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Colloquium of the Physics Department of ENS

Mercredi 8 Octobre 2025, 13 :30
DPT-PHYS-ENS, ConfIV (E244) - 24 rue Lhomond 75005 PARIS
Domaines : physics

Titre : *Toponium at the LHC : a new frontier in top-quark physics*

Orateur : **Benjamin Fuks (LPTHE)**

Résumé : *The top quark, the heaviest known elementary particle, has long been thought unable to form bound states. However, intriguing hints in recent LHC data suggest that toponium, a short-lived quasi-bound state of a top-antitop pair, might have left observable traces in data and possibly even been discovered. In this talk, I will discuss why toponium is such a unique laboratory for studying the theory of the strong interaction in the non-relativistic regime, how modern techniques allow us to incorporate bound-state effects into state-of-the-art collider simulations, and what experimental signatures could reveal the presence of toponium in current and future LHC data. I will finally highlight recent results, ongoing searches and the exciting prospects for using toponium as a new window into the physics of the top quark.*