

RICHARD STANLEY  
Massachusetts Institute of Technology

## **Free probability for combinatorialists**

Free probability is a “noncommutative” probability theory created around 1983 by D. V. Voiculescu in connection with the theory of von Neumann algebras. Around 1990 he realized that free probability theory is closely related to large independent random matrices. A few years later R. Speicher and A. Nica established a deep connection between free probability and noncrossing partitions, while P. Biane developed the connections between free probability and the asymptotic behavior of symmetric group representations. We will give a survey of free probability theory focusing on the aspects that will be of most interest to combinatorialists.