MATHEMATICAL APPROACHES TO UNDERSTANDING PARKINSON’S DISEASE & ITS TREATMENTS

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Abstract
Parkinson’s disease is a debilitating condition causing highly disruptive motor complications. Although this condition has long been recognized and treated medically, many aspects of the disease and its treatment are not well understood. In fact, there are a range of opportunities for the application of mathematical and computational methods to provide a better understanding of the mechanisms involved in Parkinson’s disease and to optimize therapeutic approaches.

In this talk, I will discuss how a mathematical model can be developed and used to suggest new predictions about the emergence of neuronal activity associated with parkinsonism, about the ways in which this disturbed activity can lead to motor symptoms, and about how stimulation-based therapy might help to counteract this process.

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