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Hairs of discrete symmetries

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Gauge symmetries are known to be respected by gravity because gauge charges carry flux lines, but global charges do not carry flux lines and are not conserved by gravitational interaction. For discrete symmetries, they are spontaneously broken in the Universe, forming domain walls. Since the realization of discrete symmetries in the Universe must involve the vacuum expectation values of Higgs fields, a string-like configuration (hair) at the intersection of domain walls in the Higgs vacua can be realized. Therefore, we argue that discrete charges are also respected by gravity.

Experimental Collaboration

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