

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

Modular forms, Fourier interpolation, and crystals in 8 and 24 dimensions

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Monday, February 25 at 4:15 pm
111 Cummington Mall, MCS B21
Tea and cookies in MCS 144

Abstract: How should repelling particles arrange themselves, if we allow long-range interactions? This is the crystallization problem in mathematical physics, and surprisingly little is known about it even in 2 or 3 dimensions. In this talk, I'll describe a complete solution in 8 and 24 dimensions for inverse power laws and Gaussian potential functions, based on a new interpolation theorem for radial Schwartz functions proved using modular forms.

This talk is based on joint work with Abhinav Kumar, Stephen D. Miller, Danylo Radchenko, and Maryna Viazovska (available at <https://arxiv.org/abs/1902.05438>).