



Polymer Representations in Theoretical and Mathematical Physics

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Message from the Guest Editor

Representations of the Canonical Commutation Relations (CCR) other than (i.e., not unitarily equivalent to) the usual Schrodinger representation have long since found applications in areas of solid-state physics and field theory. The interest in this type of representation and, in particular, in what is now known as the polymer representation nevertheless grew tremendously after the development of Loop Quantum Cosmology, an approach to Quantum Cosmology inspired by Loop Quantum Gravity. Although the main application is still in Quantum Cosmology, the polymer type of quantization has recently been applied in other areas of Gravitation, notably in Black Hole physics, but also applications to gravitational waves and Statistical Physics can be found in the recent literature. Moreover, more formal aspects have been addressed, and relations with other areas of Mathematical Physics have been explored.

In this Special Issue, we welcome all contributions related to the polymer representation of the CCR, from a true quantum mechanical approach to semi-classical or effective models inspired by the polymer quantization.





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Message from the Editor-in-Chief

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