OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
沖縄科学技術大学院大学

THEORETICAL SCIENCES VISITING PROGRAM

TSVP TALK

From Gravity to Quantum Clocks (And Rulers!)

2023 THU. **Apr. 27**

15:00–16:00

HYBRID L4E48, ZOOM

For zoom and other details scan QR code or visit groups.oist.jp/tsvp

Physicists are quite good at modeling nature using dynamical theories, which describe change over time. Typically, we accomplish this without worrying too much about what exactly this “time” thing is. The reason we get away with it is that the physical world contains a large variety of “good clocks” – processes that can be observed to deduce the flow of time that are all in agreement with each other. There is, however, one force of nature that can upset clock synchronization: gravity, famously described by Einstein’s general relativity, directly affects the flow of time measured by any clock. In this talk I will introduce select aspects of the longstanding puzzle of reconciling gravity with quantum mechanics and argue that creating a happy union of the two requires us to reassess the role played by time and clocks (as well as by space and rulers).

King’s College, Pennsylvania

Artur Tsobanjan

Artur Tsobanjan is a theoretical physicist who explores foundational issues in quantum theory raised by attempts to quantize gravity. He is particularly interested in finding ways to consistently incorporate the dynamical nature of time in general relativity within a quantum mechanical framework. Artur Tsobanjan received his PhD from the Pennsylvania State University in 2011. He is currently an associate professor at King’s College, Pennsylvania, USA.

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