaloniki, Department of Physics, Greece
Won the scholarship funded by the State Scholarship Foundation (IKY) (highest GPA for the two semesters of the year 2007 course program).
- 2002-2006 **Distinctions in National Mathematical Olympiad** National Mathematical Olympiad, Greece
Advanced in the third (out of four) phase of the National Mathematical Olympiad for five consecutive years.

Teaching

2015-2018 **Reach for the Stars: Computational Models for Teaching and Learning in Physics, Astronomy and Computer Science (GK-12 program/NSF)**

Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)

Department of Physics and Astronomy, Northwestern University (NU), USA

This program places STEM graduate student fellows in K-12 science classrooms for the academic year with the goal of enriching their education and strengthening their development as researchers by advancing their communication and teaching skills. GK-12 fellows will adapt concepts of computational thinking and actual computational modeling tools from their research work to classroom activities connected to the existing math and science curriculum (<http://gk12.ciera.northwestern.edu/about/>).

The lessons developed for this program can be found at:

<http://gk12.ciera.northwestern.edu/classroom/lessonplans.html>

<https://sites.google.com/site/fanidosopoulou/>.

2012-2015 **Teaching Assistant (TA)**

Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)

Department of Physics and Astronomy, Northwestern University (NU), USA

Classes taught:

Physics Discussion Electricity and Magnetism 136;

Physics lab course Mechanics 136-1;

Physics lab course Electricity and Magnetism 136-2;

Physics lab course Modern Physics 136-3

2008 **Teaching assistant (TA) in Calculus II**

Aristotle University of Thessaloniki, Department of Physics, Greece

Scientific service (Public outreach)

- 2015-2018 **Reach for the Stars: Computational Models for Teaching and Learning in Physics, Astronomy and Computer Science (GK-12 program/NSF)**
Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)
Department of Physics and Astronomy, Northwestern University (NU), USA
Funded by the NSF with support from CIERA and Northwestern University, this NSF program places STEM graduate student fellows in K-12 science classrooms for the academic year with the goal of enriching their education and strengthening their development as researchers by advancing their communication and teaching skills.
- 2016-2017 **Member of the Astronomy on Tap outreach activities**
Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)
Department of Physics and Astronomy, Northwestern University (NU), USA
<http://ciera.northwestern.edu/AoT/>

Talks and Seminars

- 2020 **Exploring Supermassive Black Holes Workshop talk** Princeton Center for Theoretical Science
Talk title: *The Merger History of Elliptical Galaxies: Mass Deficit*. Oct. 15th.
- 2018 **Astro Seminar talk** University of Surrey
Talk title: *Dynamical friction and the evolution of Supermassive Black hole Binaries: the final hundred-parsec problem*. Mar. 26th.
- 2018 **Astro Seminar talk** University of Cambridge
Talk title: *Dynamical friction and the evolution of Supermassive Black hole Binaries: the final hundred-parsec problem*. Mar. 19th.
- 2017 **Galaxies & Cosmology Seminar (invited)** Harvard-Smithsonian Center for Astrophysics (CfA)
Talk title: *Dynamical friction and the evolution of Supermassive Black hole Binaries: the final hundred-parsec problem*. Feb. 21th.
- 2016 **Conference talk** Physikzentrum Bad Honnef
Talk title: *Dynamical friction and the evolution of Supermassive Black hole Binaries: the final hundred-parsec problem*.
Conference: Stellar aggregates over mass and spatial scales. December 5th-9th.
- 2016 **Astro Seminar talk** University of California, Los Angeles (UCLA)
Talk title: Dynamical Evolution of eccentric binary systems
- 2015 **Astro Seminar talk** Rochester Institute of Technology (RIT)
Talk title: Dynamical Evolution of eccentric binary systems
- 2015 **Conference poster** Aspen center for physics
Poster title: The dynamical evolution of eccentric massive black hole binaries
Conference: Dynamics and accretion at the Galactic Center, February 7th-12th.

