

Alexandria Tucker

INFORMATION	P. O. Box 118440 Gainesville FL 32611-8440 +1 510 4212742 a.tucker@ufl.edu people.clas.ufl.edu/a-tucker Citizenship: U.S.
RESEARCH INTERESTS	Theoretical physics, astrophysics, gravity, general relativity, gravitational waves, black holes, quantum gravity
PROFESSIONAL INTERESTS	Diversity and inclusivity in physics, advising students with learning disabilities, mental health wellness for students, promoting under represented communities in science, student mentoring, science communication and outreach
EDUCATION	University of Florida , Gainesville, Florida August 2016 – Present Ph.D., Theoretical Astrophysics, <i>Expected</i> : Spring 2022 Thesis Title: Black hole orbital dynamics in general relativity—a post-Newtonian approach with implications for astrophysics and gravitational wave detection Advisor: Clifford M. Will, Distinguished Professor GPA as of Fall 2021: 3.76 University of Florida , Gainesville, Florida August 2016 – August 2018 M.Sc., Theoretical Astrophysics, Graduated: July 2018 Advisor: Clifford M. Will, Distinguished Professor GPA: 3.74 University of Innsbruck , Innsbruck, Austria October 2013 – July 2016 B.Sc., Physics, Graduated: July 2016 Thesis Title: Differential Cross Section as the Pullback of an Area Form Advisor: Gebhard Gröbl, Associate Professor GPA: 3.9
PUBLICATIONS	S. Naoz, C. Will, E. Zhang, A. Hees, L. Holzkecht, T. Do, A. Ghez, A. Tucker , M. Morris (in prep), <i>Sgr A* companion black hole: Constraints on social distancing</i> A. Tucker , C. Will (in Press, Oct. 2021), <i>Residual eccentricity of inspiralling orbits at the gravitational-wave detection threshold: Accurate estimates using post-Newtonian theory</i> Phys. Rev. D [arXiv:2108.12210v1] A. Tucker , C. Will (2018), <i>Pericenter advance in general relativity: comparison of approaches at high post-Newtonian orders</i> Class. Quantum Grav. 36 115001 [arXiv:1809.05163]
AWARDS, FELLOWSHIPS & GRANTS	American Association of University Women American Dissertation Fellowship October 2021 University of Florida Association for Academic Women NSF Emerging STEM Scholar Award February 2021 Chateaubriand Fellowship in STEM April 2021 – January 2022 University of Florida IHEPA Travel Grant July 2018 École de Physique des Houches Summer School Grant July 2018 University of Florida Graduate Student Council Grant July 2018

	APS DGRAV Travel Grant	April 2019
RESEARCH POSITIONS	Chateaubriand Research Fellow	April 2021 – January 2022
	Institut d’Astrophysique de Paris/University of Florida	
	Gravitation and Cosmology research group/Department of Theoretical Physics	
	Research Topic: General relativity: N-body dynamics in post-Newtonian theory	
	French Supervisor: Luc Blanchet, Research Director	
	US Supervisor: Clifford M. Will, Distinguished Professor	
	Supported by: Chateaubriand Fellowship in STEM	
	Research Assistant	Spring 2017 – present
	University of Florida	
	Department of Theoretical Physics	
	Research Topic: General relativity: black hole dynamics in post-Newtonian theory	
	Supervisor: Clifford M. Will, Distinguished Professor	
	Supported by: NSF Grant PHY 16-00188	
	Visiting Scientist	August – September 2018 & June – July 2019
	Institut d’Astrophysique de Paris	
	Gravitation and Cosmology research group	
	Research Topic: General relativity: black hole dynamics in post-Newtonian theory	
	Supervisor: Clifford M. Will, Distinguished Professor	
	Co-Supervisor: Luc Blanchet, Research Director	
	Supported by: NSF Grant PHY 16-00188	
	Bachelor Thesis Research	Spring & Summer 2016
	University of Innsbruck, Austria	
	Department of Theoretical Physics	
	Research Topic: Physical applications of differential geometry	
	Supervisor: Gebhard Gröbl, Associate Professor	
	Fall Research Assistant	Fall 2015
	Kazan Federal University, Russia	
	Research Topic: Experimental optics and nuclear physics	
	Supervisor: Rudolf Grimm, Professor	
	Summer Research Assistant	Summer 2015
	University of Innsbruck, Austria	
	Department of Quantum Optics and Spectroscopy	
	Research Topic: Experimental setup improvement for barium ion trap	
	Supervisor: Rainer Blatt, Professor	
TEACHING POSITIONS	Graduate Teaching Assistant	Fall 2016 – Spring 2020
	University of Florida	
	Department of Physics	
	Discussion Instructor	
	PHY2054 - Physics 2 without Calculus Discussion (Fall 2017, Spring 2019)	
	UF Online Instructor	
	PHY2020 - Intro to Principles of Physics (Fall 2019 – Spring 2020)	
	PHY2054 - Physics 2 without Calculus Lab (Fall 2018)	
	PHY2053 - Physics 1 without Calculus Lecture & Discussion (Spring 2018)	
	PHY2053 - Physics 1 without Calculus Lab (Spring 2018)	
Lab Instructor (Spring & Summer 2017, Fall 2018)		
PHY2049L - Physics 2 with Calculus Lab		

