

Title: Bounding option prices using tools from polynomial optimization

Speaker: Felix Kirschner (Tilburg University)

Abstract:

In this talk we consider the problem of finding bounds on the prices of options depending on multiple assets without assuming any underlying model on the price dynamics, but only the absence of arbitrage opportunities. We formulate this as a generalized moment problem and utilize the well-known Moment-Sum-of-Squares (SOS) hierarchy of Lasserre to obtain bounds on the range of the possible prices. A complementary approach (also due to Lasserre) is employed for comparison. We present several numerical examples to demonstrate the viability of our approach. The framework we consider makes it possible to incorporate different kinds of observable data, such as moment information, as well as observable prices of options on the assets of interest.