BMS Friday Colloquium

Friday 1 November 2013 at 14:15
Tea & Cookies starting at 13:00

BMS Loft, Urania, An der Urania 17, 10787 Berlin

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Limits of graphs and nondeterministic property testing

Property testing is an area of computer science where properties and parameters of very large graphs are estimated based on small samples from the graph. One way to define a sequence of graphs to be convergent is that they are less and less distinguishable from bounded-size samples (Borgs et al). Limit objects can be assigned to such sequences in the form of graphons, i.e. symmetric measurable functions from [0,1]x[0,1] to [0,1] (Lovász and Szegedy). These limit objects are often simpler than the members of the sequence that converges to them, and they express asymptotic properties of members of the sequence in a compact form.

One can define the notion of "nondeterministic property testing" in analogy with nondeterministic algorithms. Somewhat surprisingly, it turns out that (in the setting of dense graphs) nondeterministically testable properties are also deterministically testable. This result can be proved using the limit theory of graphs.

László Lovász is professor of mathematics in the Department of Computer Science at Eötvös Loránd University in Budapest, Hungary. The center of his work is in combinatorics. His honors include the von Neumann Prize, Fulkerson Prize, Wolf Prize, and Kyoto Prize. From 2007 to 2010 he was the president of the International Mathematical Union.

Katalin Vesztergombi also specializes in discrete mathematics. She is emeritus associate professor of mathematics at Eötvös Loránd University's Department of Computer Science.

Lovász and Vesztergombi have followed an exceptional career path that has taken them together from Hungary to Princeton, Yale and Microsoft then back to Hungary. They have also worked and published together, and raised a family of four children at the same time.

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