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Superfluidity in binary Bose mixtures in two dimensions

In this talk I will consider a two-component bosonic gas in two dimensions at low temperatures with a zero-range repulsive interaction. I will focus on the coexistence phase with superfluid behavior in both components, where a phenomenon appears which is not present in the one-component case: The non-dissipative drag between the two superfluid flows (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 the vortices of one component have a large influence on the superfluid properties of the other, mediated by the non-dissipative drag. Ultimately, the renormalization group flow indicates that a collapse of the superfluid of one component can lead to the collapse of the superfluid of the other component and their critical temperatures are in that case equal.