August 8, 2022

Bennett Clayton

Email: bgclayto@tamu.edu

Education

- **Texas A&M University**, Fall 2016 - Present
  PhD in Mathematics
- **University of North Carolina at Charlotte**, Spring 2014
  Masters of Science in Mathematics
- **University of North Carolina at Charlotte**, Fall 2011
  Bachelor of Science in Mathematics *Cum Laude*

Publications

- B. Clayton, J.-L. Guermond, M. Maier, B. Popov, E. J. Tovar. (Preprint) *Robust second-order approximation of the compressible Euler equations with an arbitrary equation of state.* ArXiv (2022). `https://arxiv.org/abs/2207.12832`.
- B. Clayton, J.-L. Guermond, B. Popov. *Invariant Domain Preserving Approximations for the Euler Equations with Tabulated Equation of State.* SIAM Journal on Scientific Computing, 44 (2022), pp. A444-A470.

Research interests

- **Conservation Laws (Euler Equations)**
- **Numerical Analysis**

Current Research

- **Advisors**: Dr. Popov, Dr. Guermond, and Dr. Maier. **Research**: Development of invariant domain preserving methods for the Euler equations with tabulated EOS.

Presentations

- **WCCM-APCOM 2022 (Virtual)** August 2022
  Yokohama, Japan. Title: *Invariant Domain Preserving Methods for the Euler equations with a Tabulated Equation of State.*

- **4th Annual Meeting of the SIAM Texas-Louisiana Section** November 2021
  South Padre Island, TX, USA. Title: *Invariant-Domain Preserving Approximation of the Compressible Euler Equations with Tabulated Equations of State.*
- **Center for Large-Scale Scientific Simulations Seminar** April 2021
  Texas A&M University, College Station, TX, USA. Title: *Invariant-Domain Preserving Approximation of the Compressible Euler Equations with Tabulated Equations of State.*

Teaching Experience

Texas A&M University, Instructor of Record Summer 2022

MATH 140 Mathematics for Business and Social Sciences Summer 2022
One class

Texas A&M University, Teaching Assistant Fall 2017 - Summer 2021

Numerical Qualifier Preparatory Class Summer 2021
One class
Duties included: preparing graduate students for their numerical PhD qualifying exam.

MATH 442 Math Modeling Fall 2019
One class
Duties included: preparing assignments and projects, grading, teaching Python, and managing a lab.

Numerical Qualifier Preparatory Class Summer 2019
One class
Duties included: preparing graduate students for their numerical PhD qualifying exam.

MATH 417 Numerical Analysis Spring 2019
One section.
Duties included: teaching Python, recitation, and grading.

MATH 151 Engineering Calculus I Fall 2018
Three sections.
Duties included: teaching MATLAB, recitation, quiz preparation, and grading.

MATH 152 Engineering Calculus II Spring 2018
Three sections.
Duties included: teaching MATLAB, recitation, and grading.

MATH 151 Engineering Calculus I Fall 2017
Three sections.
Duties included: teaching MATLAB, recitation, quiz preparation, and grading.

UNC Charlotte, Part-time Instructor Fall 2014 - Spring 2016

- **MATH 1100 College Algebra** (*Two courses*) Spring 2016
  MATH 1241 Calculus I (*One course*)
  MATH 2164 Linear Algebra (*One course*)
- **MATH 1100 College Algebra** (*Two courses*) Fall 2015
  MATH 1120 Business Calculus (*Two courses*)

- **MATH 1120 Business Calculus** (*One course*) Spring 2015
  MATH 1242 Calculus II (Online) (*One course*)
- **MATH 1120 Business Calculus** (Online) (*One course*) Fall 2014
  MATH 1120 Business Calculus (*One course*)
  Calculus for Engineering Technology (*Two courses*)

Outreach

- **Texas Junior Science and Humanities Symposia** January 2022
  (*Judge for Mathematics and Comp. Sci. Group*)
- **Texas A&M Integral Bee** Spring 2019
  (*Volunteer*)
- **Texas A&M High School Mathematics Contest** Fall 2016
  (*Volunteer Grader*)

Leadership

- **Society for Industrial and Applied Math** Fall 2019 - Spring 2020
  (*TAMU Graduate Student Chapter: President*)
- **Society for Industrial and Applied Math** Fall 2018 - Spring 2019
  (*TAMU Graduate Student Chapter: Liason Officer*)

Skills

- **Programming Languages**: Fortran and C++.
- **Other Sofware/Programs**: LaTeX, `deal.II`, MATLAB

Software Development

- **Ryujin**: A high performance multi-threaded parallel C++ code based on the `deal.II` finite element library for solving the Euler equations.
- **In-house Fortran Code**: A Fortran program for solving the Euler equations using continuous finite elements.

Languages

- English: Native language
- Russian: Intermediate level
- Korean: Beginner level

Awards

- **Award for Academic Excellence** Spring 2009
  UNC Charlotte, Department of Russian Studies