Alexander J. Dittmann

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Education

2018-present	Graduate study in Astronomy, University of Maryland
2020	M.S. in Astronomy, University of Maryland
2014-2018	B.S. *with Highest Distinction* in Physics, University of Illinois
2014-2018	B.S. *with High Distinction* in Astronomy, University of Illinois

Research Experience

2020, Fall	Pre-doctoral Research Assistant, Flatiron CCA	astronomy
2018-present	Graduate Research Assistant, University of Maryland	astronomy
2016-2018	Research Assistant, University of Illinois	astronomy
2016, Summer	SULI Research Assistant, General Atomics	plasma physics
2014-2015	Summer Research Assistant, Catholic University of America	nuclear physics

Fellowships and Awards

2020 CCA Pre-Doctoral Fellowship - awarded a five-month research analyst position
Flatiron Institute Center for Computational Astrophysics, Fall 2020

2018 Graduate School Dean's Fellowship
University of Maryland, Fall 2018 - Summer 2019

2018 Wyatt Award - graduating Astronomy major with most outstanding GPA and research
University of Illinois, Department of Astronomy, Spring 2018

Publications

Journal Articles

2021 Dittmann, A. J., High-Order Multiderivative IMEX Schemes, Applied Numerical Mathematics, 160, 205.

2020 Dittmann, A. J., Modified Hermite Integrators of Arbitrary Order, MNRAS, 496, 1217

2020 Dittmann, A. J., Miller, M. C., Star Formation in Accretion Disks and SMBH Growth, MNRAS, 493, 3732

2019 Miller, M. C., Lamb, F. K., Dittmann, A. J., et al., PSR J0030+0451 Mass and Radius from NICER Data and Implications for the Properties of Neutron Star Matter, ApJL, 887, L24

2019 Bogdanov S. and 13 other authors including Dittmann, A. J., Constraining the Neutron Star Mass-Radius Relation and Dense Matter Equation of State with NICER. II. Emission from Hot Spots on a Rapidly Rotating Neutron Star, ApJL, 887, L26

2018 Liu, X., Dittmann, A. J., Shen, Y., Jiang, L., A Candidate Tidal Disruption Event in a Quasar at z = 2.359 from Abundance Ratio Variability, ApJ, 859, 8

2018 Carmignotto, M. and 61 other authors including Dittmann, A. J., Separated kaon electroproduction cross section and the kaon form factor from 6 GeV JLab data, PhysRevC, 97, 025204

2017 Horn, T. and 18 other authors including Dittmann, A. J., The Aerogel Čerenkov detector for the SHMS magnetic spectrometer in Hall C at Jefferson Lab, NIMA, 842, 28

2015 Swiggum, J. K. and 35 other authors including Dittmann, A. J., PSR J1930–1852: A Pulsar in the Widest Known Orbit Around Another Neutron Star, ApJ, 805, 156

Oral Presentations

2020 Dittmann, A. J., Stars in AGN disks, CCA lunch talk, contributed, October 1

2015 Dittmann, A. J., Exploring the potential for studies of the electromagnetic structure of the kaon at 12 GeV JLab, contributed talk, APS DNP, October 31

Poster Presentations

2018 Dittmann, A. J., Liu, X., Shen, Y., Jiang, L., A Time-domain Analysis of Nitrogen-Rich Quasars, contributed talk, Winter AAS, January 10

2016 Dittmann, A. J., Pinsker, R. I., Ray-tracing studies of fast waves in the lower hybrid range of frequencies, contributed talk, APS DPP, November 1

2014 Dittmann, A. J., The Optical Characterization of Aerogel Tiles for Cherenkov Detectors at Jefferson Lab, contributed talk, APS DNP, October 10

Teaching Experience

University of Maryland

2020 - spring	Theoretical Astrophysics	wrote and taught discussions, graded
2020 - spring	Black Holes	graded, helped update lecture material
2019 - fall	General Astronomy	presented 3 lectures, taught discussions and labs, graded
2019 - spring	General Astronomy	taught and graded discussions and labs
2018 - fall	General Astronomy	taught and graded discussions and labs

Computing

Languages	C, Python, Fortran, CUDA, IDL
Tools	git, SLURM

Service and Outreach

Journals

Referee	MNRAS

GRAD-MAP[1]

Winter 2021 teaching	helped run and plan Python bootcamp sessions
Winter 2020 teaching	helped run and plan Python bootcamp sessions
Winter 2020 mentoring	undergraduate from Howard University, triple system simulations

Undergraduate Curriculum

Introductory labs	revised, restructured, and tested new labs

[1] https://www.umdgradmap.org/