



The rising STAR of Texas

Discrete Mathematics Seminar

Time: Friday, April 27, 2018, 2:15-3:15 PM
Room: 237 Derrick Hall
Title: Tell the truth and never lose with tropical geometry
Speaker: Dr. Ngoc Tran, Department of Mathematics, UT-Austin

Abstract:

Mechanism where the best strategy for the individual participants (be it corporations, businesses or individuals), is not to come up with complicated schemes to cheat the system, but to be truthful. Such games are called incentive compatible (IC) mechanisms. The set of all IC mechanisms on a given type space T is the set of all covectors of cells in the min-plus tropical hyperplane arrangement on T . With this connection, many problems in mechanism design are questions on tropical hyperplane arrangements. We review some known results, and list many open problems of interest to both fields. No prior knowledge in either tropical geometry or economics are assumed.

Based on joint work with Robert Crowell and Bo Lin.

Bio:

Ngoc Tran is an assistant professor in mathematics at UT Austin. In addition, she is a Research Fellow at the Hausdorff Center for Mathematics (HCM), Bonn, and has honorary appointment with the Business School at the Australian National University. She graduated from UC Berkeley in Statistics in 2013, advised by Bernd Sturmfels. Prior to joining UT she was a Simons postdoctoral fellow at UT Austin, and a Bonn Junior Professor at the HCM. Her research interests include tropical geometry, probability, combinatorics, and their applications in economics and neuroscience.