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Quantum Effects in General Relativity

Guest Editor:

Prof. Dr. Xavier Calmet

Department of Physics and
Astronomy, University of Sussex,
Sussex BN1 4GE, UK

Deadline for manuscript
submissions:

closed (15 April 2021)

Message from the Guest Editor

Dear Colleagues,

This Special Issue will cover different aspects of quantum effects in general relativity. Understanding how to merge quantum mechanics and general relativity is one of the deepest problems in modern theoretical physics. The main issue is that Newton's constant, which fixes the strength of the gravitational interactions, is dimensionful. In that sense gravity according to Einstein is very different from other fundamental interactions whose strengths are fixed by dimensionless coupling constants. This leads to the well-known problem of the non-renormalizability of Einstein's theory, at least in perturbation theory. At this stage, it is not clear whether solving this problem will require expanding quantum physics or gravity or giving up the notion of point particles. One thus needs to remain open-minded and agnostic on how to resolve this fundamental problem. This Special Issue will present the state of the art in this field and is open to all approaches to quantum gravity. [...]

For more information, please visit [link](#).

Prof. Dr. Xavier Calmet

Guest Editor



mdpi.com/si/24352

Special Issue



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Editor-in-Chief

Prof. Dr. Lorenzo Iorio

Ministero dell' Istruzione e del
Merito, Viale Unità di Italia 68,
70125 Bari, Italy

Message from the Editor-in-Chief

The multidisciplinary journal *Universe* is aiming to follow and, hopefully, to lead to the largest extent as possible the ever-self renovating threads which weave mathematical theories with our understanding of the magnificent natural world. On behalf of all the distinguished members of the Advisory and Editorial Boards, I extend my welcome to this journal and look forward to hearing from the interested contributors and learning about their valuable research.

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Contact Us

Universe Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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