

Asymptotic Behavior of systems of PDE arising in physics and biology:
theoretical and numerical points of view (ABPDE III)

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Fluid boundary layer models: beyond the Prandtl equation ?

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The Prandtl equation was derived in 1904 by Ludwig Prandtl in order to describe the behavior of fluids with small viscosity around a solid obstacle. Over the past decades, several results of ill-posedness in Sobolev spaces have been proved for this equation. As a consequence, it is natural to look for more sophisticated boundary layer models, that describe the coupling with the outer Euler flow at a higher order. Unfortunately, these models do not always display better mathematical properties, as I will explain in this talk.

This is a joint work with Helge Dietert, David Gérard-Varet and Frédéric Marbach.

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