

| RTG Models of Gravity – Online Colloquium | |
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| Date: | 22.04.2020 |
| Time: | 14:00 - 16:30 |
| Location: | |

| Program | |
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| 14:00 – 15:00 | Talk 1: Evgeny Skvortsov (AEI Potsdam) <i>“(Quantum) Higher Spin Gravity and Physics”</i> |
| 15:00 – 15:30 | Coffee Break |
| 15:30- 16:30 | Talk 2: Alessia Platania (Heidelberg) <i>“Quantum gravity in the asymptotic-safety approach”</i> |

Abstracts

Evgeny Skvortsov: *“(Quantum) Higher Spin Gravity and Physics”*

I will give a general overview of Higher Spin Gravities and also discuss the recent developments that give a class of models where UV-divergences of Einstein gravity cancel out thanks to the higher spin symmetry. I will also review the famous no-go results and show how the existing theories avoid them. At the end I will discuss the relation between Higher Spin Gravities and a class of conformal field theories in three dimensions that describe the physics of many second order phase transitions in the real world and have been recently conjectured to exhibit a number of remarkable dualities, in particular the three-dimensional bosonization duality. I will show how Higher Spin Gravity can help to prove the dualities and how it makes new predictions.

Alessia Platania: *“Quantum gravity in the asymptotic-safety approach”*

Asymptotically safe gravity is one of the most conservative approaches to quantum gravity: it aims at constructing a quantum theory for the gravitational interaction within the framework of quantum field theory, based on the existence of an interacting fixed point of the renormalization group flow which makes the theory renormalizable and thus safe from ultraviolet divergences. In this talk I will review the state-of-the-art of asymptotically safe gravity. I will discuss the basic idea behind asymptotically safe gravity, past and recent developments on the formal aspects and phenomenological implications of the theory, and open questions.