

# Joseph Esposito

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CONTACT INFORMATION Tandon School of Engineering (646)997-4076  
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RESEARCH INTERESTS Nonlinear partial differential equations, mathematical physics, gauge field theory, and optical vortex solitons.

EDUCATION **Tandon School of Engineering, New York University**  
Ph.D. Candidate, Mathematics (expected May 2019)

- Dissertation Topic: On solutions to vortex equations governing the fractional quantum Hall effect.
- Advisor: Yisong Yang

**Polytechnic Institute of New York University**  
M.S. in Mathematics, May 2012

- Received graduate merit scholarship.

**Stony Brook University**  
M.A. in Mathematics, May 2009

- Program for secondary teachers.

**St. Joseph's College**  
B.S. in Mathematics, May 2006

- Concentration in secondary education. Received secondary teaching certificate for New York state.

PUBLICATIONS J. Esposito, *On infinite energy solutions to vortex equations governing the fractional quantum Hall effect*, submitted (October 2018). <https://arxiv.org/abs/1810.12991>  
J. Esposito, *An indefinite system of equations governing the fractional quantum Hall effect*, submitted (October 2018). <https://arxiv.org/abs/1810.07723>

GRADUATE COURSEWORK

<input type="checkbox"/> Real Variables	<input type="checkbox"/> Methods of Applied Mathematics
<input type="checkbox"/> Complex Variables	<input type="checkbox"/> Probability and Statistics
<input type="checkbox"/> Linear Algebra	<input type="checkbox"/> Quantum Mechanics
<input type="checkbox"/> Partial Differential Equations	<input type="checkbox"/> Mathematical Modeling in Biology
<input type="checkbox"/> Functional Analysis	

MENTORING		Research Experiences for Undergraduates and NYU Tandon Summer Research
	Summer 2016	<p>“<i>Optical vortex solitons-Existence and computation</i>”          Shahmir Shahrol, BS Mathematics 2018          Nathaniel Stemen, BS Physics and Mathematics 2017</p> <p>“<i>DNA breathers - Existence and computation</i>”          George Abraham, BS Mathematics and Electrical Engineering 2017          Alexandra Longo, BS Mathematics and Physics 2018</p>
	Summer 2014	<p>“<i>Modeling electron-phonon interactions in fullerenes</i>”          Watson Markson, BS Mathematics 2016</p>
TEACHING EXPERIENCE		
	Fall 2018	Lecturer, Precalculus, Integrated Calculus I, and Mathematics Resource Center
	Summer 2018	Lecturer, Pre College Mathematics (General Studies Program)
	Spring 2018	Lecturer, Integrated Calculus II, Linear Algebra and Differential Equations, Calculus III, and Mathematics Resource Center
	Fall 2017	Lecturer, Precalculus, Integrated Calculus I, and Mathematics Resource Center
	Summer 2017	Lecturer, Pre College Mathematics (General Studies Program)
	Spring 2017	Lecturer, Integrated Calculus II and Mathematics Resource Center
	Fall 2016	Lecturer, Precalculus for Engineers, Linear Algebra and Differential Equations, and Mathematics Resource Center
	Summer 2016	Lecturer, Calculus II and Integrated Calculus II for Engineers
	Spring 2016	Lecturer, Integrated Calculus I for Engineers and Mathematics Resource Center
	Fall 2015	Lecturer, Calculus II for Engineers, Linear Algebra and Differential Equations
	Spring 2015	Lecturer, Introduction to Precalculus, Calculus II
	Fall 2014	Lecturer, Introduction to Precalculus, Integrated Calculus I, and Linear Algebra and Differential Equations
	Summer 2014	Lecturer, Calculus II and Integrated Calculus II
	Spring 2014	Lecturer, Introduction to Precalculus, Calculus II, and Integrated Calculus II
	Fall 2013	Lecturer, Introduction to Precalculus, Calculus II, and Integrated Calculus II
	Summer 2013	Lecturer, Pre College Mathematics (General Studies Program)
	Spring 2013	Lecturer, Introduction to Precalculus and Integrated Calculus I
	Fall 2012	Lecturer, Introduction to Precalculus and Precalculus
	Summer 2012	Lecturer, Precalculus
	Spring 2012	Lecturer, Precalculus
	Fall 2011	Grader and Tutor for Mathematics department
HONORS AND AWARDS		SOE PhD Program Scholarship Graduate Merit Scholarship Most Entertaining Professor (The Undergraduate Student Council) Overall Rating of 4.8 on Rate My Professor
OTHER RELEVANT WORK EXPERIENCE	2006 – 2010	Secondary Mathematics and Science teacher for Our Lady of Peace Academy Responsibilities included implementing daily lesson plans for mathematics, Earth Science, Biology, Chemistry, and Physics. Developed curricula for Algebra I and II, Geometry, and Calculus. Also helped develop curricula for Biology, Chemistry, and Physics.