

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by

School of Physical Sciences

Title:	Causality violation in Godel's universe
Speaker:	Brien C. Nolan, Dublin City University
Date:	November 13, 2019 (Wednesday)
Time:	11:30 Hours
Venue:	C.V. Raman Hall, 2nd Floor, Main Building, IACS
Abstract:	In 1949, motivated by the implications of relativity theory for Kant's ideas about time and change, Kurt Gödel derived a model of the universe within Einstein's General Relativity that has some very strange chronological features: it allows for an observer to travel into their own past. However, this requires extravagant amounts of fuel to accelerate the observer to the required velocity, which is a significant fraction of (but nevertheless less than) the speed of light. I'll review what is and isn't possible in relation to causality violation in Gödel's universe, in particular discussing a new result that shows how any observer can send a signal to their own past, without the need for acceleration or unattainably high velocities. The proof of this result relies on concepts in Lorentzian geometry, and is based on the analysis of null geodesic segments in Godel's spacetime, and of the envelope of the family of null geodesics from a point of the spacetime.

All are cordially invited to attend the seminar