

László Babai — Curriculum Vitae (compact version) — February 2, 2017

Links are clickable. *Expanded CV*, last updated in 2013, at <http://people.cs.uchicago.edu/~laci/CV.html>.

Current position: George and Elizabeth Yovovich Professor (2010–current), Departments of Computer Science (1987–current) and Mathematics (1995–current), University of Chicago

Ph.D. in mathematics, Hungarian Acad. Sci., Budapest, 1975. Advisors: Paul Turán, Vera T. Sós.

Previous positions: Eötvös Univ., Budapest, Dept. Algebra: assistant prof. 1975–77, sr. assistant prof. 1977–81, associate professor 1981–87, professor, 1987–1994. Short-term visits at universities and research institutes in the Soviet Union, Canada, the U.S., Germany, the Netherlands, Australia, France, Italy, Switzerland.

Current grant: NSF Grant CCF-7443327, \$ 325K (Univ. of Chicago, 9/1/2014-8/31/2017)

Research areas: complexity theory, algorithms, combinatorics, asymptotic group theory, and the many interactions among these fields, including problems of “pure mathematics” motivated by questions in the theory of computing. Detailed list of research areas with links to lists of papers by area and online papers at <http://people.cs.uchicago.edu/~laci/CV.html>.

Honors, awards (hover/click for citations) include *Dijkstra Prize in Distributed Computing*, **2016** (shared); ACM SIGACT Distinguished Service Award, **2016**; *Knuth Prize*, **2015**; American Academy of Arts and Sciences, Fellow, **2015**; Honorary doctorate, Technical Univ. Budapest, 1999; *André-Aisenstadt Chair*, CRM, Univ. Montréal, Fall 1996; *Internat. Congr. of Mathematicians (ICM)*: section speaker, 1990, and **plenary address**, 1994; Hungarian Academy of Sciences, member 1994; *First European Congr. of Mathematics (ECM)*, *plenary address*, 1992; *Gödel Prize*, 1993 (shared); Erdős Prize (Hung. Acad. Sci.) 1983

Recent invited lectures (before September 2015) include *Asymptotic Group Theory*, Rényi Inst., Budapest, Aug. 2015; *Knuth Lecture*, 47th STOC, June 2015; *Algebraic Combinatorics*, U. Waterloo, June 2014; *Modern Trends in Algebraic Graph Theory* conf. (plenary, Villanova U., 2014); *Algebra, Combinatorics, and More*, conf., Queen Mary U. London (opening lecture), July 2013; *Erdős Centennial Conference*, “Theory of Computig” section, Budapest, June/July 2013

Most recent lectures and lecture series in connection with the Graph Isomorphism problem are listed at the end of this document

Publications. More than 190 research papers in combinatorics, algebra, and theoretical computer science. More than 80 coauthors. Venues include the *Annals of Math.*, *Invent. Math.*, *J. AMS*, *J. Algebra*, *J. ACM*, and conference papers competitively selected by program committees, including 31 papers in STOC and FOCS; most recent: STOC 2016 (solo paper, shared *Best paper award*), STOC 2013 and FOCS 2013. Several of the FOCS/STOC papers invited by the Program Committees to the special issue of the designated journal for the conference; most recent: FOCS 2013. — Miscellaneous publications include popular articles on the theory of computing and obituaries, memorial articles, and biographies, including extensive studies of the life and work of Paul Erdős.

Advising; mentoring on all levels, from high school to postdoctoral

Advised or co-advised 25 completed Ph.Ds. Informally mentored a number of high school students, a large number of undergraduates, a significant number of PhD students whom I did not formally advise, and several colleagues at a postdoctoral stage of their careers. Four of my **former mentees** became **ICM invited speakers**: Marianna Csörnyei, ICM 2010 analysis (Prof. UChicago, mentored while in high school), János Kollár, ICM 1990 algebraic geometry, ICM 2014 plenary (Prof. Princeton, mentored while undergrad), Éva Tardos, ICM 1990 combinatorics (Prof. Cornell, mentored while undergrad), Ákos Seress, ICM 2006 algebra (Prof. Ohio State U. (deceased), postdoctoral mentee). Former PhD student and postdoctoral mentee Mario Szegedy (Rutgers) became a *twofold recipient of the Gödel Prize*.

Teaching Award and MAA Lectureship. Quantrell Award for Excellence in Undergraduate Teaching, U. Chicago 2005; *M. A. A. Pólya Lecturer*, 1996–98

Committees (past 15 years)

Budapest Semesters in Mathematics, member of the Board (1990–current), Board Chair (2014–current)

NSF Panels

Gödel Prize committee 2003-05 (chair 2005) (ACM SIGACT & EATCS)

Pólya Lectureship committee 2002-05 (chair 2005) (MAA)
Program Committee Chair, 34th ACM STOC (Symp. on Theory of Computing), 2004.

Professional experience. Teaching, research, advising, mentoring at the University of Chicago since 1984 and at Eötvös University, Budapest (1973–1993). Math REU each summer since 2001. Directed CS REU in summer 2014. Lead faculty of the U. Chicago/TTIC bid to host the Simons Institute for the Theory of Computing (2010–12) (UChicago was a finalist along with MIT/Harvard and Berkeley).

Experience in *creating new institutions* and building volunteer networks; see next section.

Journals and programs founded

Free online journal *Theory of Computing* <http://theoryofcomputing.org> since 2005.

