

Marc Henry de Frahan

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Education

- 2011-present **Ph.D. in Mechanical Engineering**, *University of Michigan*, Ann Arbor, MI.
Research focus: Hydrodynamic instabilities in high energy density physics.
Advisor: Prof. E. Johnsen.
- 2009-2011 **M.S. in Applied Mathematics Engineering**, *Université Catholique de Louvain*, Belgium, completed with *Grande Distinction*.
Specialization: Numerical simulation and modeling.
Thesis title: Implementation of a Discontinuous Galerkin Method for hyperbolic PDEs on GPUs. *Thesis supervisors*: Dr. J-F Remacle, Dr. P. Chatelain, Dr. V. Legat.
- Fall 2010 **Study abroad semester**, *Inst. Nat. des Sciences Appliquées de Toulouse*, France.
- 2007-2009 **B.S. in Applied Mathematics Engineering**, *Université Catholique de Louvain*, Belgium, graduated with *Distinction*. *Minor*: Physics.
- 2006-2007 **Freshman year Physics major**, *Georgetown University*, Washington D.C, USA.

Current Research

- Hydrodynamic instabilities in high energy density physics.**
Investigating different plasma models: MHD, two-temperature, two-fluid.
- Discontinuous Galerkin method for interface capturing schemes for the Euler equations**, *paper in preparation*.
- May-June 2012 **Computational Methods in High Energy Density Plasmas**, *workshop hosted by the Institute for Pure and Applied Mathematics*, UCLA.

Relevant experience

- Summer 2010 **Student Intern**, *Lawrence Livermore National Lab.*, Livermore CA, USA.
Studied hydrodynamic instabilities in inertial confinement fusion targets. Characterized growth factors during capsule compression. *Supervisors*: Dr. L. Suter and Dr. D. Clark.
- Summer 2009 **Student Intern**, *Lawrence Livermore National Lab.*, Livermore CA, USA.
Studied hot electron signatures and capsule preheat in the context of inertial confinement fusion as developed at the National Ignition Facility. *Supervisors*: Dr. L. Suter and Dr. C. Thomas.
- Summer 2008 **Student Intern**, *Lawrence Livermore National Lab.*, Livermore CA, USA.
Studied and optimized National Ignition Facility inertial confinement fusion target geometries using view factor calculations. *Supervisors*: Dr. L. Suter and Dr. C. Thomas.

Computer skills

Scientific
programing

C/C++, C for CUDA, Hydra, Yorick, ITS
Monte-Carlo Codes, OpenMP, MPI, Matlab,
Python, Gambit/Fluent, Patran/Nastran

Operating
systems

GNU/Linux, Windows

Languages

English

fluent

First mother tongue.

French

fluent

Second mother tongue.

Dutch

proficient

6 years in secondary school.