Magnetoassociation via Feshbach resonances:
formation of ultracold ground-state molecules
in a single quantum –highly-excited- energy level

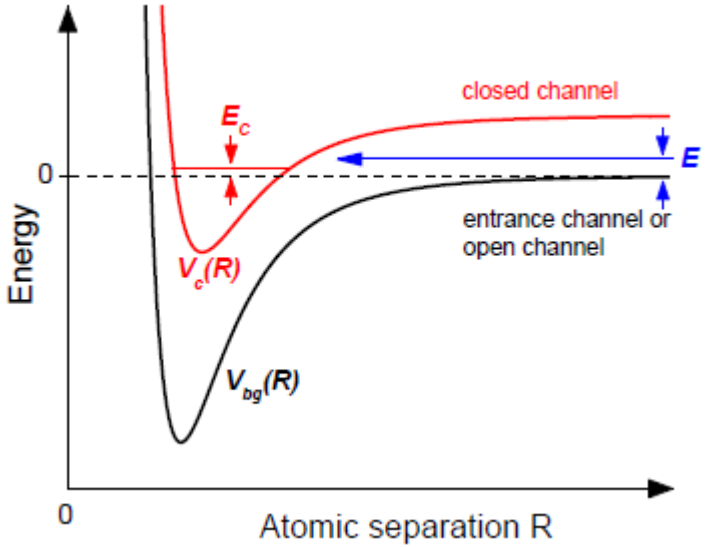
Atoms with electronic AND nuclear magnetic moments (alkalis, lanthanides,…)

First pointed out by Stwalley (PRL **37**, 1628, 1976) and Tiesinga et al (PRA **47**, 4147, 1993)

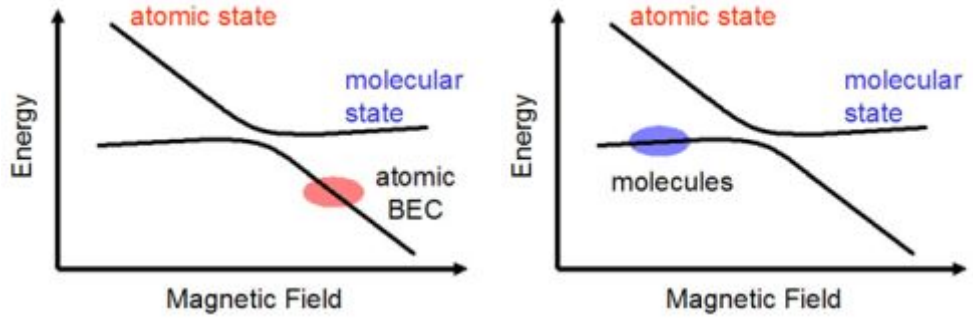
The magnetic moment of a molecular complex and of an atom pair are different, so that their energy vary differently with magnetic field

= Change of the dissociation energy of a high-lying molecular bound state

Timmermans *et al*. Phys. Rep. 315, 199 (1999); Köhler *et al*., Rev. Mod. Phys. 78, 1311 (2006); Chin et al., arXiv/0812.1496v1



Chin et al, arXiv/0812.1496v1



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