

# BENJAMIN STAMM – CURRICULUM VITAE

Post-doctoral research associate in the Chair of Prof. J. Hesthaven  
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## ■ PERSONAL DATA

- Date of birth: March 22, 1980
- Place of birth: Schaffhausen (Switzerland)
- Nationality: Swiss
- Marital status: Married

## ■ RESEARCH INTERESTS

Numerical analysis, partial differential equations, discontinuous Galerkin methods, stabilization strategies, reduced basis method, electrical field integral equation, a posteriori estimates

## ■ REFERENCES

- Prof. E. Burman, University of Sussex (United Kingdom)
- Prof. J. S. Hesthaven, Brown University (USA)
- Prof. Y. Maday, Paris VI (France) and Brown University (USA)
- Prof. R. Nochetto, University of Maryland (USA)
- Prof. A. Quarteroni, EPFL (Switzerland) and Politecnico di Milano (Italy)
- Prof. Ch. Schwab, ETH Zürich (Switzerland)
- Prof. T. Wihler, University of Bern (Switzerland)

## ■ HONORS AND AWARDS

- Swiss National Science Foundation, Prospective Researcher Fellowship 2008-2009
- Swiss Federal Institute of Technology, Doctoral School Merit Scholarship 2005-2006

## ■ STUDIES AND PROFESSIONAL EXPERIENCE

- Short term visit at the University of New South Wales, Sydney January 2010
- Post-doctoral research associate at Brown University at the Division of Applied Mathematics in the chair of Prof. Hesthaven 2008-2010
- Ph.D. in Mathematics at Ecole Polytechnique Fédérale de Lausanne (EPFL) 2005-2008  
Title: “Stabilization Strategies for Discontinuous Galerkin Methods”  
Advisor: Prof. A. Quarteroni, co-adviser: Prof. E. Burman  
President of committee: Prof. P. Buser  
Committee: Prof. J. S. Hesthaven, Dr. M. Picasso, Prof. Ch. Schwab
- M.Sc. in Mathematics at EPFL 2000-2005  
Master thesis on “Spectral discontinuous Galerkin method for hyperbolic problems”  
Advisor: Prof. A. Quarteroni, co-adviser: Prof. E. Burman
- Baccalaureate Type C, Kantonsschule Schaffhausen 1995-2000

## ■ PUBLICATIONS

- E. Burman, B. Stamm, *Minimal stabilization of discontinuous Galerkin finite element methods for hyperbolic problems*, **J. Sci. Comput.**, Vol. 33, No. 2, pp. 183-208 (2007)
- E. Burman, A. Ern, I. Mozolevski, B. Stamm, *The symmetric discontinuous Galerkin method does not need stabilization in 1D for polynomial orders  $p \geq 2$* , **C. R. Acad. Sci. Paris, Sér. I**, Vol. 345, No. 10, pp. 599-602 (2007)
- E. Burman, B. Stamm, *Symmetric and non-symmetric discontinuous Galerkin methods stabilized using bubble enrichment*, **C. R. Acad. Sci. Paris, Sér. I**, Vol. 346, No. 1-2, pp. 103-106 (2008)

- E. Burman, A. Quarteroni, B. Stamm, *Stabilization strategies for high order methods for transport dominated problems*, **Bollettino U.M.I.**, Series IX, Vol. 1, No. 1, pp. 57-77 (2008)
- E. Burman, B. Stamm, *Low order discontinuous Galerkin methods for second order elliptic problems*, **SIAM J. Numer. Anal.**, Vol. 47, No. 1, pp. 508-533 (2008)
- E. Burman, B. Stamm, *Local discontinuous Galerkin method for diffusion equations with reduced stabilization*, **Commun. Comput. Phys.**, Vol. 5, pp. 498-514 (2009)
- B. Stamm, T. P. Wihler, *hp-optimal discontinuous Galerkin methods for linear elliptic problems*, EPFL-IACS report 07.2007, accepted in **Math. Comp.**
- E. Burman, A. Quarteroni, B. Stamm, *Interior penalty continuous and discontinuous finite element approximations of hyperbolic equations*, Mox report 19.2007, published online in **J. Sci. Comput.**
- E. Burman, B. Stamm, *Bubble stabilized discontinuous Galerkin method for the Stokes problem*, Technical report BrownSC-2009-16, accepted in **Math. Models Appl. Sci.**
- E. Burman, B. Stamm, *Bubble stabilized discontinuous Galerkin method for parabolic and elliptic problems*, EPFL-IACS report 06.2008, submitted to **Num. Math.**
- B. Stamm, *A posteriori estimates for the Bubble Stabilized Discontinuous Galerkin Method*, Technical report BrownSC-2009-17, submitted to **IMA J. Numer. Anal.**
- E. Burman, B. Stamm, *Bubble Stabilized Discontinuous Galerkin Methods on conforming and non-conforming meshes*, In preparation.
- R. Nochetto, B. Stamm, *Residual a posteriori estimates for the Electrical Field Integral Equation*, In preparation.
- J. Hesthaven, Y. Maday, B. Stamm, *Reduced Basis Method for the parametrized Electrical Field Integral Equation*, In preparation.

