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Superfluidity in binary Bose mixtures in two dimensions

In this talk I will consider a two-component bosonic gas in twodimensions at low temperatures with a zero-range repulsive interaction.I will focus on the coexistence phase with superfluid behavior in bothcomponents, where a phenomenon appears which is not present in theone-component case: The non-dissipative drag between the two superfluidflows (Andreev-Bashkin effect), which originates from the interactions between different species. I will show how to renormalize the superfluiddensities at finite temperatures. As result we will find that thevortices of one component have a large influence on the superfluidproperties of the other, mediated by the non-dissipative drag.Ultimately, the renormalization group flow indicates that a collapse ofthe superfluidof one component can lead to the collapse of thesuperfluid of the other component and their critical temperatures are inthat case equal.