A free energy diminishing DDFV scheme for convection-diffusion equations

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SUMMARY

In my talk, I will introduce a nonlinear Discrete Duality Finite Volume scheme to approximate the solutions of drift diffusion equations. The scheme is built to preserve at the discrete level even on severely distorted meshes the energy / energy dissipation relation. This relation is of paramount importance to capture the long-time behavior of the problem in an accurate way. To enforce it, the linear convection diffusion equation is rewritten in a nonlinear form before being discretized. This is a joint work with Clément Cancès (Lille) and Stella Krell (Nice).

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