

JESSICA R. TAYLOR, PHD



- › Birthdate: July 28th, 1993
- › Interests: Discipline-Based Educational Research: Student Decision-Making & Knowledge Retention
Wave Propagation: Schrödinger Models
High-Energy Density Physics & Imaging Sciences: Ejecta Formation & Image Reconstruction

Education

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| Aug 2015 - Apr 2019 | Doctor of Philosophy, Applied Mathematics | UC Merced |
| | <ul style="list-style-type: none">› Dissertation: Schrödinger Equations: Computations & Theory› Advisor: Dr. Boaz Ilan (Feb. 2014 - Apr 2019)› Faculty Collaborator: Dr. Kevin Mitchell (Jun. 2015 - Apr 2019) | |
| Aug 2015 - Aug 2017 | Master of Science, Applied Mathematics | UC Merced |
| | <ul style="list-style-type: none">› Thesis (Capstone): NLS Equations: Bose-Einstein condensation (BEC) & Parity-Time (\mathcal{PT}) Symmetry› Advisor: Dr. Boaz Ilan (Feb. 2014 - Aug. 2017)› Faculty Collaborator: Dr. Kevin Mitchell (Jun. 2015 - Aug. 2017) | |
| Aug 2011 - May 2015 | Bachelor of Science, Applied Mathematics, Physics Emphasis | UC Merced |
| | <ul style="list-style-type: none">› Area: NLS Equations: BEC, deep water waves; Korteweg-de Vries Equation: shallow water waves› Advisors: Dr. Boaz Ilan (Feb. 2014 - May 2015) & Dr. Dimitrios Mitsotakis (Nov. 2013 - May 2015)› National Science Foundation (NSF) Mathematical & Physical Sciences (MAPS) Scholar & Researcher› UC Merced Science, Technology, Engineering & Mathematics (STEM) Scholar & Researcher | |

»»» Pedagogical Projects

Fall 2018 - Spring 2019	Center of Engaged Teaching and Learning (CETL)	UC Merced
	<ul style="list-style-type: none"> » The effects of vocationalism on the mathematical transfer of learning 	

»»» Employment & Experience

Aug '20 - Oct '22	Postdoctoral Researcher	Lawrence Livermore National Laboratory
	<ul style="list-style-type: none"> » Weapons & Complex Integration: Design Physics Division 	
Summer '19 - Summer '20	Lecturer	UC Merced
	<ul style="list-style-type: none"> » Introductory Linear Algebra & Differential Equations (<i>Summer '19, Spring '20</i>) » Pre-Calculus (<i>Fall '19</i>) » Numerical Methods for Physical Sciences & Engineers (<i>Fall '19</i>) » Calculus I for Physical Sciences & Engineers (<i>Spring '20</i>) » Intermediate Ordinary Differential Equations (<i>Spring '20</i>) » Partial Differential Equations (<i>Spring '20</i>) 	
Summer '18	Teaching Fellow / Instructor of Record	UC Merced
	<ul style="list-style-type: none"> » Introductory Linear Algebra & Differential Equations (<i>Summer '18</i>) 	
2015-2019	Teaching Assistant	UC Merced
	<ul style="list-style-type: none"> » Numerical Analysis (<i>Fall 2015, '16; Spring '16</i>) » Introductory Linear Algebra & Differential Equations (<i>Summer '16</i>) » Writing Assistance for the Graduate Division (<i>Fall '16</i>) » Numerical Linear Algebra (<i>Spring '17</i>) » Numerical Methods for Scientists & Engineers (<i>Fall '17</i>) » Linear Analysis (<i>Fall '18</i>) » Probability and Statistics (<i>Spring '19</i>) 	
2015-2019	Graduate Student Researcher	UC Merced
Fall 2017-2018	Center for Engaged Teaching & Learning Instructional Intern	UC Merced
	<ul style="list-style-type: none"> » Advisors: Dr. Anali Makoui 	
Spring 2014	STEM Center Student Assistant, Peer Tutor & Mentor	UC Merced
	<ul style="list-style-type: none"> » Advisors: Drs. Petia Gueorguieva & David Samper » Area: Grant proposals for applied math, physics & chemistry majors. 	
2011 - 13	NSF MAPS Scholars Program: Peer Tutor, Mentor, & Scholar	UC Merced
	<ul style="list-style-type: none"> » Program Advisors: Phung Colvin & Dr. Petia Gueorguieva » Faculty Mentors: Dr. Arnold Kim & Dean Juan Meza (Aug. 2012 - Dec. 2013), Dr. Sayantani Ghosh (Jan. 2012 - Aug. 2012) 	
Fall 2012	Disability Services Notetaking Assistant	UC Merced
2010-11	Peer-Assisted Learning (PALs) Program Assistant	Grace M. Davis High School
	<ul style="list-style-type: none"> » Focus group: Medium to Severely Disabled Students 	
2007- 08	Medical Records Dictation Assistant	Stan. Health Services Agency

