

# Victor P. DeCaria

---

<b>CONTACT</b>	Department of Mathematics University of Pittsburgh Pittsburgh, PA 15260	vpd7@pitt.edu <a href="https://victordecaria.com/">https://victordecaria.com/</a>
<b>EDUCATION</b>	<i>Bachelor of Science, Mathematics</i> Millersville University, Millersville, PA, May 2014 Concentration: Applied Mathematics Minor: Physics  <i>Master of Arts, Mathematics</i> University of Pittsburgh, Pittsburgh, PA, May 2017  <i>Doctor of Philosophy, Mathematics</i> University of Pittsburgh, Pittsburgh, PA, Expected graduation, August 2019	
<b>EXPERIENCE</b>	<i>Andrew Mellon Predoctoral Fellow</i> Mathematics Department, University of Pittsburgh	Sept. 2018 - Present
	<i>Graduate Student Researcher</i> Mathematics Department, University of Pittsburgh	Summers of 2015-2016, and 2018
	<i>Technical Intern</i> Bettis Atomic Power Laboratory, Computational Methods and Scientific Software Development Unit, West Mifflin, PA	Summer 2017
	<ul style="list-style-type: none"><li>• Performed sensitivity analysis using modeFrontier on scientific computing software.</li><li>• Leveraged High Performance Computing Clusters to manage parallel jobs.</li></ul>	
	<i>Teaching Assistant</i> Mathematics Department, University of Pittsburgh Recitations led include Business Calculus, Calculus 1, 2 and 3.	Falls and Springs of Sept. 2014 - April 2018
	<i>Technical Intern</i> Los Alamos National Laboratory, Plasma Physics Group (P-24), Los Alamos, NM	Fall 2013
	<ul style="list-style-type: none"><li>• Applied genetic algorithms to fit data from inertial confinement fusion experiments.</li><li>• Developed a graphical user interface in MATLAB to display data and interface with the genetic algorithm.</li></ul>	
<b>RESEARCH INTERESTS</b>	Computational fluid dynamics, numerical analysis, machine learning, and reduced order modeling.	

**PROFESSIONAL SOCIETIES** *President* University of Pittsburgh Chapter of SIAM Fall 2017-Present

**COMPUTING SKILLS** *Languages:* Python, MATLAB, FEniCS, Freefem++, Bash.  
*High Performance Computing:* Linux, modeFrontier, Cluster Computing.  
*Other:* Machine Learning, ParaView, Matplotlib, L<sup>A</sup>T<sub>E</sub>X, Helios.

**TALKS PRESENTED** “A New Embedded Variable Stepsize, Variable Order Family” March 2018 *Finite Element Circus* at University of Tennessee, Knoxville.  
“Achieving the Correct Energy Dissipation with grad-div Stabilization” 2017 *Finite Element Circus* at University of Maryland, Baltimore County.  
“Achieving the Correct Energy Dissipation with the grad-div parameter” 2017 *Conference on Classical and Geophysical Fluid Dynamics: Modeling, Reduction and Simulation* at Virginia Tech.  
“Achieving the Correct Energy Dissipation in Slightly Compressible Turbulent Flow” 2017 *VT Graduate Student Conference*  
“A Pressure Correction Method for the Incompressible Navier-Stokes Equations,” 2016 *Computational Fluid Dynamics Mini-conference* at Clemson University.

**PUBLICATIONS** “An Artificial Compression Reduced Order Model.”, V. DeCaria, T. Iliescu, W. Layton, M. McLaughlin, M. Schneier. Submitted to *SINUM*.  
“A New Embedded Variable Stepsize, Variable Order Family of Low Computational Complexity.”, V. DeCaria, A. Guzel, W. Layton, Y. Li. Submitted to *SINUM*. Preprint available at <https://arxiv.org/abs/1810.06670>.  
“Analysis of a Low Complexity, Time-Accurate Discretization of the Navier-Stokes Equations”, V. DeCaria, W. Layton, H. Zhao. Submitted to *Math. of Comp.* Preprint available at <https://arxiv.org/abs/1810.06705>.  
“An Analysis of the Robert-Asselin Time Filter for the Correction of Nonphysical Acoustics in an Artificial Compression Method”, V. DeCaria, W. Layton, M. McLaughlin. Dec. 2018, *Numerical Methods for Partial Differential Equations*.  
“On the Determination of the Grad-Div Criterion”, V. DeCaria, W. Layton, A. Pakzad, Y. Rong, N. Sahin, H. Zhao. Nov. 2018, *Journal of Mathematical Analysis and Applications*.  
“A Conservative, Second Order, Unconditionally Stable Artificial Compression Method”, V. DeCaria, W. Layton, M. McLaughlin, Oct. 2017, *Computer Methods in Applied Mechanics and Engineering*.