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Dressed Feshbach molecules in the BEC-BCS crossover MATHIJS ROMANS, HENK STOOF, Utrecht University — There has been a lot of interest in Feshbach resonances and the BEC-BCS crossover that is associated with it. We present work that describes the crossover in terms of dressed molecules, and gives a theory to calculate the internal structure of the paired state. We integrate out the fermions exactly, and take into account the fluctuations of the molecular field to determine the probability Z for dressed molecules to be in the closed channel state. Our approach includes the relevant two-body physics completely. Also the density of condensed and noncondensed dressed molecules can be determined for the entire BEC-BCS crossover. We compare our results to experiment.

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