

**French Preliminaries of
PLANCKS 2021 Physics
competition**

Report of Contributions

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The dark energy problem in modern physics

The origin of the accelerated expansion of the Universe is one of today's great problems in theoretical physics. Originally observed by Hubble, it was first explained heuristically by the "cosmological constant" model, which matched observations very well and has today become part of the standard model of cosmology. However, it is not possible to find a theoretical framework justifying the value of this constant. Therefore, modern theoretical physicists are developing new modified theories of gravity that account for the accelerated expansion in a different way. In this conference, I will explain the origin of the cosmological constant, present modern competing theories and describe how future experiments will allow to discriminate between them.

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