Designed, co-founded, initially marketed *Budapest Semesters in Mathematics* (program since 1985).

Co-founded journal *Combinatorica* (since 1980; publisher: Bolyai Society and Springer).

Journal donation program to Eastern/Central Europe (1992–1998) (ACM, SIAM)

This item should not be confused with the global *Proceedings Donation Program* (ACM SIGACT) which I did not found but ran and expanded between about 1988 and 1995.

Graph Isomorphism, Nov. 2015–current. On Nov. 2, 2015 I announced a series of seminar talks at the University of Chicago about a quasipolynomial-time algorithm for the Graph Isomorphism problem. This announcement went viral and was followed by a flood of invitations for in-depth presentation of the result, as well as to give interviews to science magazines. I declined the interviews because the results had not been peer-reviewed. The paper was posted as arXiv:1512.03547 on Dec. 10, 2016. Links to blogs and science magazines that commented on the announcement also appears on the same arXiv page. The magazines that published articles about the subject include Science News, Nature, Science, MIT Technology Review, New Scientist (UK), Quanta Magazine, Chicago Magazine, Communications of the ACM, La Recherche (Fr.), . . . Here is a list of lectures and lecture series I have given so far on the subject.

Univ. of Chicago “Combinatorics and Theoretical Computer Science seminar” (3 lectures) and “Group Theory seminar” (1 lecture), Nov 10 – Dec 1, 2015 (total 7.25 hours)

Dagstuhl Seminar on the Graph Isomorphism Problem (Germany), Dec. 13-18, 2015 (3 lectures, total 5 hrs)
Rényi Institute, Budapest, “Algebra Seminar,” “Colloquium,” and “Abért–Szegedy research seminar,” January 4, 2016 (3 lectures, total 7.5 hours in a single day)

Carnegie Mellon Univ. “Theory and ACO (Algor. & Comb. Opt.) joint seminar,” Jan. 22, 2016 (4 hours)

MIT “Theory of Computation Colloquium,” Feb. 2, 2016 (1.25 hours)

MIT/Harvard/MSR “New England Theory reading group” (“Marathon seminar”), Feb. 3, 2016 (4.5 hours)

Stanford Theory Seminar, Feb. 18-19, 2016, 2 lectures (total 4 hours)

Inst. for Advanced Study, Princeton, “CS/Discrete Math seminar,” Feb. 29–Mar. 1 (2 lect., total 3.5 hours)

Princeton University seminar, Mar. 1 (2 hours)

Univ. of Bristol (UK), “Heilbronn Colloquium” and follow-up discussion, Apr.11, 2016 (total 2 hours)

Univ. of Cambridge (UK), “DPMMS Colloquium,” Apr. 12–13, 2016 (2 lectures, total 3 hours)

“Heilbronn Quantum Algorithms meeting,” Cambridge (UK), April 14, 2016 (2 hours)

“New York Group Theory seminar”, CUNY Sci. Center, Apr. 29, 2016 (2 hours)

“Simons Collab. on Algorithms and Geometry workshop,” Simons Foundation, NY, May 13, 2016 (2 hours)

“Hot topic lecture” at the SIAM Conf. on Discrete Mathematics, Atlanta, June 8, 2016 (1.5 hours)

48th STOC (Best paper award), June 20, 2016, Cambridge, MA (20 minutes allotted, actual time 30 min.)

EXCILL-3 (“Extremal Combinatorics at Illinois”) internat. conf., Chicago, Aug. 9, 2016 (35min)

60 Faces to Groups, 20th Midrasa Mathematicae, conference for Alex Lubotzky’s 60th birthday,

Israel Inst. of Advanced Studies, Jerusalem, Nov. 7, 2016 (2 hours)

Current Developments in Math. conf., Harvard U., Nov. 19, 2016 (2 hours)

Georgia Tech, *Distinguished Lecture series* at ACO 25th Anniversary conference (2 hours), January 9–10,

2017 (first lecture included the lemma that fixed an error announced a few days earlier)

Sackler Distinguished Lectures, School of Math., Tel Aviv Univ., January 18, 2017 (2 hours)

Combinatorics seminar, Tel Aviv Univ., January 22 am, 2017

Math. Colloq., Hebrew Univ. Jerusalem, January 22 pm, 2017

Distinguished Lecture Series, Center for Math. Sci., Technion, Haifa, Jan. 23/24/26, 2017

Pekeris Memorial Lecture and seminar, Weizmann Inst. of Sci., Rehovot, Israel, Jan. 29/30, 2017

Math. Colloq. and seminar, Yale Univ., Feb. 15/16, 2017

Upcoming lectures:

Structure vs. Randomness workshop, Simons Inst. for the Theory of Computing, Berkeley, Apr. 10–14, 2017
“*London Math. Soc. Keynote Lecture*” at the British Colloq. for Theoret. Comp. Sci., Apr. 26, 2017, and
seminar, Apr. 28, 2017, Univ. St. Andrews, U.K.

Highlights of Algorithms conf., Berlin, June 9–11, 2017 (2 hours)

Groups and Computation conf., Hoboken NJ., June 26–30, 2017

All kinds of Math. . . (Cameron 70) conf., Lisbon, July 24–27, 2017 (3 lectures, total 4 hours)

Random Structures and Algorithms conf., Gniezno, Poland, Aug. 7–11, 2017 (opening lecture, 90 min)