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## Proper-time flow equation and non-local truncations in quantum gravity

*Monday, 8 July 2024 18:00 (20 minutes)*

Functional flow equations based on proper-time (PT) regulators have attracted much interest in recent years because of their effectiveness in various non-perturbative situations, for example the exploration of the ordered phase in a scalar theory or non-perturbative quantum gravity. In this talk in particular we study the flow of the non-local truncation in quantum gravity and we focus in particular on the Polyakov effective action for a non-minimally coupled scalar field on a two dimensional curved space. We show that it is possible to explicitly integrate the flow of all the local and non-local operator terms up to  $k=0$  and recover effective action without the integration of the conformal anomaly. We also present the structure of the non-local term in the effective action in  $d=4$  for Einstein gravity.

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