

PHYSIKALISCHES KOLLOQUIUM

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IM GROßEN HÖRSAAL

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THE PRINCIPLE OF GLOBAL RELATIVITY

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We describe the non-minimal Standard Model, consisting of minimalistic extensions of the Standard Model, which for all we know is the theory of the universe, able to describe all of the universe from the beginning of time. Extensions discussed are an extra neutrino and a new Higgs model.

We introduce the principle of global relativity and discuss how the theory can be largely derived from this principle. One is led to the unification of forces into $SU(5)$ and a form of dark matter. We discuss the limitations of the theory, showing that it is not the theory of everything. However we argue that it is the only part, that is within conceivable reach of physical experiment or astronomical observation. It is argued, that at the Planck scale the universe is effectively three-dimensional.

J. J. van der Bij, Acta Physica Polonica B52, 627 (2021).