

8th Innovations in Theoretical Computer Science Conference

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Edited by

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■ Preface

The 8th Innovations in Theoretical Computer Science (ITCS) Conference was held between the 9th and 11th of January 2017 at the University of California at Berkeley, sponsored by the Simons Institute for the Theory of Computing. The role of ITCS is to complement the two major, prestigious, and very successful annual conferences of our field, STOC and FOCS by enabling a dialogue that is crucial and beneficial for the unity, vigor, and future of our field, and providing a forum for ideas that are novel and forward looking. ITCS conferences are typically small (about a hundred participants) with a well attended single track.

171 papers were submitted to the 8th ITCS, and from these the program committee selected for presentation at the conference and publication in these proceedings a total of 61 papers. Six papers were *invited*, meaning that they were of such quality that the program committee either explicitly invited their authors to submit them, or realized in retrospect that they should have done so: “Separators in region intersection graphs” by James R. Lee; “IRLS and Slime Mold” by Damian Straszak and Nisheeth Vishnoi; “Network coding in undirected graphs is either very helpful or not helpful at all” by Mark Braverman, Sumegha Garg and Ariel Schwartzman; “Nash Social Welfare, Matrix Permanent, and Stable Polynomials” by Nima Anari, Shayan Oveis Gharan, Amin Saberi and Mohit Singh; “Multiplayer parallel repetition for expander games” by Irit Dinur, Prahladh Harsha, Rakesh Venkat and Henry Yuen; and “The Journey from NP to TFNP Hardness” by Pavel Hubacek, Moni Naor and Eylon Yogev. Other than that, there is no best paper award at ITCS. The best student paper award was shared by these two papers: “Towards Hardness of Approximation for Polynomial Time Problems” by Amir Abboud and Arturs Backurs and “Detecting communities is hard and counting them is even harder,” by Aviad Rubinfeld.

Many heartfelt thanks are due to the stellar and hard working program committee, consisting of: Scott Aaronson, Elette Boyle, Mark Braverman, Alessandro Chiesa, Artur Czumaj, Costis Daskalakis, Shafi Goldwasser, Anna Karlin, Jon Kleinberg, Swastik Kopparty, Muthu Muthukrishnan, Noam Nisan, Georgios Piliouras, Toniann Pitassi, Tal Rabin, Alexander Razborov, Tim Roughgarden, Aviad Rubinfeld, Nikhil Srivastava, Chris Umans, Paul Valiant, Virginia Vassilevska-Williams, Umesh Vazirani, Santosh Vempala, Mary Wootters, Nir Yosef, Henry Yuen, and Lisa Zhang. Of these, Ale Chiesa and Umesh Vazirani were also local organizers, and they worked very hard for the success of the conference. We are most grateful to the Simons Institute for hosting and supporting the conference. Finally, many thanks to all authors who submitted their work, and especially to all participants for making this a truly memorable event.