»»» Awards & Honors

2018-19	Outstanding Teaching Award	UC Merced
2016-17	SIAM Student Chapter Certificate of Recognition	SIAM & UC Merced
Spr 2012, 2013-15	Chancellor's & Dean's List	UC Merced
May 2015	Outstanding Undergraduate Student Award	UC Merced
May 2015	UC Merced STEM Scholars Award	UC Merced
Dec 2013	NSF Mathematical & Physical Sciences Scholars Award	UC Merced

»»» Scholarships & Fellowships

Spring 2018	Southern California Edison Fellowship	Edison Int'l & UC System
	» Amount: \$17,204.42 USD	
Summer 2017	Applied Mathematics Summer Research Fellowship	UC Merced
	» Amount: \$10,000.00 USD	
Spring 2017	Applied Mathematics Research Travel Fellowship	UC Merced
	» Amount: \$2,066.11 USD	
Spring 2017	Nonlinear Waves Lab Research Fellowship	UC Merced
	» Amount: \$4,879.62 USD	
Jan 2012-Aug 2013	NSF Mathematical & Physical Sciences Scholars Award	UC Merced
	» Amount: \$10,000.00 USD	
May 2011	Sammy Jenkins Mathematics Scholars Award	Grace M. Davis High School
	» Amount: \$1,500.00 USD	

»»» Oral Presentations (National & International Meetings)

Oct 2022	Scholarship of Teaching and Learning Summit, Kennesaw State University	Virtual
Sept 2022	Focus on Teaching and Technology, Washington University in St. Louis	Virtual
Mar 2017	SIAM: Nonlinear Waves & Coherent Structures	Orange, CA
Mar 2017	IMACS: Nonlinear Evolution Equations & Wave Phenomena	University of Georgia, Athens
Oct 2016	AMS Nonlinear Waves: Pre-Colloquium Session	CU Boulder / Univ of Denver

»»» Oral Presentations (UCM Meetings)

Apr 2017	Second Annual Central Valley Regional Conference	UC Merced
	» UCM SIAM Chapter Introduction & Opening Remarks: Meet & Greet	
Nov - Dec 2016	Graduate Lectures in Nonlinear Dynamics	UC Merced
	» Quantum Chaos (two-part lecture series)	
Aug 2016	First Applied Math Research Retreat	UC Merced
	» Nonlinear Waves: Nonlinear Schrödinger Equation	
Continual	SAMPLe Seminars	UC Merced
	» An Intro to MIDI using MATLAB (Apr '17)	
	» The Nonlinear Schrödinger Equation: Theory & Computations (Dec '16)	
	» Enhanced fractal dynamics of a BEC induced by dipolar interactions (Sept '16)	

- › Two flavors of the Nonlinear Schrödinger Equation (Oct '15)
- › Towards analytical and computational methods of the Nonlinear Schrödinger equation with application in Bose-Einstein condensation (Apr '15)

››› Poster Presentations (National & International Meetings)

Jul 2017	SIAM 2017: Association for Women in Math. (AWM) Workshop	Pittsburgh, PA
	› Band-edge solitons in the NLS equation with a periodic, \mathcal{PT} -symmetric potential (Anticipated)	
Oct 2016	Institute of Mathematics & Its Applications (IMA)	Univ. of Minnesota, Twin Cities
	› Asymptotics and computations of band-edge solitons in \mathcal{PT} -symmetric NLS equations (Updated)	

››› Poster Presentations (Local Meetings)

Apr 2018	Third Annual Central Valley SIAM Regional Conference	UC Merced
	› Localization & Stabilization of Dipolar BECs	
Apr 2017	Second Annual Central Valley SIAM Regional Conference	UC Merced
	› Band-gap asymptotics for \mathcal{PT} -symmetric linear Schrödinger equations with complex periodic potentials	
Oct 2016	National Labs Day	UC Merced
	› Enhanced fractal dynamics of a BEC induced by dipolar interactions	
Apr 2016	First Annual Central Valley SIAM Regional Conference	UC Merced
	› Asymptotics and computations of band-edge solitons in \mathcal{PT} -symmetric NLS equations	
2017-2020	Journal Articles (available to public)	UC Merced
	› Ilan, B., and Taylor, J.R. , Anisotropic collapse in three-dimensional dipolar Bose-Einstein condensates, <i>Physics Letters A</i> , 384:126187, 2020.	
	› Taylor, J.R. , Schrödinger Equations: Computations and Theory, UC Merced, 2019.	

››› Skills

- › Languages: English (Native)
- › Software: Mathematica, MATLAB, R, Python, L^AT_EX, VisIT: Weapons Simulation Software (LLNL), Geant4: Particle-Matter Simulation Software, Microsoft Office
- › Operating Systems: Linux/Unix, macOS, Microsoft Windows

››› Professional Societies

2016-Present	American Physical Society (APS)	International
2011-Present	Society for Industrial & Applied Mathematics (SIAM)	UC Merced
2011-Present	Association for Women in Mathematics (AWM)	International

››› Synergistic Activities

2018-2019	Graduate Pedagogy Association (GPA)	UC Merced
2017-2019	Center for Engaged Teaching and Learning (CETL)	UC Merced
2014-2019	Women in STEM (W-STEM)	UC Merced
	› Mentee: Brianne Rouleau	

››› Service

2016-2017	President, SIAM Student Chapter	UC Merced
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