

# Open Talk

9<sup>th</sup> January, 2020

3:30 PM

Fermion

SPEAKER

**Mr. Anubhav Chaturvedi**

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TITLE OF THE TALK

**Unifying quantum theory's ontological (hidden variable)  
incompatibility**

ABSTRACT

The ontological (hidden variable) framework provides for a vital ground for notions of classicality such as Bell's local causality, Kochen-Specker's non-contextuality, and Spekkens's non-contextuality. These notions of classicality formulated as principles, yield operational consequences that contradict predictions of quantum theory, thereby systematically discarding substantial classes of ontological models of quantum theory. Crucially, these notions highlight the different ways in which quantum theory departs from classical theories.

In this seminar, I shall facilitate a unifying insight into these seemingly distinct, yet related notions of classicality. Subsequently, I will present a new notion of classicality as the (hopefully natural) next piece in the puzzle. We refer to this notion as "bounded ontological distinctness", the quantum violation of which implies "quantum preparations, measurements, and transformations are more distinct than they are distinguishable". This notion not only addresses many of the shortcomings of the other well-known notions of classicality but also unifies them such that violations of the other notions imply the violation of bounded ontological distinctness.

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HOST FACULTY

**Dr. Manik Banik**

DST INSPIRE Faculty

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