



## Mathematics and CS Seminar

# Excitation spectrum of a dilute Bose gas with an impurity

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Host: Robert Seiringer / David Mitrouskas

I will discuss spectral properties of a Bose gas with an impurity in the dilute (Gross-Pitaevskii) limit. In this limit, the Bose gas is known to form a Bose-Einstein condensate, with excitations out of the condensate described by Bogoliubov theory. The strength of the interaction with the impurity is chosen so that the interaction with these excitations is of the same order as the energy of the excitations themselves. I will show that, after removal of contributions to the ground state energy that diverge with the number of bosons, the renormalised Bogoliubov-Fröhlich Hamiltonian emerges as the effective operator describing the excitation spectrum. This is joint work with Arnaud Triay.

**Wednesday, July 26, 2023 04:15pm - 05:15pm**

Big Seminarroom B, Sunstone Building, ISTA



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