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Naturalness as a Method of Theoretical Particle Physics

Monday 22 April 2024 10:00 (30 minutes)

For decades naturalness and finetuning considerations have been important factors in the work of theoretical particle physics. I explain how such considerations fit into the broader scheme of methods of theoretical particle physics. I then formalize the intuitions of particle physicists over the decades within effective field theory language and justify several assertions along the way: the Standard Model (SM) is natural; the next standard theory is likely to also be natural; it is justified to include naturalness as a criteria for status ranking beyond the Standard Model (BSM) theories; and finally, finding and identifying high-status BSM theories is important for the advancement of science.

Presenter: WELLS, James Daniel (University of Michigan (US))

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