

# **Analogies Between Solid State Effects and Cosmology, Theory and Experiment**

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**Abstract.** Efforts to describe our world (universe) via limited number of basic principles ought to be considered the ultimate goal of physics. The principle of least action is probably the best known example of such unifying principle. There exists alternative path in our search for broader unification, however. It is based upon comparison of processes similar in nature, but observed in entirely different systems, while controlled by the same underlying mechanism. In this paper we attempt to give short overview of processes observed in solid state systems and astrophysics (cosmology) and provide experimental evidence of topological effects creation in the form of magnetic flux quanta in superconducting transition edge sensors.