

Teddy Pichard – Curriculum Vitae

PhD student

CELIA,
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Fields of interests

- Angular moments models
- Numerical methods for hyperbolic partial differential equations (PDEs)
- Moment realizability condition, a.k.a. "the Generalized Moment Problem"
- PDE constrained optimization
- Mathematics for radiotherapy dose computation and treatment planning optimization

Education

2013-present	PhD student in cotutelle in the <i>RWTH Aachen University</i> and the <i>Université de Bordeaux</i> Thesis : "Mathematical modeling for dose deposition in phototherapy and proton-therapy" Advisors : Stéphane Brull, Bruno Dubroca and Martin Frank
2010-2013	Engineering diploma at the <i>ENSEIRB-MATMECA</i> in parallel with a Research master in applied mathematics in the <i>Université de Bordeaux</i> Thesis : "Moments models for radiotherapy dose simulation" Advisors : Stéphane Brull and Bruno Dubroca
2008-2010	CPGE class, 2 year intensive class preparing to engineering schools entrance exams Major : Mathematics and Physics Thesis : Periodic tessellations of the hyperbolic plan

Publications

- T. Pichard, D. Aregba-Driollet, S. Brull, B. Dubroca and M. Frank: **Relaxation schemes for the M_1 model with space- dependent flux: application to radiotherapy dose calculation**, *accepted for publication in Commun. Comput. Phys.*
- J. Caron, J.-L. Feugeas, B. Dubroca, G. Kantor, C. Dejean, T. Pichard, Ph. Nicolai, E. D'Humières, M. Frank, V. Tikhonchuk: **Deterministic model for the transport of energetic particles: Application in the electron radiotherapy**, *accepted for publication in Phys. Medica*

- T. Pichard, G.W. Alldredge, S. Brull, B. Dubroca and M. Frank: **An approximation of the M_2 closure: Application in radiotherapy dose simulation**, *work in progress*
- T. Pichard, G.W. Alldredge, S. Brull, B. Dubroca and M. Frank: **The M_2 model for dose simulation in radiation therapy**, *submitted to Proc. 24th Int. Conf. on Transport Theory*

Presentations

- Aachen, Germany, **Numerical model for radiotherapy dose simulations**, *Mathcces lunch seminar*, november 2013
- Aachen, Germany, **Continuous and discrete expansion for spectral methods : spectral convergence**, *Participation to the serie of seminars on spectral methods*, may 2014
- Bordeaux, France, **Numerical model for radiotherapy dose simulations**, *CELIA PhD seminar*, february 2015
- Aachen, Germany, **On the angular moments model, an approximation for the M_2 closure**, *Mathcces lunch seminar*, april 2015
- Nashville, TN, USA : **Relaxation model for the M_1 model in radiotherapy**, *M&C+SNA+MC conference*, april 2015
- Aachen, Germany, **Boundary condition for P_N models in neutron transport**, *Participation to the serie of seminar on boundary conditions for moment models*, mai 2015
- Aachen, Germany, **Relaxation model for the M_1 model in radiotherapy**, *YIC conference*, july 2015
- Taormina, Italy, **The M_2 model for dose computation in radiotherapy**, *ICTT conference*, september 2015
- Bordeaux, France, **The M_2 model for photon transport in radiotherapy**, *CELIA PhD seminar*, november 2015
- Marseille, France, **The M_2 model for photon transport in radiotherapy**, *CIRM workshop on oncology*, december 2015

Posters

- Lille, France, *ABPDE conference*, october 2013
- Bordeaux, France, *Doctoral school day and Modelisation and Numerical Methods for Hot Plasmas conference* november 2014
- Carry-le-Rouet, France, *CANUM*, april 2014
- Porto-Ercole, Italy, *summer school M&MKT*, june 2014
- Toronto, *Moment models in Kinetic theory conference*, october 2014
- Le Havre, *EDP-normandie : Ve Colloque EDP-NORMANDIE*, october 2015

Teaching experiences

- Organisation of the exercise courses for "Mathetische Grundlagen 2" Summer Semester 2013-2014 (in german) in RWTH Aachen University

Languages

- French: native speaker
- English: good level (IELTS score 7 in 2012, corresponds to C1 level)
- German: good level (C1 level)