

Short-range order effects in the critical and overcritical states of fluid

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A theoretical model of the gas-liquid critical point taking into account the heterophase fluctuations specified by short-range order (SRO) is formulated and developed in the fluctuon approximation. The formulated fluctuon model of heterophase fluctuations is genetically connected with the Frenkel model but includes description of the fluctuation interaction. The model equations are isomorphic to the equations of the Ising model. Solutions of the deduced equation of state describe thermodynamics and heterophase structure of fluid. SRO effects are negligibly small in the close vicinity of the critical point but become to be dominating when the long-range correlations are depressed.