

Emergent Research:

The PIMS Postdoctoral Fellow Seminar



Pacific Institute *for the*
Mathematical Sciences

June 7, 2023 | 9:30am Pacific

Closure of bulk spectral gap

for topological insulators

with general edges

ABSTRACT:

Topological insulators are materials that exhibit unique physical properties due to their non-trivial topological order. One of the most notable consequences of this order is the presence of protected edge states as well as closure of bulk spectral gaps, which is known as the bulk-edge correspondence.

In this talk, I will discuss the mathematical description of topological insulators and their related spectral properties. The presentation will begin with an overview of Floquet theory, Bloch bundles, and the Chern number. We will then examine the bulk-edge correspondence in topological insulators before delving into our research on closure of bulk spectral gaps for topological insulators with general edges. This talk is based on a joint work with Alexis Drouot.

For more information and registration:

<https://www.pims.math.ca/seminars/PIMSPDF>



Xiaowen Zhu

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SPEAKER BIO:

Xiaowen Zhu obtained her Ph.D. at the University of California, Irvine, where she studied spectral theory of random and quasiperiodic Schrödinger operators under the supervision of Svetlana Jitomirskaya. She is currently a PIMS Postdoctoral Fellow at University of Washington. She is working with Alexis Drouot to explore mathematical theories of topological insulators.

ABOUT PIMS PDF SEMINARS:

PIMS ongoing lecture series featuring our Postdoctoral Fellows every three weeks. You will have the opportunity to connect with emerging research in the mathematical sciences from a PIMS Postdoctoral Fellow. PIMS PDFs are amongst the top young researchers in Canada, and this is an excellent opportunity to learn about them, and their work.

