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—Joseph F. Traub, CSTB chair

Correction

The October 2006 issue of the *Notices* carried the article "2006 Fields Medals Awarded", which contains summary descriptions of the work of the four most recent Fields Medalists. Because those summaries were aimed at a popular audience, they presented little background and detail. In particular, a key development was omitted from the discussion of results of Andrei Okounkov concerning connections between combinatorics and random matrices. What follows is a fuller explanation. A future issue of the *Notices* will carry longer articles, written by experts, about the work of the medalists.

In the late 1990s Jinho Baik, Percy Deift, and Kurt Johansson established a connection between combinatorics on the one hand—in particular Ulam's problem on longest increasing subsequences in random permutations—and random matrix theory on the other. In their paper [BDJ] these authors also made a conjecture that greatly extended the scope of the connection. It was this conjecture that Okounkov was the first to prove [O].

The conjecture of Baik, Deift, and Johansson concerns partitions of an integer N. A partition of N is a nonincreasing sequence of integers $b_1, b_2, \ldots, b_k$ that sum up to N: The numbers b_j are called the *parts* of the partition and k is the *length* of the partition. For example 53321 and 752 are partitions of $N = 14$ of length 5 and 3, respectively. The set of partitions of a fixed number N form a probability space with a natural measure (Plancherel measure), and it turns out that the first parts of the partitions, i.e., the b_1's, are distributed in *exactly* the same way as the length of the longest increasing subsequence of a random permutation.

In [BDJ], the authors proved that the length of the longest increasing subsequence of a random permutation of length N behaves statistically, as N goes to infinity, like the largest eigenvalue of a random matrix. With the above identification, the result in [BDJ] is: Under Plancherel measure, the first part of a partition of an integer N behaves statistically, as N goes to infinity, like the largest eigenvalue of a random matrix. The conjecture in [BDJ] is that for any integer m, the first m parts $b_1, \ldots b_m$ of a partition of an integer N behave statistically, as N goes to infinity, like the m largest eigenvalues of a random matrix. In his paper [O], Okounkov proves this conjecture by giving a novel connection between random matrices and increasing subsequences in permutations. He shows that both problems are equivalent in the asymptotic limit to a third one involving counting random (Riemann) surfaces.

—Allyn Jackson

[BDJ] J. Baik, P. Deift, and K. Johansson, On the distribution of the length of the longest increasing subsequence of random permutations, *J. Amer. Math. Soc.* **12** (1999), 1119–78, math.CO/9810105.2, MR 2000e:05006.

[O] A. Okounkov, Random matrices and random permutations, *Internat. Math. Res. Notices* 2000, 1043–95, math.CO/ 9903176, MR 2002c:15045.