

ERC PROTEUS – Final conference

**“Perspectives on Time and Atemporality in Cosmology and Natural Sciences”**

**Sala Napoleonica, Palazzo Greppi, via Sant’Antonio 12**

**20122 Milan**

**Monday 17 July 2023**

9:45 – 10:00 *Welcome*

10:00 – 11:15 **Jeremy Butterfield** “En route to reduction: Lorentzian manifolds and causal sets”

11:30 – 12:45 **Richard Dawid** “Emergent time and exact dualities”

*Lunch*

14:00 – 15:15 **Sebastian de Haro** “On Time and Holes in de Sitter Spacetimes”

*Coffee Break*

15:45 – 17:00 **Julian Barbour** “Complexity and a Dynamical Arrow of Time”

17:00 – 19:00 *Book Symposium*

**Enrico Cinti** and **Marco Sanchioni** “I paradossi dei buchi neri. Una spiegazione elementare per comprendere l’universo” (Carocci 2022). The event is open to the public.

**Tuesday 18 July 2023**

9:30 – 10:45 **Francesca Vidotto** “Quantum Cosmology with no time from covariant Loop Quantum Gravity”

*Coffee Break*

11:15- 12:30 Presentation of results: **PROTEUS Research Team**

*Lunch*

14:30 - 15:45 **Emily Adlam** “The Temporal Asymmetry of Influence is Not Statistical”

*Coffee Break*

16:15 – 17:30 **Giulia Rubino** “Theory Independent Tests of Indefinite Causality”

*Conference dinner*

**Wednesday 19 July 2023**

9:30 – 10:45 **Vincent Lam** “Universality and Effective Temporal Dynamics: An Epistemic Approach Agnostic to Ontology”

*Coffee Break*

11:15- 12:30 **Nick Huggett** “Semi-Classical Time in Quantum Cosmology”

*Lunch*

14:30 - 15:45 **Daniele Oriti** “A Foundational Trefoil for Spacetime: Quantum Gravity, Hydrodynamics and Cosmology”

*Coffee Break*

16:15 – 17:30 **Salvatore Capozziello** “Noether Symmetries in Quantum Cosmology: A Selection Rule for Observable Universes”

To register please email [silvia.debianchi@unimi.it](mailto:silvia.debianchi@unimi.it) by July 5, 2023