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“Dynamics of Order Positions in a Limit Order Book (LOB)”

Abstract: One of the most rapidly growing research areas in financial mathematics is centered around modeling LOB dynamics and/or minimizing the inventory/execution risk with consideration of microstructure of LOB. A critical yet missing piece of the puzzle, is the dynamics of an order position in a LOB.

In this talk, we will present some of our recent progress regarding the limiting behavior of the dynamics of order positions in a LOB. As a corollary, we will present some explicit expressions for various quantities of interests, including the distribution of a particular limit order being executed by a given time, its expected value and variance.