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## I. INTRODUCTION

## II. TWO-ATOM NUMERICAL SIMULATIONS

### A. Hamiltonian

El Hamiltoniano, la solución teórica en forma integral de  $a(E)$ , términos del potencial del rm, CM y rm-CM. [?]

### B. Ab Initio calculations

### III. INELASTIC CIR

Introducción contando en profundidad el origen de las ICIR, la aproximación de Simón y lo de la C.

### A. 3-D

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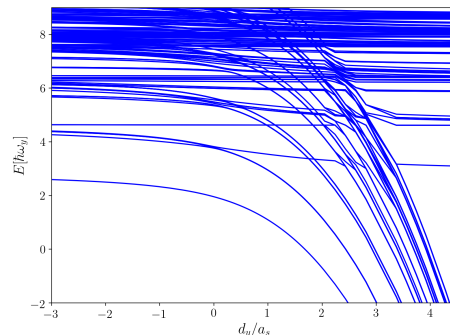


Figure 1: Adiabatic Spectrum of the full coupled Hamiltonian for  $^7\text{Li}$  atoms confined in an isotropic sextic trapping potential with  $V_x = V_y = V_z = 35.9E_r$ ,  $\eta_x = \eta_y = 1$  and  $\lambda = 1000$  nm. All states bending down to  $-\infty$  are molecular states originating from the REL bound state  $\psi^{(b)}$  with different CM excitations, whereas the states remaining constant are trap states of different REL excitations  $\psi^1$  and zero CM excitations.

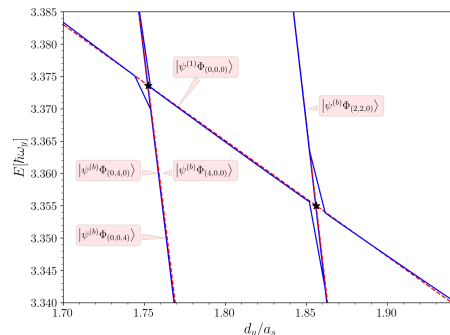


Figure 2: Zoom to the Inelastic CIR which arises from the avoided crossings between the first trap state and the transversally excited bound states. Diabatic states responsible of Inelastic CIR are drawn with red dashed lines and labeled by kets. For anisotropic transversal confinement the CIR splits in two due to the symmetry breaking.

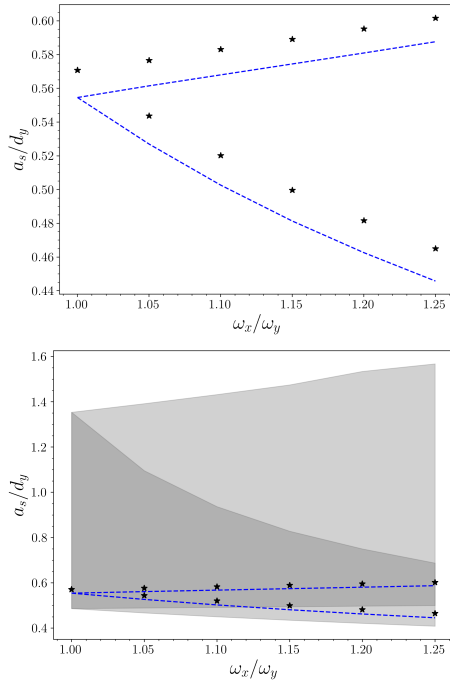


Figure 3: Positions of the four excitations Inelastic CIR in terms of the characteristic transversal length for different values of transversal anisotropy in 3-D. Black stars are the ab initio calculations, blue dashed lines the exact theory computations with a constant  $C = 0.52 \pm 0.03$  and gray shadows the corresponding theory computations with both  $C = 2$  and  $C = 0$ .

#### B. quasi 1-D

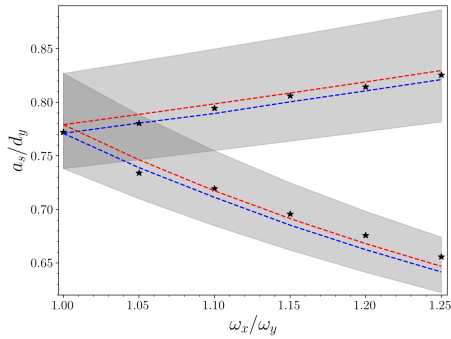


Figure 4: Positions of the two-excitations Inelastic CIR in terms of the characteristic transversal length for different values of transversal anisotropy in 3-D. Black stars are the ab initio calculations, blue dashed lines the exact theory computations with a constant  $C = 0.52 \pm 0.03$ , red dashed lines  $C = 1$  and gray shadows the corresponding theory computations with both  $C = 2$  and  $C = 0$ .

#### IV. ASYMMETRIC SPLITTING OF THE INELASTIC CIR

Contar teoría de perturbaciones y lo que hizo Fabio

#### V. CONCLUSIONS

#### ACKNOWLEDGEMENTS

#### REFERENCES