1057-33-341   **Alexander R Its*** (`itsa@math.iupui.edu`), Indiana University Purdue University, Indianapolis, Mathematical Sciences, Indianapolis, IN 46202-3216. *Asymptotics of Toeplitz, Hankel and Toeplitz + Hankel determinants with Fisher-Hartwig singularities. The Riemann-Hilbert approach.*

We will discuss some new results obtained via the Riemann-Hilbert method in the area of asymptotic analysis of Hankel and Toeplitz determinants whose symbols possess Fisher-Hartwig singularities on a smooth background. Specifically, we will discuss the proof of the Basor-Tracy conjecture concerning the Toeplitz determinants, the asymptotics of Hankel and Toeplitz + Hankel determinants on a finite interval, and the Painlevé-type crossover formulae describing a transition between the Szegö and the Fisher-Hartwig type of asymptotic behavior for Toeplitz determinants. The talk is based on the joint works with P. Deift, T. Claeys, and I. Krasovsky. (Received January 25, 2010)

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