Quoc P. Ho

Institute of Science and Technology Austria (IST Austria)
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Employment

2017–present **Postdoctoral researcher**,
Hausel group, IST Austria, Klosterneuburg, Austria.
Lise Meitner Fellow, Austrian Science Fund FWF, 2019–2021
Interests: algebraic geometry, number theory, representation theory, and topology

Education

2011–2017 **PhD Candidate in Mathematics**,
University of Chicago, Chicago, IL, USA.
MSc in Mathematics awarded in 2012
PhD in Mathematics awarded in 2017
Advisors: Bảo-Châu Ngô, Dennis Gaitsgory
Thesis: Free factorization algebras and homology of configuration spaces in algebraic geometry

2007–2011 **AB in Mathematics**,
Princeton University, Princeton, NJ, USA.
Graduated with High Honors
Member of Phi Beta Kappa, the oldest academic honor society in the United States

2005–2007 **International Baccalaureate (IB)**,
Lester B. Pearson UWC, Victoria, BC, Canada.

Fellowships and Awards

2019–2021 Lise Meitner Postdoctoral Fellowship, Austrian Science Fund FWF, 159 340€.

2011–2013 McCormick Fellowship for Graduate Students, University of Chicago.

2007–2011 Davis Fellowship, *Full 4-year scholarship (tuition, room and board) to attend Princeton University*.

Teaching Experiences

2017–present **Postdoctoral researcher**, *IST Austria*, Klosterneuburg, Austria.
Full responsibility for all of the following courses:
◦ Introduction to Algebraic Geometry
◦ Introduction to Programming with Python
Co-taught D-modules (with Sasha Minets)

2013–2017 **Lecturer**, *University of Chicago*, Chicago, IL.
Full responsibility for all of the following courses:
◦ MATH 195: Multi-variable Calculus (4 times)
◦ MATH 196: Linear Algebra (3 times)
◦ MATH 130s: Freshman Calculus sequence (3 quarters)

2014–2016 **Mentor for DRP and REU**, *University of Chicago*, Chicago, IL.
Supervised undergraduate student participants in independent study projects
Projects supervised: algebraic topology, de Rham cohomology, Galois theory and fundamental groups via Grothendieck's fiber functor formalism

2012–2013 **College Fellow**, *University of Chicago*, Chicago, IL.
Teaching assistant for MATH 160s: Freshman Honors Calculus sequence (3 quarters), IBL (inquiry-based learning) style

Papers

— Homological stability and densities of generalized configuration spaces, *Geometry & Topology, Vol. 25 (2021), No. 2, pp. 813-912 (100 pages)*, DOI: 10.2140/gt.2021.25.813.

— Free factorization algebras and homology of configuration spaces in algebraic geometry, *Selecta Mathematica (N.S.), Vol. 23 (2017), No. 4, pp. 2437-2489 (54 pages)*, DOI: 10.1007/s00029-017-0339-1.

— Average size of 2-Selmer groups of ellipitic curves over function fields, with B.V.H. Lê and B.C. Ngô, *Mathematical Research Letters, Vol. 21 (2014), No. 6, pp. 1305-1339 (35 pages)*, DOI: 10.4310/MRL.2014.v21.n6.a6.

— Eisenstein series via factorization homology of Hecke categories, with P. Li, *23 pages*, arXiv: 2103.10137.

— Higher representation stability for ordered configuration spaces and twisted commutative factorization algebras, *47 pages*, arXiv: 2004.00252.

— The Atiyah-Bott formula and connectivity in chiral Koszul duality, *45 pages*, arXiv: 1610.00212.

Visits

Summer 2020 **Early Career Research Visitor Program**,
Australian National University, Canberra ACT 2600, Australia.
(canceled due to COVID-19)

Fall 2014 **Program Associate**,
MSRI, Berkeley, California, USA.
Geometric Representation Theory semester program

Invited Lecture Series

2019 Cambridge University, UK.
Lecture series on factorization homology and homological densities (4 one-hour lectures)

Harbin Institute of Technology, China.
Lecture series on factorization homology and homological densities (2 one-hour lectures)

Pohang University of Science and Technology (POSTECH), South Korea.
Lecture series on factorization homology and number theory over function fields (4 two-hour lectures)

Invited Talks

2021 GRT at Home (Geometry Representation Theory at Home) seminar

University of Toronto, Geometric Representation theory seminar

University of Michigan, TAPIRS: Talks About Progress In Representation Stability

2020 Stockholm University, Algebra/Geometry Seminar

Purdue University, Topology Seminar

Universiteit Utrecht, Intercity Number Theory Seminar (canceled due to COVID-19)

Utrecht Geometry Centre, Geometry Seminar (canceled due to COVID-19)

2019 University of Edinburgh, Geometric Representation Theory and Low-dimensional Topology Conference

2018 Université Paris Diderot, Local Geometric Langlands Conference.
Factorizable algebras and categories (expository)

Université Paris Diderot, Algebraic Geometry Seminar

National University of Singapore, Pan Asian Number Theory Conference

Kavli IPMU Japan, Vertex Algebras, Factorization Algebras and Applications Conference

ETH Zürich, Algebraic Geometry Seminar

2017 Duke University, Number Theory Seminar

IST Austria, Algebraic Geometry Seminar

2016 Northwestern University, Topology Seminar

Rice University, Algebraic Geometry/Number Theory Seminar

Purdue University, Topology Seminar

2015 University of Wisconsin-Madison, Number Theory Seminar

2014 MSRI, Geometric Representation Theory Semester.
Working group on the Geometric Satake isomoprhism (expository)

2013 VIASM, Pan Asian Number Theory Conference

2012 Vietnam Institute for Advanced Study in Mathematics (VIASM) Summer School.
The work of Bhargava-Shankar (expository)

Other Activities

Refereed & provided expert opinion for Advances in Mathematics, Journal of Topology, Pacific Journal of Mathematics

Screened PhD applications for IST Austria

Organized learning seminars for quantum groups and derived algebraic geometry at IST Austria

Co-organized general topic seminar for graduate students at the University of Chicago

Co-organized a learning seminar on étale cohomology for graduate students at the University of Chicago

Additional Information

Languages: Vietnamese (native), English (fluent), German (intermediate), French (reading knowledge).

Interests and Skills: Programming (Scala, Java, Python, C), Music Composition, Table Tennis.