

Effect of Atomic Bose-Einstein Condensation on Molecular Conversion Efficiencies

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We study formations of heteronuclear Feshbach molecule in population imbalanced atomic gases. At low temperature in quantum degenerate regime, quantum statistics of atoms plays an important role in conversion efficiencies. Maximum conversion efficiencies are determined by quantum statistics, the number ratio and trap frequencies. When *atoms* condense, the molecular conversion efficiency does not reach 100% and has a plateau.

In the region where the gases does not condense, the conversion efficiency is described as a function of initial peak phase space density of a major component.