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On the Role of Einstein-Cartan Gravity in Fundamental Particle Physics CARL DIETHER, Retired, JOY CHRISTIAN, Einstein Centre for Local-Realistic Physics — Two of the major open questions in particle physics are: (1) Why are the elementary fermionic particles that are so far observed have such low mass-energy compared to the Planck energy scale? And (2), what mechanical energy may be counterbalancing the divergent electrostatic and strong force energies of point-like charged fermions in the vicinity of the Planck scale? In this paper, using a hitherto unrecognized mechanism derived from the non-linear amelioration of Dirac equation known as the Hehl-Datta equation within Einstein-Cartan-Sciama-Kibble extension of general relativity, we present detailed numerical estimates suggesting that the mechanical energy arising from the gravity-induced self-interaction in the ECSK theory can address both of these questions in tandem.

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