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The oscillatory boundary conditions of different frequency bands in Parkinson's disease

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Highlights

- In this paper, we build a corticothalamic-basal ganglia (CTBG) mean firing-rate model to explore the onset mechanism of different Parkinson's disease oscillation phenomena.
- We find that in addition to the STN-GP network, the Parkinson's disease oscillation may also be induced by changing the coupling strength and delay in other pathways.
- Different frequency bands appear in the oscillating region, and various boundary conditions are depicted in parameter diagrams.
- The onset mechanism can be well explained by the model and numerical simulation results.
- The model may provide a unifying framework to study the mechanism of Parkinson's disease oscillations in the future.

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