



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

Fakultät für Mathematik, Informatik und Statistik
Mathematisches Institut



Marco Falconi
(Politecnico di Milano)

**“Renormalization of the
Bogoliubov Theory in the Nelson Model”**

Tuesday, January 9, 2024, 2.15 pm

LMU, Theresienstr. 39, B 349

Zoom:

<https://lmu-munich.zoom-x.de/j/62909259722?pwd=ekZwZHhraVpCMjVsRmRuK20xNGQvdz09>

ID: 629 0925 9722

Code: 121499

Abstract: In this talk - based on a joint work with J. Lampart, N. Leopold, and D. Mitrouskas - I will talk about the mean field limit of the renormalized Nelson model, in which a large number of bosonic particles is weakly coupled with a large number of coherent excitations of the scalar field. We prove quantitative bounds on the convergence both for reduced density matrices and in norm, with the effective theory being the Schrödinger-Klein-Gordon system with Yukawa-type coupling. A crucial ingredient of the proof is the construction of a renormalized Bogoliubov evolution for the quantum fluctuations