Grading Assistant (Fall 2016)
 PHY4604 - Introduction to Quantum Mechanics 1
 Instructor: Pierre Sikivie, Distinguished Professor
 PHY3221 - Mechanics 1
 Instructor: Stephen Hagen, Professor
 PHZ3113 - Intro to Theoretical Physics
 Instructor: Khandker Muttalib, Professor

SCIENTIFIC
 PRESENTATIONS

Observatoire de Paris: Laboratoire Univers et Théories Seminars
invited October 2021
 “Estimating residual eccentricities of binary orbits at the gravitational wave detection threshold: a post-Newtonian approach”

Institut d’Astrophysique de Paris Theoretical Physics: Gravitation and Cosmology Seminars
invited October 2021
 “Residual eccentricity of inspiralling orbits at the gravitational-wave detection threshold: Accurate estimates using post-Newtonian theory”

American Physical Society April Meeting – virtual April 2021
 “Evolution of highly eccentric binary orbits with radiation reaction: an analytic approach”

American Physical Society April Meeting – virtual April 2020
 “Long-term evolution of highly eccentric binary orbits of general masses with radiation reaction: a post-Newtonian”

GR 22/AMALDI 13 July 2019
 “Long-term evolution of highly eccentric binary orbits with radiation reaction: a post-Newtonian approach”

American Physical Society April Meeting April 2019
 “Long-term evolution of highly eccentric binary orbits with radiation reaction”

École de Physique des Houches: Gravitational Waves July 2018
 “An analytic description of eccentric binary orbits”

SERVICE AND
 OUTREACH

Science Artist August 2018 – Present
 Volunteer - promotional artwork for UF physics and astrophysics
 Commissioned - graphic designer for physics textbook figures

Graduate Mentor Program Co-founder & Mentor 2017 – Present
 University of Florida Physics Graduate Community

IDEA Executive Board Member August 2016 – Present
 Physics Inclusion Diversity and Equity Alliance (previously Women in Physics and Astronomy)

Film Advisor October 2020
 Scientific advisor for screenwriter James V. Hart on Hollywood motion picture pilot project *Fermi’s Paradox*

University of Florida Women in Physics Representative & Recruiter
 January 2020
 American Physical Society Conferences for Undergraduate Women in Physics

SKILL SET

Languages

English (native tongue)
German (fluent, CEFR level C2)
French (elementary, CEFR level A2)
Spanish (elementary, CEFR level A2)
Russian (beginner, CEFR level A1)

Computational

Python, Mathematica, xAct, L^AT_EX, Unix,
Microsoft Office, iWork, Adobe Creative Cloud