Bruno Turcksin

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Education	**PhD** in Nuclear Engineering at Texas A&M University, College Station, TX $\qquad$ December 2012

- GPA: 4.0
- Dissertation on "Acceleration Techniques for Discrete-Ordinates Transport Methods with Highly Forward-Peaked Scattering" : development and implementation of an angular multigrid solver for the electron-photon transport in a deterministic transport code.

European Master of Science in Nuclear Engineering $\qquad$ June 2009

- Institut National des Sciences & Techniques Nucléaires, Cadarache, France.
- Thesis : Development of 3D mesh adaptive time-dependent code for neutron and photon transport based on the SP_n method.

Master in Engineering Physics at Université Libre de Bruxelles, Brussels, Belgium $\qquad$ August 2008

- Five-year college degree with "Grande Distinction" (High Honors).

Experience   **Computational Scientist** $\qquad$ March 2017-Present
in the Computational Engineering and Energy Sciences Group
at Oak Ridge National Laboratory, Oak Ridge, TN

Postdoctoral Research Associate $\qquad$ January 2016-February 2017
in the Computational Engineering and Energy Sciences Group
at Oak Ridge National Laboratory, Oak Ridge, TN

Visiting Assistant Professor $\qquad$ January 2014-December 2015
in the Department of Mathematics
at Texas A&M University, College Station, TX

Postdoctoral Researcher $\qquad$ January 2013-December 2013
in the Department of Mathematics
at Texas A&M University, College Station, TX

Graduate Research Assistant $\qquad$ September 2008-December 2012
at Texas A&M University, College Station, TX

Intern at Oak Ridge National Laboratory, Oak Ridge, TN $\qquad$ July 2009-August 2009

- Worked in a team on development of a parallel computational framework for coupled electron-photon transport.

Intern at Texas A&M University, College Station, TX $\qquad$ April 2008-August 2009

- Developed a 3D mesh adaptive time dependent code for neutron and photon transport.

Intern at Tractebel Engineering, Brussels, Belgium $\qquad$ January 2007- February 2007

- Worked on probabilistic safety assessment for an air regulation circuit.

Teaching assistant for a sophomore-level course   September 2006-June 2007
     of Mechanics at Université Libre de Bruxelles, Brussels, Belgium

Teaching	Math 308: Differential Equations	Spring 2014

Academic Honors	Alpha Nu Sigma, Honor Society	May 2010

Computer Skills		
	Languages:	C++, Python
	Software:	Matlab, VisIt, svn, git
	Libraries:	Trilinos, deal.II (developer), numpy, scipy
	Operating systems:	Linux, FreeBSD

Languages		
	French:	native tongue
	English:	fluent
	Dutch:	basic

Publications   **Journal articles**

- *WorkStream - A Design pattern for Multicore-Enabled Finite Element Computations.*, Bruno Turcksin, Martin Kronbichler and Wolfgang Bangerth, ACM Transactions on Mathematical Software, **(43)(1)**, 2:1-2:29, August 2016

- *Discontinuous diffusion synthetic acceleration for S_n transport on 2D arbitrary polygonal meshes.*, Bruno Turcksin and Jean C. Ragusa, Journal of Computational Physics, **(274)**, 356-369, October 2014

- *Angular Multigrid Preconditioner for Krylov-based Solution Techniques applied to the S_n Equations with Highly Forward-Peaked Scattering.*, Bruno Turcksin, Jean C. Ragusa and Jim E. Morel, Transport Theory and Statistical Physics, **(41)(1-2)**, 1-22, August 2012

- *Goal-Oriented h-adaptivity for the Multigroup SP_n Equations.*, Bruno Turcksin, Jean C. Ragusa and Wolfgang Bangerth, Nuclear Science and Engineering, **165(3)**, 305-319, July 2010

Conference Proceedings

- *Parallel Sn Sweeps on Adapted Meshes,* B. Turcksin, Joint International Conference on Mathematics and Computation, Supercomputing in Nuclear Applications and the Monte Carlo Method, Nashville, Tennessee, April 19-23, 2015

