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Coherent States Formulation of Polymer Field Theory[1] XINGKUN MAN, BUAA, KRIS DELANEY, MICHAEL VILLET, UCSB, HENRI ORLAND, ITP, GLENN FREDRICKSON, UCSB — We introduce a stable and efficient complex Langevin scheme to enable the first direct numerical simulations of the coheret-states (CS) formulation of polymer field theory. In contrast with Edwards' well known auxiliary-field framework, the CS formulation does not contain an embedded nonlinear, non-local, implicit functional of the auxiliary fields and the action of the field theory has a fully explicit, semi-local and finite-order polynomial character. We present the route for deriving CS canonical ensemble theories, and a method for studying asymptotically long polymer chains with composition fluctuations fully included using a simplified field theory in the ground-state-dominance approximation. The formalism is potentially applicable for conducting systematic coarse-graining and numerical renormalization-group studies

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