



# QUANTITATIVE LINEAR ALGEBRA

March 19 - June 15, 2018 | Los Angeles

Organizers: Alice Guionnet (École Normale Supérieure de Lyon), Assaf Naor (Princeton), Gilles Pisier (Texas A&M), Sorin Popa (UCLA), Dimitri Shlyakhtenko (UCLA), Nikhil Srivastava (UC Berkeley), and Terence Tao (UCLA).

## SCIENTIFIC OVERVIEW

The program lies at the juncture of mathematics and theoretical computer science in a quest for quantitative answers to finite-dimensional questions. The program brings together topics from a number of important directions, including discrepancy theory, spectral graph theory, random matrices, geometric group theory, ergodic theory, von Neumann algebras, as well as specific research directions such as the Kadison-Singer problem, the Connes embedding conjecture and the Grothendieck inequality.

A very important aspect of the program is its aim to deepen the link between research communities working on some infinite-dimensional functional analysis problems that occur in geometric group theory, ergodic theory, von Neumann algebras; and some quantitative finite-dimensional ones that occur in spectral graph theory, random matrices, combinatorial optimization, and the Kadison-Singer problem.

## WORKSHOP SCHEDULE

- Opening Day: March 19, 2018.
- Tutorials: March 20 - 23, 2018.
- Workshop I: Expected Characteristic Polynomial Techniques and Applications: April 9 - 13, 2018.
- Workshop II: Approximation Properties in Operator Algebras and Ergodic Theory: April 30 - May 5, 2018.
- Workshop III: Random Matrices and Free Probability Theory: May 14 - 18, 2018.
- Culminating Workshop at Lake Arrowhead: June 10 - 15, 2018.

## PARTICIPATION

This long program will involve senior and junior researchers from several communities relevant to this program. You may apply for financial support to participate in the entire fourteen-week program, or a portion of it. We prefer participants who stay for the entire program. Applications will be accepted through **December 4, 2017**, but offers may be made up to one year before the start date. We urge you to apply early. Mathematicians and scientists at all levels who are interested in this area of research are encouraged to apply for funding. Supporting the careers of women and minority researchers is an important component of IPAM's mission, and we welcome their applications.

[www.ipam.ucla.edu/qla2018](http://www.ipam.ucla.edu/qla2018)



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