Studying the Standard Model and Beyond: Results from Theoretical Calculations of Magnetic Moments

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The Standard Model of particle physics is extremely good at describing the world we live in, and in some ways, almost too good. The sector of the Standard Model which describes the strong nuclear interactions is very difficult to solve, and one extremely useful tool is lattice QCD, where we simulate the theory numerically. I will describe how this tool can both be used to understand the Standard Model better, by looking at the electromagnetic properties of the Delta baryon, and how it can be used to search for physics beyond the Standard Model, with the magnetic moment of the muon.