

PROCEEDINGS OF SMAI 2017

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Abstract. Papers related to the congress SMAI 2017, 8th biennale of Applied and Industrial Mathematics

The congress SMAI 2017 gathered 270 participants at the AZUREVA center in Ronce-les-Bains from June 5th until June 9th 2017. This 8th biennale of Applied and Industrial Mathematics offered 9 plenary lectures, 23 mini-symposia and 20 parallel sessions on themes including scientific fields of the different groups of the SMAI.

The SMAI 2017 was organized by the SMAI and the applied mathematicians from Champagne-Ardenne and Picardie grouped under the banner of the FR 3399 Amiens-Reims-Compiègne CNRS and acknowledges the support of the following actors: CNRS, AMIES, INRIA, Labex Louis Bachelier - Finance and Sustainable Growth, Labex Calsimlab, Mutation Market Chairs, LPMA, UPJV, URCA, UTC, CEA, RTE, IFP-EN, Dunod Editions, EDP-Sciences and Rhodia.

These proceedings, that give contributions from plenary speakers, organizers of mini-symposia and the winner of best student poster prize, provide an overview of the vitality of applied mathematics in all the fields covered by the SMAI, from scientific computing to stochastic modeling.

The list of the 10 papers follows:

- *Nonconservative hyperbolic systems in fluid mechanics*, by Denise Aregba-Driollet, Stéphane Brull and Xavier Lhébrard
- *Numerical stability of a plasma sheath*, by Mehdi Badsì, Michel Mehrenberger and Laurent Navoret
- *Cortical-inspired image reconstruction via sub-Riemannian geometry and hypoelliptic diffusion*, by Ugo Boscain, Roman Chertovskih, Jean-Paul Gauthier, Dario Prandi and Alexey Remizov
- *Super-replication price: it can be ok.*, by Laurence Carassus and Tiziano Vargiolu
- *Numerical methods for Stochastic differential equations: two examples*, by Paul-Éric Chaudru de Raynal, Gilles Pagès and Clément Rey
- *American options in an imperfect complete market with default*, by Roxana Dumitrescu, Marie-Claire Quenez and Agnès Sulem
- *Remark on the well-posedness of weakly dispersive equations*, by Jiao He and Youcef Mammeri
- *A streamline derivative POD-ROM for advection-diffusion-reaction equations*, by Samuele Rubino
- *Crowd motion and evolution PDEs under density constraints*, by Filippo Santambrogio.

The Editorial Board: Laurence Carassus, Marion Darbas, Ghislaine Gayraud, Olivier Goubet, Stéphanie Salmon.