Dissipative Particle Dynamics?

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In this talk I present my personal view regarding the status of DPD as a mesoscopic simulation method. The main message of the talk is that if the dissipative particles "represent clusters of unbounded atoms or molecules that move coherently" then we should rather abandon DPD in favor of SDPD, which is nothing else than a Lagrangian discrete model for simulating Navier-Stokes hydrodynamics that includes thermal fluctuations consistently. However, if the dissipative particles represent clusters of bounded atoms as in, for example groups of monomers in a polymer molecule, then DPD has a place in the mesoscopic simulation toolbox. In this case, though, care needs to be taken in order to infer from molecular dynamics simulations the proper effective potentials and frictions that represent faithfully such clusters. Recent work on thermal blobs (non-isothermal) will be presented.