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报告人：丁秀才（UC Davis）

题目：A Riemann-Hilbert approach to the perturbation theory for orthogonal polynomials with applications

摘要：We establish a new perturbation theory for orthogonal polynomials using a Riemann-Hilbert approach and consider applications in randomized numerical linear algebra and algorithmic statistics. This new approach shows that the orthogonal polynomials with respect to two measures can be effectively compared using the difference of their Stieltjes transforms on a suitably chosen contour. The results are applied to analyze several numerical algorithms, including the Lanczos tridiagonalization procedure, the Cholesky factorization and the conjugate gradient algorithm with random inputs. This talk is based on joint works with Thomas Trogdon.