

# YUEZHAO LI

🔗 [liyuezhao.github.io](https://github.com/liyuezhao)    ✉ [y.li@math.leidenuniv.nl](mailto:y.li@math.leidenuniv.nl)  
🏠 Einsteinweg 55, 2333 CC Leiden, Netherlands

## PERSONALITY

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**Nationality**            Chinese  
**Date of birth**        18.04.1996  
**Languages**           Chinese (Native), English (C1), German (B1), Dutch (A1)

## RESEARCH INTEREST

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

## EMPLOYMENT

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<b>Max-Planck-Institut für Mathematik</b> <i>Postdoctoral researcher</i> Supervisor: Prof. Dr. Matthias Lesch.	Mar 2026 — Aug 2026 <i>Germany</i>
<b>Universiteit Leiden</b> <i>Postdoctoral researcher</i> Supervisor: Dr. Bram Mesland.	Mar 2026 — Aug 2026 <i>Netherlands</i>
<b>Peking University</b> <i>Postdoctoral researcher</i> Supervisor: Dr. Guo Chuan Thiang.	Starting Sep 2026 <i>China</i>

## EDUCATION

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<b>Universiteit Leiden</b> <i>PhD candidate in mathematics</i> Supervisor: Dr. Bram Mesland. Thesis: <i>Spectral localisers and aperiodic topological phases in noncommutative geometry.</i>	Oct 2021 — Feb 2026 <i>Netherlands</i>
<b>Georg-August-Universität Göttingen</b> <i>Master in mathematics, with minor in physics</i> Thesis advisor: Prof. Dr. Ralf Meyer. Thesis: <i>Invariants for topological insulators coming from decompositions of coarse spaces.</i>	Oct 2018 — Aug 2021 <i>Germany</i>
<b>Peking University</b> <i>Bachelor in physics, with minor in mathematics</i> Thesis advisor: Prof. Dr. Limei Xu. Thesis: <i>Phase transition and critical phenomena.</i>	Sep 2013 — Jul 2018 <i>China</i>

## PUBLICATIONS

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### Articles in press

- [1] Y. Li and B. Mesland. *The odd spectral localiser via asymptotic morphisms and quasi-projections* (2025). [arXiv: 2506.17143](https://arxiv.org/abs/2506.17143). To appear in *Ann. K-Theory*.
- [2] Y. Li. *Robustness of topological phases on aperiodic lattices* (2025). [arXiv: 2504.04817](https://arxiv.org/abs/2504.04817). To appear in *Math. Phys. Anal. Geom.*

## 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*. Doctoral thesis. Leiden University, 2025.
- [5] Y. Li. *Invariants of topological insulators from decomposition of coarse spaces*. Master thesis. Georg-August-Universität Göttingen, 2021.

## TALKS

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### Research talks

- ◇ DECEMBER 2025: *The spectral localiser via E-theory*. NCG Colloquium II. Nijmegen, Netherlands.
- ◇ NOVEMBER 2025: *The spectral localiser via E-theory*. Oberseminar Global Analysis and Operator Algebras. Max-Planck-Institut für Mathematik, Bonn, Germany.
- ◇ AUGUST 2025: *On topological phases of aperiodic matter*. NCG Day. Leiden, Netherlands.
- ◇ JULY 2025: *The spectral localiser via E-theory*. Oberseminar Analysis. Leibniz Universität Hannover, Germany.
- ◇ JULY 2025: *The comparison maps between groupoid and Roe  $C^*$ -algebras from aperiodic topological insulators*. Oberseminar Noncommutative Geometry. Georg-August-Universität Göttingen, Germany.
- ◇ JUNE 2025: *The spectral localiser via E-theory*.  $C^*$ -algebras, Coarse Geometry and Physics. Greifswald, Germany.
- ◇ APRIL 2025: *On robustness of topological phases* (short talk). Applications of Noncommutative Geometry to Gauge Theories, Field Theories, and Quantum Space-time. Marseille, France.
- ◇ MARCH 2025: *On robustness of topological phases of matter*. Seminar in Analysis and Applications. Delft University of Technology, Netherlands.
- ◇ JANUARY 2025: *Understanding strong and weak topological phases*. Forschungsseminar Algebra/Geometrie/Topologie. Universität Greifswald, Germany.
- ◇ OCTOBER 2023: *Models of aperiodic topological insulators* (short talk). Autumn School on Large-scale Geometry. Göttingen, Germany.
- ◇ SEPTEMBER 2024: *Index theory of spectral truncations and the localisation algebra*. East China Normal University, Shanghai, China.

### Colloquium talks

- ◇ MAY 2024: *A hitchhiker's guide to topological insulators in noncommutative geometry*. Leiden-Birmingham meeting, Leiden, Netherlands.
- ◇ NOVEMBER 2023: *Noncommutative geometry in index theory and physics*. Leiden-Luxembourg PhD Away Day. Leiden, Netherlands.
- ◇ SEPTEMBER 2024: *Noncommutative geometry of integer quantum Hall effect*. Sichuan University, Chengdu, China.

## CONFERENCES, WORKSHOPS AND SEMINARS

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### Participation

- ◇ AUGUST 2025: NCG Day. Leiden, Netherlands.
- ◇ JUNE 2025:  $C^*$ -algebras, Coarse Geometry and Physics. Greifswald, Germany.

- ◇ APRIL 2025: Applications of Noncommutative Geometry to Gauge Theories, Field Theories, and Quantum Space-time. Marseille, France.
- ◇ OCTOBER 2024: Noncommutativity behind the Dunes. Delft, Netherlands.
- ◇ AUGUST 2024: OdenSeaG 2024. Odense, Denmark.
- ◇ MAY 2024: Leiden-Birmingham meeting. Leiden, Netherlands.
- ◇ APRIL 2024: Group Operator Algebras and Noncommutative Geometry. Marseille, France.
- ◇ NOVEMBER 2023: Leiden-Luxembourg PhD Away Day. Leiden, Netherlands.
- ◇ OCTOBER 2023: Autumn School on Large-scale Geometry. Göttingen, Germany.
- ◇ AUGUST 2023: YMC\*A. Leuven, Belgium.
- ◇ MAY 2023: Noncommutative Geometry and Operator Algebras (NSeaG 2023). Bonn, Germany.
- ◇ MARCH 2023: Noncommutative Geometry and Representation Theory. Athens, Greece.
- ◇ MARCH 2022: Noncommutativity in the North. Gothenburg, 2022.
- ◇ FEBRUARY 2022: Winter School on Foliations, Pseudodifferential Operators and Groupoids. Göttingen, Germany.

## 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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- ◇ DECEMBER 2025: Oberwolfach, Germany. Hosted by Dr. Jialong Deng.
- ◇ NOVEMBER 2025: Max Planck Institute for Mathematics, Germany. Hosted by Dr. Malte Leimbach.
- ◇ JULY 2025: Leibniz Universität Hannover, Germany. Hosted by Dr. Eske Ewert.
- ◇ JULY 2025: Georg-August-Universität Göttingen, Germany. Hosted by Prof. Dr. Ralf Meyer.
- ◇ JANUARY 2025: Universität Greifswald, Germany. Hosted by Prof. Dr. Matthias Ludewig.
- ◇ OCTOBER 2024: Peking University, China. Hosted by Dr. Guo Chuan Thiang.
- ◇ SEPTEMBER 2024: East China Normal University, China. Hosted by Prof. Dr. Hang Wang.
- ◇ SEPTEMBER 2024: Sichuan University, China. Hosted by Dr. Xingni Jiang and Dr. Yunfeng Shi.

## TEACHING EXPERIENCE

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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.