



# UNIFICATION IN PHYSICS AND PHILOSOPHY

## International Workshop in Helsinki on May 11th 2019

The workshop is devoted to dealing with problems in physics and philosophy by unification. In the unified approach, a minimal ontological core of postulates or hypothetical laws of nature provides natural resolutions to long-standing problems that are caused by dis-unification, and that cannot be properly resolved by focusing only on details of isolated topics. Unification is urgently needed, for in neither discipline do we find a commonly accepted ontological core or world-view that could function as a unifying base, and a great majority of physicists and philosophers focus on specialized problems in isolated research areas. Furthermore, attempts to address interrelations between physics and philosophy are rare, and when it is done the focus is in very constrained domains.

The workshop brings together scholars with a mutual interest in unification, to discuss particular unifying resolutions and more generally about what a unified approach should look like. The questions to be discussed include, but are not restricted to: What are the central problems in physics and scientifically oriented philosophy? Can we identify postulates of a provisional scientifically and philosophically sound unified ontology? How do specific provisional postulates unify domains of inquiry that are currently separate and how do they resolve their central problems? What are the criteria by which one theory is to be preferred over another? How did the historical development result in the current situation in physics and philosophy?



### Welcoming Words

Ph.D Cecilia af Forselles, National Librarian, Vice President of The Federation of Finnish Learned Societies



### Introduction: Unification, Evaluation and Development of Theories

Ph.D Avril Styrman, Chair, the Finnish Society for Natural Philosophy, Finland



### Physics Needs Nothing Less Than a Renaissance – On the Relation Between Physics and Philosophy

Ph.D Ling Jun Wang, Professor, Department of Chemistry and Physics, University of Tennessee, Chattanooga, USA



### A New Gravitational Paradigm for Relativity, Dynamics, and their Philosophical Basis

Ph.D C.S. Unnikrishnan, Professor, Department of Physics, TIFR, Mumbai, India



### Is the Solar System Expanding?

Ph.D Heikki Sipilä, Ametek Finland Oy



### Unification of Theories Requires a Postulate Basis in Common

Ph.D Tuomo Suntola, Millennium Technology Prize 2018; Chair, Physics Foundations Society, Finland



### Ontological and Methodological Reflections on the Virtues of Unification

Ph.D Rögnvaldur Ingthorsson, Researcher, Department of Philosophy, Lund University, Sweden



### Quantum Ontology of de Broglie and Bohm with Reflections on the Meaning of Probability

Ph.D Laurence Gould, Professor, Department of Physics, University of Hartford, USA



### Quantum Mechanics in Action: a Working Physicist's Point of View

Ph.D Tapio Ala-Nissilä, Professor, Aalto University, Finland and Loughborough University, UK



### Dynamic Universe – Natural Science and Philosophy in Unison

Ph.D Tarja Kallio-Tamminen, The Finnish Society for Natural Philosophy, Finland

### Panel Discussion

Register at [www.lfs.fi](http://www.lfs.fi)