- *A Diffusion Synthetic Acceleration Scheme for Rectangular Geometries Based on Bilinear Discontinuous Finite Elements,* B. Turcksin, J.C. Ragusa, International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Sun Valley, Idaho, May 5-9, 2013

- *An Angular Multigrid Acceleration Method for S_n Equations with Highly Forward-Peaked Scattering,* B. Turcksin, J.C. Ragusa, J.E. Morel, International Conference on Transport Theory 22, Portland, Oregon, September 11-16, 2011

- *Techniques to reduce memory requirements for coupled photon-electron transport,* B. Turcksin, J.C. Ragusa, J.E. Morel, International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Rio de Janeiro, Brazil, May 8-12, 2011

- *Adaptive Multimesh hp-FEM For a Coupled Neutronics and Nonlinear Heat Conduction Problem,* Damien Lebrun-Grandié, Jean C. Ragusa, Bruno Turcksin, Pavel Soli, International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, Rio de Janeiro, Brazil, May 8-12, 2011

- *Method of Manufactured Solutions for a 2D Neutronics/Heat Conduction Test Case with Adaptive Multimesh hp-FEM,* Damien Lebrun-Grandié, Bruno Turcksin, Jean C. Ragusa, Transactions of the American Nuclear Society, ANS Meeting, Las Vegas, NV, USA, November 7-11, 2010

- *Fourier Analysis of a New P1 Synthetic Acceleration for Sn Transport Equations,* B. Turcksin, J.C. Ragusa, Pacific Basin Nuclear Conference, Cancun, Mexico, October 24-30, 2010

- *Mesh adaption driven by a posteriori error estimators in an anisotropic framework,* B. Turcksin, J.C. Ragusa, Mathematics of Finite Elements and Applications (MAFELAP), Brunel University, United Kingdom, June 9-12, 2009

- *Goal-oriented mesh adaptivity for multi-dimension SPN equations,* B. Turcksin, J.C. Ragusa, International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics, Saratoga Springs, New York, May 3-7, 2009

- *Spatial adaptivity for time-dependent diffusion problems,* B. Turcksin, J.C. Ragusa, International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics, Saratoga Springs, New York, May 3-7, 2009

Reports and Preprints

- *The deal.II Library, Version 8.4,* Wolfgang Bangerth, Timo Heister, Luca Heltai, Guido Kanschat, Martin Kronbichler, Matthias Maier, Bruno Turcksin, D. Wells. Journal of Numerical Mathematics, 2016.
  https://dx.doi.org/10.1515/jnma-2016-1045

- *The deal.II Library, Version 8.3,* Wolfgang Bangerth, Timo Heister, Luca Heltai, Guido Kanschat, Martin Kronbichler, Matthias Maier, Bruno Turcksin, Archive of Numerical Software, vol.4, number 100, 2016, pages 1-11.

- *Clone and graft: Testing scientific applications as they are built,* B. Turcksin, T. Heister, and W. Bangerth, arXiv:1508.07231

- *The deal.II Library, Version 8.2,* Wolfgang Bangerth, Timo Heister, Luca Heltai, Guido Kanschat, Martin Kronbichler, Matthias Maier, Bruno Turcksin, Toby D. Young, Archive of Numerical Software, vol. 3, 2015

- *The deal.II Library, Version 8.1,* Wolfgang Bangerth, Timo Heister, Luca Heltai, Guido Kanschat, Martin Kronbichler, Matthias Maier, Bruno Turcksin, Toby D. Young, arXiv:1312.2266v4

- *The deal.II Library, Version 8.0,* Wolfgang Bangerth, Timo Heister, Luca Heltai, Guido Kanschat, Martin Kronbichler, Matthias Maier, Bruno Turcksin, Toby D. Young, arXiv:1312.2266v3

Organization of workshops and conferences

- Co-organizer of *Fifth deal.II users and developers workshop*, August 2015 College Station.

Supervision of students

- Ian Schomer, Summer 2016
  for the Higher Education Research Experiences at ORNL program