

Nonequilibrium polariton quantum fluids

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I will review the theoretical modeling of microcavity polariton quantum fluids. Mean field theory, based on generalizations of the Gross-Pitaevskii equation is sufficient to capture the main features of current experiments. I will present various forms of mean field theories and their elementary properties. Some attention will be given to possible instabilities that can occur. I will briefly discuss the effects of classical and quantum fluctuations.