Conferences, workshops

- 2020 **Workshop (Oct 14- 16) -- Organizing committee** Princeton Center for Theoretical Science
Exploring Supermassive Black Holes
- 2019 **Conference (June 24- 27)** Kavli Institute for Theoretical Physics
Merging Visions: Exploring Compact - Object Binaries with Gravity and Light
- 2019 **Workshop (March 11 - 13)** Center for Computational Astrophysics
Black Holes in the Disks of Active Galactic Nuclei
- 2017 **Workshop (July 9 - August 6)** Aspen Center for physics
Astrophysics of Gravitational Radiation Sources and Multimessenger Astronomy
in the Era of LIGO Detections.
- 2016 **Conference (December 5 - 9)** Physikzentrum Bad Honnef
Stellar aggregates over mass and spatial scales.
- 2015 **Conference (February 7 - 12)** Aspen center for physics
Dynamics and accretion at the Galactic Center.
- 2015 **MESA Summer school (August 10 - 14)** University of California, Santa Barbara (UCSB)

Refereeing/Reviewing

- 2019 **Hubble Space Telescop (HST) Cycle 27 Proposal Peer Review Panel (June 9-12)** Space
Telescope Science Institute
- 2017 – **Astrophysical Journal (ApJ), Monthly Notices of the Royal Astronomical Society (MNRAS)**

Peer-reviewed publications

Total: 10; First author: 6. Citations: 226, H-Index: 8

Publication List

- 12 **Dosopoulou, F.**, Jenny E. Greene, Chung-Pei Ma Core Formation by Supermassive Black Holes in Galaxy Mergers: the Importance of Realistic InitialConditions and Galaxy Morphology, Submitted to ApJ
- 11 Nasim, Imran Tariq, Petrovich, Cristobal, Nasim, Adam, **Dosopoulou, F.**, Antonini, Fabio Formation of counter-rotating and highly eccentric massive black hole binaries in galaxy mergers, 2021,MNRAS, 503, 498
- 10 Michael L. Katz, Luke Zoltan Kelley, **Dosopoulou, F.**, Samantha Berry, Laura Blecha, Shane L. Larson Probing Massive Black Hole Binary Populations with LISA, 2019, MNRAS, 2700
- 9 Hamers, Adrian S, **Dosopoulou, F.**, An Analytic Model for Mass Transfer in Binaries with Arbitrary Eccentricity, with Applications to Triple-star Systems, 2019, ApJ, 872, 119
- 8 Hoang Bao-Minh, Naoz S., Kocsis B., Rasio F. , **Dosopoulou, F.** Black Hole Mergers in Galactic Nuclei Induced by the Eccentric Kozai-Lidov Effect, 2017, 2018, ApJ, 856, 140
- 7 **Dosopoulou, F.**, Naoz S., Kalogera V. Roche-lobe overflow in eccentric planet-star systems,2017, ApJ, 844, 1

- 6 **Dosopoulou, F.**, and Antonini, F. Dynamical friction and the evolution of Supermassive Black hole Binaries: the final hundred-parsec problem, 2017, ApJ, 840, 31
- 5 Sørensen, M., Fragos, T., Steiner, J. F., Antoniou, V., Meynet, G., **Dosopoulou, F.** Unraveling the formation history of the black hole X-ray binary LMC X-3 from the zero age main sequence to the present, 2017, A&A, 597, A12
- 4 **Dosopoulou, F.**, Kalogera, V. Orbital Evolution of Mass-transferring Eccentric Binary Systems. II. Secular Evolution, 2016b, ApJ, 825, 71
- 3 **Dosopoulou, F.**, Kalogera, V. Orbital Evolution of Mass-transferring Eccentric Binary Systems. I. Phase-dependent Evolution, 2016a, ApJ, 825, 70
- 2 **Dosopoulou, F.**, Tsagas, C. G. Vorticity survival in magnetized Friedmann universes, 2014, Phys. Rev. D, 89, 103519
- 1 **Dosopoulou, F.**, Del Sordo, F., Tsagas, C. G., Brandenburg, A. Vorticity production and survival in viscous and magnetized cosmologies, 2012, Phys. Rev. D, 85, 063514