

Contribution Title: UNITARY FERMI GAS: SCALING SYMMETRIES AND EXACT MAP
Authors: Prasanta K. Panigrahi, B. Chandrasekhar, Vivek M Vyas
Presenting author: Chandrasekhar B.
Affiliation: Instituto de Fisica, Universidade de Sao Paulo, Brazil
E-mail: chandra@ift.unesp.br
Invited speaker:
YRS seminar: YES

We consider weakly bound system of dimers formed in a cold Fermi gas at unitarity and establish a dynamical $SU(1,1)$ symmetry in the scaling regime. This symmetry is used to give a precise map connecting the interacting and the non-interacting systems. The map results in a shift in the ground state energy of the N particles proportional to the scaling exponent. For the excited states, this leads to a prediction of novel breathing modes at integral values of the harmonic frequency ω in one-dimension, which should be verified experimentally. Connection with the AdS/CFT correspondence is also pointed out.