



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Computer Science Seminar

,The Wolfson Auditorium Building  
on Thursday, Nov 29, 2018  
at 11:30

**WOLFSON AUDITORIUM**

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HUJI

The Communication Complexity of Cake Cutting

Abstract:

This talk concerns the well-studied model of "cake-cutting" for studying questions regarding notions of fair division of resources. We focus on discrete versions rather than using infinite-precision real values, specifically, focusing on the communication complexity. Using general discrete simulations of classical infinite-precision protocols (Robertson-Webb and moving-knife), we roughly partition the various fair-allocation problems into 3 classes: "easy" (constant number of rounds of logarithmic many bits), "medium" (poly-log total communication), and "hard".

Our main technical result concerns two of the "medium" problems (perfect allocation for 2 players and equitable allocation for any number of players) which we prove are not in the "easy" class. Our main open problem is to separate the "hard" from the "medium" classes.

Joint work with Simina Branzei