

Institut für Optimierung und Diskrete Mathematik

Kolloquiumsvortrag

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Der Zauberer von Budapest – Paul Erdős and the Rise of Discrete Mathematics

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Abstract:

The twentieth century saw the elevation of Discrete Mathematics from “the slums of topology” (one of the more polite expressions!) to its current highly regarded position in the mathematical pantheon. Paul Erdős played a key role in this transformation. I will discuss some key results, possibly including:

- (i) Ramsey Theory. In 1946 Erdős showed that you could two-color the complete graph on n vertices so as to avoid a monochromatic clique of size k , when n was exponential in k . To do it, he introduced the Probabilistic Method.
- (ii) Random Graphs. In 1960 Erdős, with Alfréd Rényi, showed that the evolution of the random graph undergoes (in modern language) a phase transition when the number of edges approaches half the number of vertices.
- (iii) Number Theory. In 1940 Erdős, with Marc Kac, showed that the number of prime factors of n satisfies (when appropriately defined) a Gaussian distribution, Amazing!

Anecdotes and personal recollections of Paul Erdős will be sprinkled liberally throughout the presentation.

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