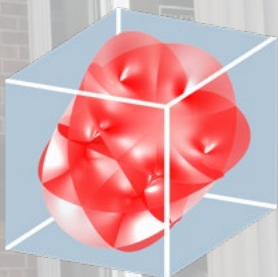


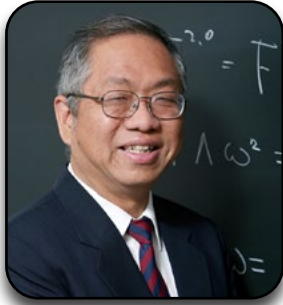
# Directory

Academic Year 2020 - 2021



**HARVARD UNIVERSITY  
CENTER OF MATHEMATICAL  
SCIENCES AND APPLICATIONS**

# Scientific Board



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Research interests: Algebraic topology.



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Research interests: String theory.



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Research interests: Algebras and tropical geometry.



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Research interests: Logic and foundations of mathematics, philosophy of logic, philosophy of mathematics, set theory.

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Ph.D.: Tel Aviv University  
Faculty sponsor: Madhu Sudan  
Research interests: Theoretical computer science

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Faculty sponsor: Shing-Tung Yau  
Research interests: String Theory, Topological Field Theory, Mirror Symmetry, Theoretical Physics

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Faculty sponsor: Cumrun Vafa  
Research interests: Mathematical physics, quantum graphs, and spectral geometry; string theory

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Ph.D.: MIT  
Faculty sponsor: Horng-Tzer Yau  
Research interests: Artificial intelligence (AI), machine learning theory, Deep Learning theory

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# Postdoctoral Fellows

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Faculty sponsor: Shing-Tung Yau

Research Interests: Geometric description of supersymmetric sigma models; Super Geometry, Super Riemann Surfaces

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Faculty sponsor: Shing-Tung Yau

Research interests: symplectic geometry, Floer theory, mirror symmetry, and integrable systems

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Faculty sponsor: Scott Kominers

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Faculty sponsor: Shing-Tung Yau

Research interests: Algebraic geometry

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Research interests: Algebraic geometry

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Faculty sponsor: Shing-Tung Yau  
Research interests: Invariants of 3- and 4-manifolds, Higgs bundles, mirror symmetry, categorification, conformal field theory and TQFT, dynamics of, supersymmetric gauge theories, various other topics in mathematical physics

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Faculty sponsor: Shing-Tung Yau  
Research interests: Supersymmetry and high energy; Boundary conformal field theory, BH entropy through localization

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Ph.D.: University of Illinois at Urbana Champaign  
Faculty sponsor: Shing-Tung Yau  
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Faculty sponsor: Shing-Tung Yau

Research interests: Combinatorics; Probabilistic Combinatorics

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Research interests: Quantum condensed matter system and high energy theory; mathematical physics, topological phases of matter

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Faculty sponsor: Scott Kominers

Research interests: Econometrics and quantitative economics; Economics, Finance, Machine Learning

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Ph.D.: MIT

Faculty sponsor: Shing-Tung Yau

Research interests: Ultra Unification, Theoretical Physics, Condensed Matter Physics, High Energy Physics, Mathematical Physics, Quantum Field Theory

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# Postdoctoral Fellows

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Ph.D.: MIT

Faculty sponsor: Shing-Tung Yau

Research interests: String theory, supersymmetric and conformal quantum field theories, scattering amplitudes, holographic dualities, integrable systems, mathematical physics

---

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Faculty sponsor: Shing-Tung Yau

Research interests: Discrete and computational geometry, complex analysis, discrete riemann surfaces, and coupled dynamical systems on networks

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Faculty sponsor: Shing-Tung Yau

Research interests: Graph cohomology, Comparison Theorems of Phylogenetic Spaces and Algebraic Fans; Differential Geometry and Mathematical Biology

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Ph.D.: University of Chicago

Faculty sponsor: Horng-Tzer Yau

Research interests: Probability theory

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# Postdoctoral Fellows



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Ph.D.: Stanford University

Faculty sponsor: Shing-Tung Yau

Research interests: Algebraic geometry

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Affiliation: Clark University

Research interests: Differential geometry and geometric inequalities, general relativity (GR) and black holes, partial differential equations; Geometric analysis and mathematical relativity

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Email: [peter.chin@cmsa.fas.harvard.edu](mailto:peter.chin@cmsa.fas.harvard.edu)

Affiliation: Boston University

Research Interests: Differential Geometry, General Relativity, String Theory, Game Theory, Compressive Sensing, Quantum Computing; Theoretical Machine Learning, Extremal Graph Theory, Compressive Sampling Theory

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Affiliation: University of Alberta

Research Interests: Geometry, Topology, and Number Theory; Calabi-Yau Geometry, Arithmetic, and Physics

---



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Affiliation: Stony Brook University

Research interests: New technologies in mathematics; Computers and math; string theory

---



# Research Visitors

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Affiliation: Indiana University-Bloomington  
Research interests: Probability, mathematical biology and phylogenetics

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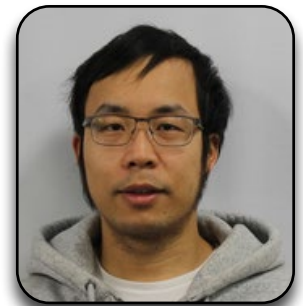


## An Huang

Appointment duration: 01/01/2021 - 12/31/2021  
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Affiliation: Brandeis University  
Research interests: D-modules, period integrals, mirror symmetry, Hodge theory, arithmetic geometry, and their interconnections

---



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# Research Visitors

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Research interests: Gromov Witten/Donaldson Thomas theory, Calabi-Yau geometries, mathematical aspects of String Theory

---



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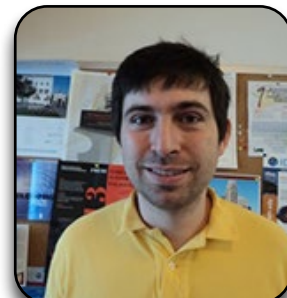
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Research interests: Differential geometry, geometric analysis, complex algebraic geometry, and partial differential equations

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Research interests: Economics, applied mathematics, digital technologies

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Research interests: Mathematics of medical imaging



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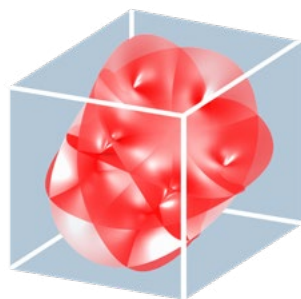
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