

YUEZHAO LI

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# PERSONALITY

**Nationality** Chinese

Date of birth 18.04.1996

**Languages** Chinese (Native), English (Fluent), German (Intermediate), Dutch (Beginner)

## EDUCATION

Universiteit Leiden

Oct 2021 — Sep 2025

*PhD candidate in mathematics*

Netherlands

- ◇ Thesis: Spectral localisers and aperiodic topological phases in noncommutative geometry.
- ◇ Supervisor: Dr. Bram Mesland.

Georg-August-Universität Göttingen

Oct 2018 — Aug 2021

*Master in mathematics, with minor in physics*

Germany

- ◇ Thesis: Invariants for topological insulators coming from decompositions of coarse spaces.
- ◇ Thesis advisor: Prof. Dr. Ralf Meyer.

Peking University

Sep 2013 — Jul 2018

*Bachelor in physics, with minor in mathematics*

China

- ◇ Thesis: Phase transition and critical phenomena.
- ◇ Thesis advisor: Prof. Dr. Limei Xu.

## RESEARCH

## Research interest

- ◇ Noncommutative geometry of topological materials via groupoids and coarse geometry.
- ◇ Spectral truncation method in index pairing and bivariant K-theory.
- ◇ Unbounded Kasparov theory and its application to index theory.

## Preprints

- [1] Y. Li. *Robustness of topological phases on aperiodic lattices* (2025). [arXiv: 2504.04817](#).  
 [2] Y. Li and B. Mesland. *The odd spectral localiser via asymptotic morphisms and quasi-projections* (2025). [arXiv: 2506.17143](#).

In preparation

- [3] Y. Li and G. C. Thiang. *Symmetry-breaking topological phases* (2025). In preparation.

# Thesis

- [4] Y. Li. *Spectral localisers and aperiodic topological phases in noncommutative geometry*. Submitted. Doctoral thesis. Leiden University, 2025.
- [5] Y. Li. *Invariants of topological insulators from decomposition of coarse spaces*. Master thesis. Georg-August-Universität Göttingen, 2021.

## TEACHING

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- ◇ FALL 2024: Functional analysis, teaching assistant.
- ◇ SPRING 2024: Operator algebras, teaching assistant.
- ◇ FALL 2023: Functional analysis, teaching assistant.
- ◇ SPRING 2023: Differentiable manifolds II, teaching assistant.
- ◇ FALL 2022: Functional analysis, teaching assistant.
- ◇ SPRING 2022: Differentiable manifolds II, teaching assistant.
- ◇ FALL 2021: Functional analysis, teaching assistant.

## CONFERENCES, WORKSHOPS AND SEMINARS

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### Participation

- ◇ AUGUST 2025: NCG Day, Leiden, Netherlands.  
TALK: *On topological phases of aperiodic matter*.
- ◇ JUNE 2025: C\*-algebras, coarse geometry and physics, Greifswald, Germany.  
TALK: *The spectral localiser via E-theory*.
- ◇ APRIL 2025: Applications of noncommutative geometry to gauge theories, field theories, and quantum space-time, Marseille, France.  
SHORT TALK: *On robustness of topological phases*.
- ◇ OCTOBER 2024: Noncommutativity behind the dunes, Delft, Netherlands.
- ◇ AUGUST 2024: OdenSeaG 2024, Odense, Denmark.
- ◇ MAY 2024: Leiden-Birmingham meeting, Leiden, Netherlands.  
TALK: *A hitchhiker's guide to topological insulators in noncommutative geometry*.
- ◇ APRIL 2024: Group operator algebras and noncommutative geometry, Marseille, France.
- ◇ NOVEMBER 2023: Leiden-Luxembourg PhD Away Day, Leiden, Netherlands.  
TALK: *Noncommutative geometry in index theory and physics*.
- ◇ OCTOBER 2023: Autumn school on large-scale geometry, Göttingen, Germany.  
SHORT TALK: *Models of aperiodic topological insulators*.
- ◇ MAY 2023: Noncommutative Geometry and Operator Algebras, NSeaG 2023, Bonn, Germany.  
Assisted with note-taking of lectures on *Unbounded KK-theory* and *Baum-Connes conjecture*.

### Organisation

- ◇ JANUARY 2023: [5th Conference of Settat on Operator Algebras and Applications](#).  
Co-organiser, with Francesca Arici, Marcel de Jeu, Rachid El Harti and Dimitris Gerontogiannis.
- ◇ I organised several [Leiden local NCG seminars](#) and took [notes](#) for them.
  - SPRING 2022: KK-theory ([Notes](#)).
  - FALL 2022: Groupoid C\*-algebras ([Notes](#)).
  - FALL 2023: Noncommutative geometry of foliations ([Notes](#)).

## RESEARCH VISITS

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- ◇ NOVEMBER 2025: Max Planck Institute for Mathematics, Germany. Hosted by Dr. Malte Leimbach.
- ◇ JULY 2025: Leibniz Universität Hannover, Germany. Hosted by Dr. Eske Ewert.  
TALK: *The spectral localiser via E-theory*.
- ◇ JANUARY 2025: Universität Greifswald, Germany. Hosted by Prof. Dr. Matthias Ludewig.  
TALK: *Understanding strong and weak topological phases*.
- ◇ OCTOBER 2024: BICMR, China. Hosted by Dr. Guo Chuan Thiang.
- ◇ SEPTEMBER 2024: East China Normal University, China. Hosted by Prof. Dr. Hang Wang.  
TALK: Index theory of spectral truncations and the localisation algebra.
- ◇ SEPTEMBER 2024: Sichuan University, China. Hosted by Dr. Xingni Jiang and Dr. Yunfeng Shi.