

A VARIATIONAL FORMULA FOR THE FREE ENERGY OF AN INTERACTING MANY-PARTICLE SYSTEM

ANDREA COLLEVECCHIO

We consider a system of bosons in a box, under the influence of a mutually repellent pair potential. The particle density is positive and is kept fixed while the volume of the box is increased. We discuss the following result: the identification of the limiting free energy, at positive and sufficiently small temperature, in terms of an explicit variational formula. We use a large deviations approach combined with the representation of the system of bosons through a system of interacting Brownian bridges.

This is a joint work with S. Adams (Warwick) and W. König (T.U. Berlin and Weierstrass Institute).