Emergent Research:
The PIMS Postdoctoral Fellow Seminar

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Hurwitz Numbers via Topological Recursion

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ABSTRACT:
Hurwitz numbers are counts of maps between Riemann surfaces with specified ramification profiles. Alternatively, they may be seen as counting decompositions of the identity in symmetric groups into permutations of given cycle type or as certain expressions of symmetric functions. While these two interpretations, due to Hurwitz, Frobenius, and Schur, have been known for over a hundred years, these numbers occur in more contexts: they give solutions to certain systems of PDEs, such as the Kadomtsev-Petviashvili hierarchy, they encode intersection numbers of moduli spaces of curves, and they can be found via Eynard-Orantin topological recursion.
In this talk, I will first give some of the definitions of Hurwitz numbers and then explain what topological recursion is and how it helps us shed new light on these numbers.

SPEAKER BIO:
Reinier Kramer studied physics and mathematics at the Universities of Amsterdam and Cambridge. In 2019, he obtained a PhD at the University of Amsterdam with Sergey Shadrin, and from 2019 to 2021 he held a postdoctoral fellowship at the Max Planck Institute of Mathematics in Bonn, in the group of Gaëtan Borot. Currently, heis a postdoctoral fellow with Vincent Bouchard at the University of Alberta. He works in the areas of mathematical physics and algebraic geometry, and is mainly interested in using topological recursion to calculate intersection-theoretic and enumerative-geometric objects, with a focus on Hurwitz numbers.

For more information and registration:
https://www.pims.math.ca/seminars/PIMSPDF

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