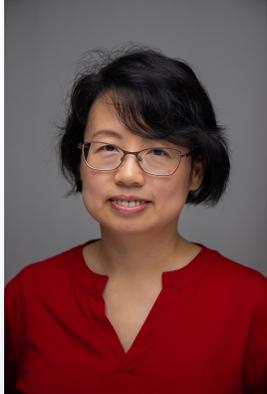




2024 TALKS IN COMBINATORICS



Catherine Yan is a Professor of Mathematics at Texas A&M University. Her mathematical interests are in algebraic combinatorics, probabilistic methods, ordered algebraic structures and discrete structures. She earned a Bachelor's degree from Peking University and a Ph.D. in Mathematics from MIT under the supervision of Gian-Carlo Rota. Professor Yan won a Sloan Research Fellowship in 2001, was elected to the 2018 class of fellows of the American Mathematical Society “for contributions to combinatorics and discrete geometry”. She serves on the editorial boards of several research journals, including being a co-Editor-in-Chief for *Advances in Applied Mathematics*.

Parking functions, interpolation polynomials, and partition lattice

Parking function is an object lying in the center of combinatorics. Originated in the theory of hashing and searching in computer science, parking functions have various generalizations and appear in many discrete and algebraic structures. In this talk we discuss a special kind of generalization, the vector parking functions, which correspond naturally to Goncarov polynomials, the basis of the solutions of the Goncarov Interpolation Problem in Numerical Analysis. Using the theory of finite operator calculus, we introduce the sequence of delta-Goncarov polynomials, describe their algebraic and analytic properties, and show that any such a polynomial sequence can be realized as a weighted enumerator in the partition lattice. Our result provides an algebraic tool to enumerate combinatorial structures with a linear constraint on their order statistics.

Jan 9 (Tue) 2024, 14.00–15.00 @Wencui E 609

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