

Bringing the two sides closer together...

The CMSA's brand of "mathematical application" is special: it focuses on settings where ideas in areas closer to "pure" mathematics, statistics, and have direct translations relevant to application fields---for example, in mathematical physics, or in the design of algorithms for assigning students to schools (which relies on ideas close to algebraic combinatorics). The CMSA encourages two-way feedback between applications and theory, bringing the two sides closer together. This is different from the way much of the work in applied mathematics is done---others do work that is more "in between" pure math and the applied area.

"CMSA is a great addition to Harvard and the impact it has had on the activities in theoretical physics is tremendous! This includes, not only my area of physics (string theory and high energy theory) but also other areas such as condensed matter theory (for example the very high level activity going on there this year on topological aspects of matter) as well as quantitative aspects of biophysics.

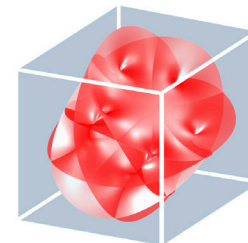
So I hope these activities continue for many years and we are lucky to have you create such an active and impactful center not only for mathematics, but also on nearby fields such as physics!"

Cumrun Vafa, *Harvard Physics*

"I have worked with Professor Yau and others at CMSA since its founding. As an economist/ social scientist who does empirical studies but with a deep interest in math and physical science, this has been my best outside-my-discipline experience at Harvard. I have had a great time connecting with mathematicians and statisticians and with various post-docs at CMSA and in helping CMSA organize big data conferences. I have gone to various colloquium and seminars, and assisted the Center in various ways. The non-bureaucratic and collegial culture of the Center works wonders across disciplines and schools. Indicative of how the CMSA operates, three years ago the Center brought a Chicago economics PhD with tremendous big data skills, Jorn Boehnke as a one year post-doc and suggested he work with me. His specialty in industrial organization and marketing is quite different than my labor work, but we interacted well through big data and math modeling. The cooperative friendly and non-bureaucratic way that CMSA works wonders, and enabled me to produce a great deal of top-rate work with Dr. Boehnke.

I look forward to continuing collaboration with CMSA faculty and post-docs. CMSA should be great recruiting tool for Harvard as offering best sort of cross-disciplinary interactions, at least for folks with some math/dataabstract bent. In its brief existence it has done a tremendous job linking ideas and people."

Richard Freeman, *Harvard Economics*



HARVARD UNIVERSITY
CENTER OF MATHEMATICAL
SCIENCES AND APPLICATIONS

Through the Center of Mathematical Sciences and Applications, Professor Shing-Tung Yau has established a unique research center at Harvard in the Faculty of Arts and Sciences (FAS) that focuses on both research in mathematics and its applications.

The CMSA serves as a bridge between mathematicians and faculty, students, and practitioners working in applied areas, including the sciences, economics, and business. The mandate is broader than any single department: most CMSA activities involve faculty from multiple disciplines (and often, multiple schools).

The Center creates this unusual but crucial work by connecting scholars, postdoctoral fellows, and students through hosting and organizing a variety of academic activities.

Speakers from within the Harvard community as well as other institutions are featured at multiple weekly seminars on topics such as mathematical physics, geometric analysis, evolution equations, big data and random matrix and probability theory.

The Center also hosts regular conferences and workshops, bringing in leading researchers from across the globe to speak on groundbreaking topics such as big data, blockchain technology, mirror symmetry, topological insulators, and image processing.



August 18-20, 2018 From Algebraic Geometry to Vision and AI

August 23-24, 2018 Big Data Conference

August 27-28, 2018 Topology and Quantum Phases of Matter

September 29-30, 2018 F-Theory Workshop

October 22-24, 2018 Mathematics, Morphometrics and Morphogenesis

October 24, 2018 Ding Shum Lecture

December 3-5, 2018 Morphogenesis: Geometry and Physics

January 24-25, 2019 Blockchain Conference

March 13-15, 2019 Fluid turbulence and Singularities of the Euler/Navier Stokes equations Workshop

March 27-29, 2019 Machine Learning for multiscale model reduction

April 9-10, 2019 Math Science Lectures in Honor of Raoul Bott

April 15-17, 2019 Workshop on Invariance and Geometry in Sensation, Action and Cognition

April 18, 2019 Yip Annual Lecture

April 29-May 1, 2019 Conference on Algebraic Geometry, Representation theory and Mathematical Physics

May 6-10, 2019 Topology and Quantum Phases of Matter

