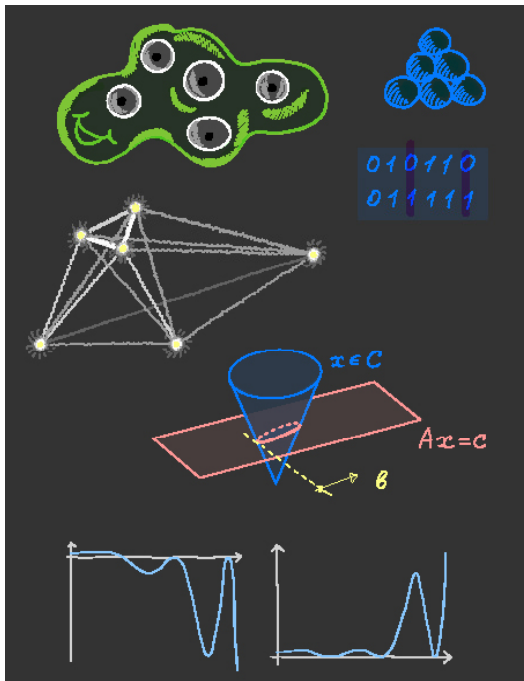## Friday 13 May 2022 at 14:15

TU Berlin, EW-Gebäude (Physics Building), Room EW 201   *Tea & Cookies starting at 13:00!*

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Maryna Viazovska
(EPFL)

Sphere packings, universal optimality, and Fourier interpolation

In this lecture, Viazovska will show that the E8 and Leech lattices minimize energy for a wide class of potential functions. This theorem implies recently proven optimality of E8 and Leech lattices as sphere packings and broadly generalizes it to long-range interactions. The key ingredient of the proof is sharp linear programming bounds. The construction of the optimal auxiliary functions attaining these bounds is based on a new interpolation theorem.

Viazovska will also explain different ingredients of the proof, connections between them, and possible generalizations of these ideas.

Maryna Viazovska completed her bachelor's studies at the Kyiv National Taras Shevchenko University and her master's studies at the TU Kaiserslautern. She obtained her PhD in 2013 at the University of Bonn. She had post-doctoral positions at the IHES and at HU Berlin, where she served as a BMS Dirichlet Postdoctoral Fellow from 2014 until 2016. In 2017, she joined Princeton University as a Minerva Distinguished Visitor before moving to EPFL as a tenure-track assistant professor. At EPFL, she was promoted full professor in 2018.

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