

Colloquium

University of Notre Dame
Department of Mathematics

Marianna Russkikh - Massachusetts Institute of Technology

Speaker: Marianna Russkikh
Massachusetts Institute of Technology



Will give a lecture entitled
Lozenge Tilings and the Gaussian Free Field on a
Cylinder

Date: Thursday, December 9, 2021

Time: 4:00 PM

Location: 129 DeBartolo

Zoom URL: <https://notredame.zoom.us/j/95181365844?pwd=RHV2cEVIZzFpTTFBQ3BGcGtpSGU3QT09>

Departmental Tea: Tea in Room 257 (lounge in Hurley Hall) at 3:30 p.m.

Abstract:

We discuss new results on lozenge tilings on an infinite cylinder, which may be analyzed using the periodic Schur process introduced by Borodin. Under one variant of the q^{vol} measure, corresponding to random cylindric partitions, the height function converges to a deterministic limit shape and fluctuations around it are given by the Gaussian free field in the conformal structure predicted by the Kenyon-Okounkov conjecture. Under another variant, corresponding to an unrestricted tiling model on the cylinder, the fluctuations are given by the same Gaussian free field with an additional discrete Gaussian shift component. Fluctuations of the latter type have been previously conjectured for tiling models on planar domains with holes.