

2004 Gödel Prize

Call for Nominations

The Gödel Prize for outstanding papers in the area of theoretical computer science is sponsored jointly by the European Association for Theoretical Computer Science (EATCS) and the Special Interest Group on Algorithms and Computing Theory of the Association of Computing Machinery (ACM-SIGACT). This award is presented annually, with the presentation taking place alternately at the International Colloquium on Automata, Languages, and Programming (ICALP) and ACM Symposium on the Theory of Computing (STOC). The twelfth presentation will take place during the 2004 ICALP, July 2004 in Turku, Finland. The Prize is named in honor of Kurt Gödel in recognition of his major contributions to mathematical logic and of his recently discovered interest in what has become the famous "P versus NP" question. The Prize includes an award of \$5000 (US).

AWARD COMMITTEE: The winner of the Prize is selected by a committee of six members. The EATCS President and the SIGACT Chair each appoint three members to the committee, to serve staggered three-year terms. The committee is chaired alternately by representatives of EATCS and SIGACT, with the 2004 Chair being an EATCS representative. The 2004 Award Committee consists of Giorgio Ausiello (University of Rome "La Sapienza"), László Babai (University of Chicago), Pierre-Louis Curien (CNRS, Paris 7), Zvi Galil (Columbia University), Juhani Karhumäki (Chair, University of Turku) and Jeff Ullman (Stanford University).

ELIGIBILITY: Any research paper or a series of papers published (not reprinted) in a recognized refereed journal by a single author or a team of authors in the period 1997-2003 is eligible. This extended period is in recognition of the fact that the value of fundamental work cannot always be immediately assessed. The research nominated for the award should be in the area of theoretical computer science. The term "theoretical computer science" is meant in a broad sense, and encompasses, but is not restricted to, those areas covered by ICALP and STOC. The Award Committee shall have the ultimate authority to decide whether a particular paper is eligible for the Prize.

NOMINATIONS: Nominations for the award should be submitted to the Award Committee Chair at the following address:

Professor Juhani Karhumäki
Department of Mathematics &
Turku Centre for Computer Science
University of Turku
20014 University of Turku, FINLAND
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To be considered, nominations for the 2004 prize must be received by January 10, 2004. Nominations may be made by any member of the scientific community. A nomination should contain a brief summary of the technical content of the paper and a brief explanation of its significance. A copy of the research paper or papers should accompany

the nomination. The work may be in any language. However, if it is not in English, a more extended summary written in English should be enclosed. Additional recommendations in favor of the nominated work may also be enclosed. To be considered for the award, the paper or series of papers must be recommended by at least two individuals, either in the form of two distinct nominations or one nomination including recommendations from two different people.

It is the duty of the Award Committee to actively solicit nominations from as broad a spectrum of the theoretical computer science community as possible, so as to ensure that potential award-winning papers are not overlooked. To this end, the Award Committee will accept informal proposals of potential nominees, as well as tentative offers to prepare formal nominations, should they be needed to fulfill the requirements that the paper have two separate recommendations.

SELECTION PROCESS: Although the Award Committee is encouraged to consult with the theoretical computer science community at large, the Award Committee is solely responsible for the selection of the winner of the award. In the case that the Award Committee cannot agree on a recipient, the prize may be shared by more than one paper or series of papers, and the Award Committee reserves the right to declare no winner at all. All matters relating to the selection process that are not specified here are left to the discretion of the Award Committee.

PAST WINNERS:

1993: László Babai and Shlomo Moran, "Arthur-Merlin games: a randomized proof system and a hierarchy of complexity classes," *Journal of Computer and System Sciences* **36** (1988), 254–276.

Shafi Goldwasser, Silvio Micali and Charles Rackoff, "The knowledge complexity of interactive proof systems," *SIAM Journal on Computing* **18** (1989), 186–208.

1994: Johan Håstad, "Almost optimal lower bounds for small depth circuits," *Advances in Computing Research* **5** (1989), 143–170.

1995: Neil Immerman, "Nondeterministic space is closed under complementation," *SIAM Journal on Computing* **17** (1988), 935–938.

Róbert Szelepcsényi, "The method of forced enumeration for nondeterministic automata," *Acta Informatica* **26** (1988), 279–284.

1996: Alistair Sinclair and Mark Jerrum, "Approximate counting uniform generation and rapidly mixing Markov chains," *Information and Computation* **82** (1989), 93–133.

Mark Jerrum and Alistair Sinclair, "Approximating the permanent," *SIAM Journal on Computing* **18** (1989), 1149–1178.

1997: Joseph Halpern and Yoram Moses, "Knowledge and common knowledge in a distributed environment," *Journal of the ACM* **37** (1990), 549–587.

1998: Seinosuke Toda, "PP is as hard as the polynomial-time hierarchy," *SIAM Journal on Computing* **20** (1991), 865–877.

1999: Peter W. Shor, "Polynomial-time algorithms for prime factorization and discrete logarithms on a quantum computer," *SIAM Journal on Computing* **26** (1997), 1484–1509.

2000: Moshe Y. Vardi and Pierre Wolper, "Reasoning about infinite computations," *Information and Computation* **115** (1994), 1–37.

2001: Uriel Feige, Shafi Goldwasser, László Lovász, Shmuel Safra, and Mario Szegedy, “Interactive proofs and the hardness of approximating cliques,” *Journal of the ACM* **43** (1996), 268–292.

Sanjeev Arora and Shmuel Safra, “Probabilistic checking of proofs: a new characterization of NP,” *Journal of the ACM* **45** (1998), 70–122.

Sanjeev Arora, Carsten Lund, Rajeev Motwani, Madhu Sudan, and Mario Szegedy, “Proof verification and the hardness of approximation problems,” *Journal of the ACM* **45** (1998), 501–555.

2002: Géraud Sénizergues, “ $L(A)=L(B)$? Decidability results from complete formal systems,” *Theoretical Computer Science* **251** (2001), 1–166.

2003: Yoav Freund and Robert Schapire, “A Decision Theoretic Generalization of On-Line Learning and an Application to Boosting,” *Journal of Computer and System Sciences* **55** (1997), 119–139.

For more information: <http://www.math.utu.fi/icalp04/>