

Theoretical physics, mathematical physics and related areas: joint STFC and EPSRC statement

Research in theoretical physics and mathematical physics encompasses a wide range of subjects, including, but not limited to, classical and quantum field theory, gauge theory, classical and quantum gravity, string theory, condensed matter theory and statistical physics.

A number of these examples are supported by both the Engineering and Physical Sciences Research Council (EPSRC) and the Science and Technology Facilities Council (STFC). For subjects supported by both councils, those projects driven by the mathematics or by physics within the EPSRC remit are supported by EPSRC, and those driven by the applications to particle physics and cosmology are supported by STFC.

No research project should fall between the remits of the research councils. Research proposals are assessed by each research council under its normal peer review process and evaluated against its priorities and strategy. Applicants seeking further clarification or guidance should contact EPSRC or STFC.

EPSRC supports research in both mathematical and theoretical physics. The [Physical Sciences](#) theme supports research in theoretical physics where the novelty of the research relates to physics within the EPSRC remit, ranging from projects with a purely theoretical perspective through to research working closely with experimentalists.

As theoretical physics underpins many areas of research, relevance may also be within other research EPSRC themes such as ICT or Energy, where the fundamental properties require a theoretical physics investigation.

The [Mathematical Sciences](#) theme supports research in theoretical physics with a strong mathematical or conceptual content, and in areas of mathematics suggested by questions in physics. Examples of activities supported include the study and development of:

- physical theories and mathematical models
- the application of mathematical techniques to problems in theoretical physics
- mathematical structures arising in theoretical physics and their connections with other areas of mathematics
- abstract properties and principles of theoretical frameworks
- foundations and rigorous treatments
- exact solutions, classifications and integrability.

Applicants wishing to check whether their proposed research is within EPSRC's remit should complete the [remit query form](#) and send it to epsrc_remit_queries@epsrc.ac.uk

STFC supports theoretical research in particle physics, particle cosmology, theoretical astronomy and cosmology, and areas related or relevant to these. Its theoretical activity includes:

- theoretical insight into physical phenomena
- development and study of theoretical frameworks
- development of models and theories with the aim of further enhancing or unifying our understanding of the physical world
- development of models and theories with the aim of further enhancing or unifying our understanding of the origin and development of the Universe
- analysis and interpretation of data from experiments and observations
- guidance for further experiments and observations
- development of calculational and computational techniques enabling more precise comparison of theory with experiment.

Contacts

- [EPSRC Mathematical Sciences](#)
- [EPSRC Physical Sciences](#)