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

THEORETICAL SCIENCES VISITING PROGRAM

# TSVP TALK

## From Space Time Quanta to the Quantum Cosmos

2024  
THU. **Mar. 07**

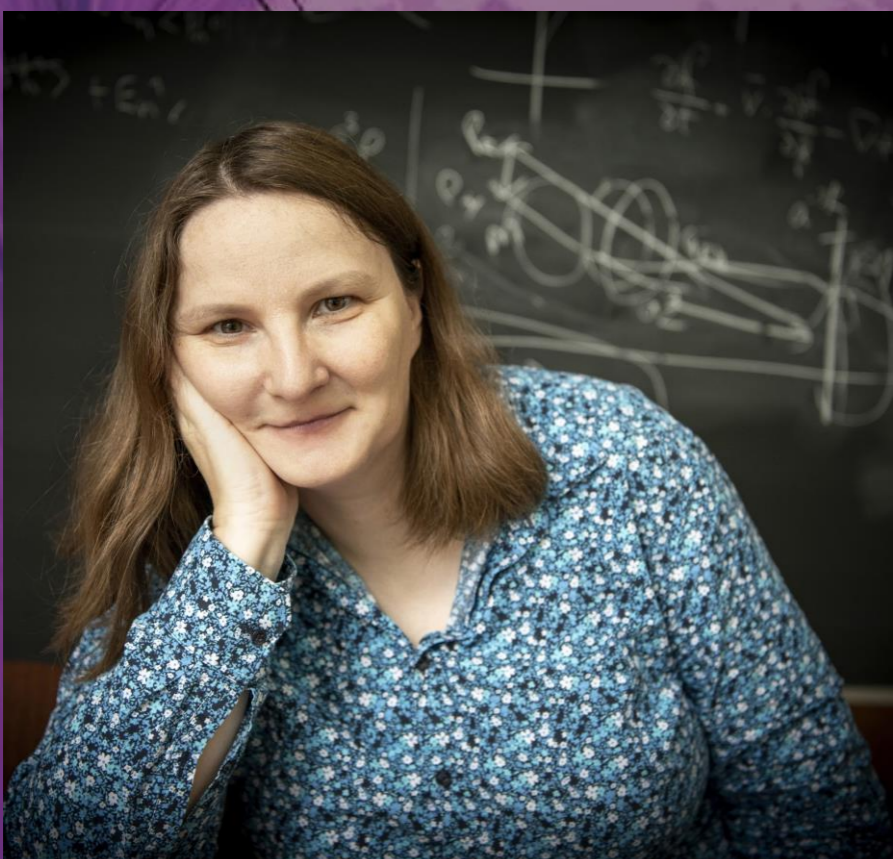
**15:00–16:00**

**HYBRID** L5D23, ZOOM



For zoom and other details scan QR code or visit [groups.oist.jp/tsvp](https://groups.oist.jp/tsvp)

The advent of quantum physics at the beginning of the 20th century has revolutionized physics and provided an explanation for all fundamental matter interactions. Today, physicists are convinced that, similar to matter, space and time have to be subject to quantum rules. But quantum theory itself does rely on a classical notion of space and time. I will describe some of the ideas of how to resolve this conundrum and illustrate some fascinating features of quantum space time. I will then describe why an understanding of quantum space time is necessary to explain the creation of our universe.



Perimeter Institute for Theoretical Physics

## Bianca Dittrich

Bianca Dittrich is a senior research faculty at Perimeter Institute for Theoretical Physics in Waterloo, Canada. Her research focusses on quantum gravity, here in particular on non-perturbative approaches. Her research intersects with a number of other topics in theoretical and mathematical physics, e.g. topological quantum field theories, tensor networks, real time path integrals.

Bianca Dittrich completed her PhD at the Max Planck Institute for Gravitational Physics in 2005 and postdocs at Perimeter Institute (2005-08) and Utrecht University (2008/09). She then became a Max Planck research group leader at the MPI for Gravitational Physics and joined Perimeter Institute as faculty researcher in 2012.

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