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Symposium Time integrators and coupled PDEs

Robin Chatelin[1], **Laurène Hume**[2], **Philippe Poncet**[2], **Mayya Tokman**[3]

SUMMARY

This symposium deals with the techniques of time integration for complex models governed by coupled PDEs where at least one of them has dominant transport effects. Our area of application concerns mainly microfluidic flows, in biological, environmental and geophysical sciences. The numerical strategies considered are driven by a wish to reduce the algorithms complexity in order to push the limit of high resolution numerical simulations.

This will be covered by the following three talks:

- *Particle methods for non-linear Stokes equations coupled to the transport of heterogeneity* by Robin Chatelin (LTDS, ENI St Etienne)
- *Transport and pore scale modeling of porous media* by Laurène Hume (LMAP, UPPA)
- *Techniques for constructing efficient exponential methods of EPIRK type and their applications* by Mayya Tokman (University of California Merced)

Keywords: Porous media, Particle methods, Penalization, Exponential Integrators

[1]Universit de Lyon, ENI Saint Etienne, LTDS, UMR 5513 CNRS,
58 rue Jean Parot, 42023 Saint-Etienne Cedex 2, France
email: robin.chatelin@enise.fr

[2]Laboratoire de Mathématiques et de leurs Applications
Université de Pau et des Pays de l'Adour
email: laurene.hume@univ-pau.fr, philippe.poncet@univ-pau.fr

[3]School of Natural Sciences, University of California,
5200 North Lake Road Merced, CA, 95343, USA
email: mtokman@ucmerced.edu