

## Calderón-Zygmund Analysis Seminar

Monday, April 5th, 3:45 pm

### Invariant Gibbs measures for the three-dimensional wave equation with a Hartree nonlinearity

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**Abstract.** In this talk, we discuss the construction and invariance of the Gibbs measure for a three-dimensional wave equation with a Hartree-nonlinearity.

In the first part of the talk, we construct the Gibbs measure and examine its properties. We discuss the mutual singularity of the Gibbs measure and the so-called Gaussian free field. In contrast, the Gibbs measure for one or two-dimensional wave equations is absolutely continuous with respect to the Gaussian free field. In the second part of the talk, we discuss the probabilistic well-posedness of the corresponding nonlinear wave equation, which is needed in the proof of invariance. At the moment, this is the only theorem proving the invariance of any singular Gibbs measure under a dispersive equation.