FMfl2023 Program	
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Affiliation	Institute of Mathematics and Computer Sciences, University of São Paulo - USP
Title	**A Lagrangian-finite difference scheme for viscoelastic fluid flows**
Abstract	We present new numerical schemes based on writing the upper-convected time derivative of the polymeric tensor in terms of the Generalized Lie Derivative (GLD) on a Lagrangian framework and then discretizing it by finite differences. The viscoelastic models are rewritten considering the GLD with the method of characteristics. The polymeric tensor derivatives are approximated by methods of first or second order in time, combined with linear, or quadratic, spatial interpolations in order to improve the stability of the scheme, in preparationfor the study of the High Weissenberg Number Problem. This is a joint work with Cassio Oishi and Hirofumi Notsu.