



Семинар  
«МАЛОЧАСТИЧНЫЕ СИСТЕМЫ»  
вторник, 10 апреля 2018 г., 11:00  
аудитория им. Д.И.Блохинцева (4 этаж)

---

## TUNNELING OF TWO INTERACTING FERMIONS

I.S. Ishmukhamedov<sup>a,b,c</sup> and A.S. Ishmukhamedov<sup>b,d</sup>

<sup>a</sup> Bogoliubov Laboratory of Theoretical Physics, JINR, Dubna, Russia

<sup>b</sup> Al-Farabi Kazakh National University, Almaty, Kazakhstan

<sup>c</sup> Institute of Nuclear Physics, Almaty, Kazakhstan

<sup>d</sup> K.I.Satpaev Institute of Geological Sciences, Almaty, Kazakhstan

We consider two interacting atoms subject to a one-dimensional anharmonic trap and linear magnetic-field gradient. This system has been recently investigated by the Heidelberg group in the experiment on two  ${}^6\text{Li}$  atoms. In the present research, the tunneling of two cold  ${}^6\text{Li}$  atoms, initially prepared in the center-of-mass and relative motion excited states, is explored and full time-dependent simulation of the tunneling dynamics is performed. The dynamics is analyzed for the interatomic coupling strength ranging from strong attraction to strong repulsion.