ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

13. Combinatorics

1991 MS Classification: 05, 06

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An upper bound for the size of a largest antichain in the poset of partitions of an integer

Let Pi_n be the poset of partitions of an integer n, ordered by refinement. Let $b(Pi_n)$ be the largest size of a level and $d(Pi_n)$ be the largest size of an antichain of Pi_n. We prove that

$$\frac{d(Pi_n)}{b(Pi_n)} \leq e + o(1) \text{ as } n \to \infty.$$

The denominator is determined asymptotically. In addition, we show that the incidence matrices in the lower half of Pi_n have full rank, and we prove a tight upper bound for the ratio from above if Pi_n is replaced by any graded poset P.