Curriculum Vitae **Alberto Takase**

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Professional Preparation

Northwestern University, Evanston	Mathematics	B.A., 2016
University of California, Irvine	Mathematics	Ph.D., 2022

Awards

NSF Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowship (2022)
https://www.nsf.gov/awardsearch/showAward?AWD_ID=2213277&HistoricalAwards=false

Appointments

Research Associate at Rice University
Summer 2023 – Summer 2025 (expected)
Research Associate at Michigan State University
Summer 2022 – Summer 2023
Instructor at University of California, Irvine
Summer 2022
Teaching Assistant at University of California, Irvine
Summer 2021 – Fall 2021
Visiting Researcher at University of Potsdam, Potsdam (Germany)
Fall 2020 – Fall 2021
Graduate Student Researcher at University of California, Irvine
Fall 2020 – Spring 2021
Teaching Assistant at University of California, Irvine
Fall 2016 – Summer 2020

Publications

[1] S. Beckus and A. Takase, *Spectral estimates of dynamically-defined and amenable operator families*, (submitted, arXiv:2110.05763).
[2] A. Takase, *On the spectra of separable 2D almost Mathieu operators*, Springer, Annales Henri Poincaré, (2021), 1–15.

Synergistic Activities

(1) Supported the international mathematics community as an expert judge for the Mathematical Contest in Modeling (MCM) and Interdisciplinary Contest in Modeling (ICM). The judgment in grading the 25-page papers that involve open-ended real-world issues allows to classify papers, provide feedback to teams, and select the very best papers for publication in the UMAP Journal. The MCM/ICM are run by the Consortium for Mathematics and its Applications (COMAP). These two contests have teams of 3 students select one of six open-ended problems to solve and write up their results in a 25-page paper during the 4 days of the contest. The purpose of the contests is to challenge teams of students to clarify, analyze, and propose solutions to open-ended, real-life problems.

(2) Invited online speaker at Tennessee State University hosted by the math department on October 8, 2021. The first 30 minutes of the talk were spent on the experience of being a Ph.D. student while the remaining 20 minutes were spent on graduate school application tips.
(3) Mentor at Math CEO in Fall 2016. Math CEO is a Community Educational Outreach program designed to increase the number of talented students who pursue higher education in STEM. The role of a mentor is to lead a group of 6–7 middle schoolers from diverse backgrounds with fun mathematics that progressively increases in difficulty. In addition to mentoring, attendance to the 2016–2017 Math CEO couching seminars resulted in learning to work with youth with an emphasis on math content, inquiry-based pedagogy, and culturally sensitive practices.
(4) Creator of upper-division review material for the Math Pre-requisite Review Materials Program. he program provides students a freely available online resource to more efficiently prepare for Winter 2020 courses as a response to COVID. Each module created consisted of 5–8 short videos, notes, practice problems, and solutions. To achieve the goal of providing only the pre-requisite content, consultation with numerous instructors was part of the process.
(5) Mentor at the Directed Reading Program in Fall 2021. The program pairs undergraduates with graduate student mentors to participate in a reading course. The goal is to give students the opportunity to learn math while building skills such as communication, reading, and writing.

Presentations

- Great Lakes Mathematical Physics Meeting (June 2023)
  Host: Oberlin College
  Talk: *Spectral estimates of dynamically-defined and amenable operator families*
- Spring Southeastern Sectional Meeting (March 2023)
  Host: American Mathematical Society
  Theme: Quasi-periodic operators and quantum graphs
  Talk: *Spectral estimates of dynamically-defined and amenable operator families*
- Seminar (December 2022)
  Host: Michigan State University
  Talk: *The Gap Labeling Theorem*
- Seminar (September 2022)
  Host: Michigan State University
  Talk: *Spectral estimates of dynamically-defined and amenable operator families*
- Seminar (October 2021)
  Host: University of California, Irvine
  Talk: *Spectral estimates of dynamically-defined and amenable operator families*
- Society for Industrial and Applied Mathematics speaker series (September 2021)
  Host: Potsdam SIAM Student Chapter
  Talk: *On the spectra of separable 2D almost Mathieu operators*
- Seminar (September 2021)
  Host: Rice University
  Talk: *Spectral estimates of dynamically-defined and amenable operator families*
- International Congress on Mathematical Physics (August 2021)
  Host: International Association of Mathematical Physics
  Theme: S11 - Quantum Mechanics & Spectral Theory
  Poster: *On the spectra of separable 2D almost Mathieu operators*

- Mathematical Physics, Dynamical Systems, Infinite-Dimensional Analysis (July 2021)
  Host: Moscow Institute of Physics and Technology
  Talk: *On the spectra of separable 2D almost Mathieu operators*
- Great Lakes Mathematical Physics Meeting (June 2021)
  Host: Michigan State University
  Talk: *On the spectra of separable 2D almost Mathieu operators*
- Learning Seminar (May 2021)
  Host: University of California, Irvine
  Talk: *Explaining amenability and its potential application to spectral theory*
- Virtual Spring Western Sectional Meeting (May 2021)
  Host: American Mathematical Society
  Theme: Localization and delocalization in ergodic quantum systems, III
  Talk: *On the spectra of separable 2D almost Mathieu operators*
- Learning Seminar (March 2021)
  Host: Texas A&M University
  Talk: *Explaining a 1990 paper: theorem and proof*
- Learning Seminar (March 2021)
  Host: University of California, Irvine
  Talk: *Explaining a 2019 paper: theorem and proof*

Selected Coursework

• Ergodic Schrödinger Operators	instructor: Svetlana Jitomirskaya, Abel Klein
• Ergodic Theory	instructor: Anton Gorodetski
• Probability	instructor: Michael C. Cranston
• Functional Analysis	instructor: Svetlana Jitomirskaya
• Real Analysis	instructor: Svetlana Jitomirskaya