Modeling in Ensembles: Between Order and Disorder, en Route to Confinement

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A fast and efficient numerical-analytical approach is proposed for the description of complex behaviour in non-equilibrium ensembles both in the BBGKY framework and in a number of its Vlasov-Poisson/Maxwell reductions. We construct a multiscale representation for the hierarchy of partition functions by means of the variational approach and multiresolution decomposition. Numerical modeling shows the creation of various internal structures from fundamental localized (eigen)modes. These patterns determine the behaviour of plasma. The Waveleton, localized (meta) stable long-living pattern with minimal entropy and zero measure, is proposed as a possible model for the energy confinement state (the fusion state) in plasma.