#### ■ INVITED SEMINARS

- “Reduced Basis Method for the parametrized Electrical Field Integral Equation” Department of Mathematics, Texas A&M University, College Station (USA), 11.11.2009
- “Reduced Basis Method for the parametrized Electrical Field Integral Equation” Symposium in Computational Mathematics, University of Basel, Basel (Switzerland), 23.10.2009
- “Stabilization Strategies for Discontinuous Galerkin Methods” Department of Mathematics, University of Maryland, College Park (USA), 17.02.2009
- “Bubble stabilized discontinuous Galerkin method for elliptic, parabolic and Stokes’ problem” Department of Mathematics and Statistics, McGill University, Montreal (Canada), 25.03.2008

#### ■ TALKS

- “A posteriori estimates for the bubble stabilized discontinuous Galerkin method” at Mafelap 2009 at Brunel University (England), 09.06.-12.06.2009
- “Bubble stabilized discontinuous Galerkin method” at Finite Element Circus 2009 at University of Delaware (USA), 24.05-25.05.2009
- “Bubble stabilized discontinuous Galerkin method” at WCCM8/ECCOMAS 2008 in Venice (Italy), 30.06.-04.07.2008
- “hp-Optimal DG-method for linear elliptic problems” at European Finite Element Fair in Gothenburg (Sweden), 30.05.-31.05.2008
- “Is stabilization necessary for symmetric discontinuous Galerkin methods for second order elliptic problems?” at ENUMATH07 in Graz (Austria), 10.09.-14.09.2007
- “Minimal stabilization of discontinuous Galerkin finite element method for hyperbolic problems” at ICIAM at ETH Zürich (Switzerland), 16.06.-20.07.2007
- “Minimal stabilization of discontinuous Galerkin finite element method for hyperbolic problems” at ICOSAHOM07 in Beijing (China), 18.06.-22.06.2007
- “Low order discontinuous Galerkin methods for second order elliptic problems” at Swiss Numerical Colloquium, University of Geneva (Switzerland), 04.04.2007
- “Multiscale aspects on the stabilization of the DG-method” at Mini-Workshop on Variational Multiscale Methods and Stabilized Finite Elements, EPF Lausanne, 12.02.-13.02.2007
- “Discontinuous and continuous finite element methods with interior penalty for hyperbolic problems” at Swiss Numerical Colloquium, EPF Lausanne, 12.04.2006
- “Discontinuous finite element methods with interior penalty for diffusion-reaction equation” at Workshop on Discontinuous Galerkin Methods, Bergamo (Italy), 24.02.2006

#### ■ WORKSHOPS/SEMINARS ORGANIZED

- Co-organizer of the Brown-Paris IV video-conference seminar, fall 2009
- Member of organization committee of Mini-Workshop on Variational Multiscale Methods and Stabilized Finite Elements, EPF Lausanne, 12.02.-13.02.2007

## ■ REVIEWING ACTIVITIES

- Reviewer for SIAM J. Numer. Anal., Journal of Computational Physics, Applied Mathematics and Computation

## ■ WORKSHOPS ATTENDED

- INdAM Workshop on Multiscale Problems: Modeling, Adaptive Discretization, Stabilization, Solvers, Cortona (Italy), 18.09.-02.10.2006

## ■ SUMMER SCHOOLS ATTENDED

- Zürich Summer School, Zürich (Switzerland), 28.09.-01.09.2006
- *hp*-FEM, Karlsruhe (Germany), 20.09.-24.09.2004

## ■ TEACHING

- Special topic course “A posteriori estimates for finite element method” for graduate students at Brown University, fall 2009
- Co-lecturer of the course “Error estimates for stabilized finite element methods” of the doctoral school at EPFL, fall 2007
- Assistant of the course “Introduction to the finite element method” given by Prof. E. Burman (winter 2006) and by Prof. A. Quarteroni (winter 2007)
- Assistant of the course “Numerical analysis for mathematicians” given by Prof. A. Quarteroni, summer 2006, 2007 and 2008
- Assistant of the course “Analysis III” given by Prof. Cilibi, winter 2005
- Assistant of the course “Numerical analysis for engineers” given by Prof. A. Quarteroni, winter 2005

## ■ MASTER PROJECT SUPERVISION

- Elena Negro, *Discontinuous Galerkin method for the shallow water equations in the one-dimensional case*, summer 2007

## ■ SEMESTER PROJECT SUPERVISION

- Mathias Rime, *Méthode de Galerkin discontinue et algorithme parallèle*, summer 2008
- Stéphane Flotron, *Etude de l'erreur de dispersion et dissipation des méthodes de Galerkin continue et discontinue*, summer 2007
- Carol Kirchhofer, *Analyse des différences finies pour des schémas d'éléments finis stabilisés*, winter 2006
- Sara Wulf, *Spectral Methods*, summer 2006