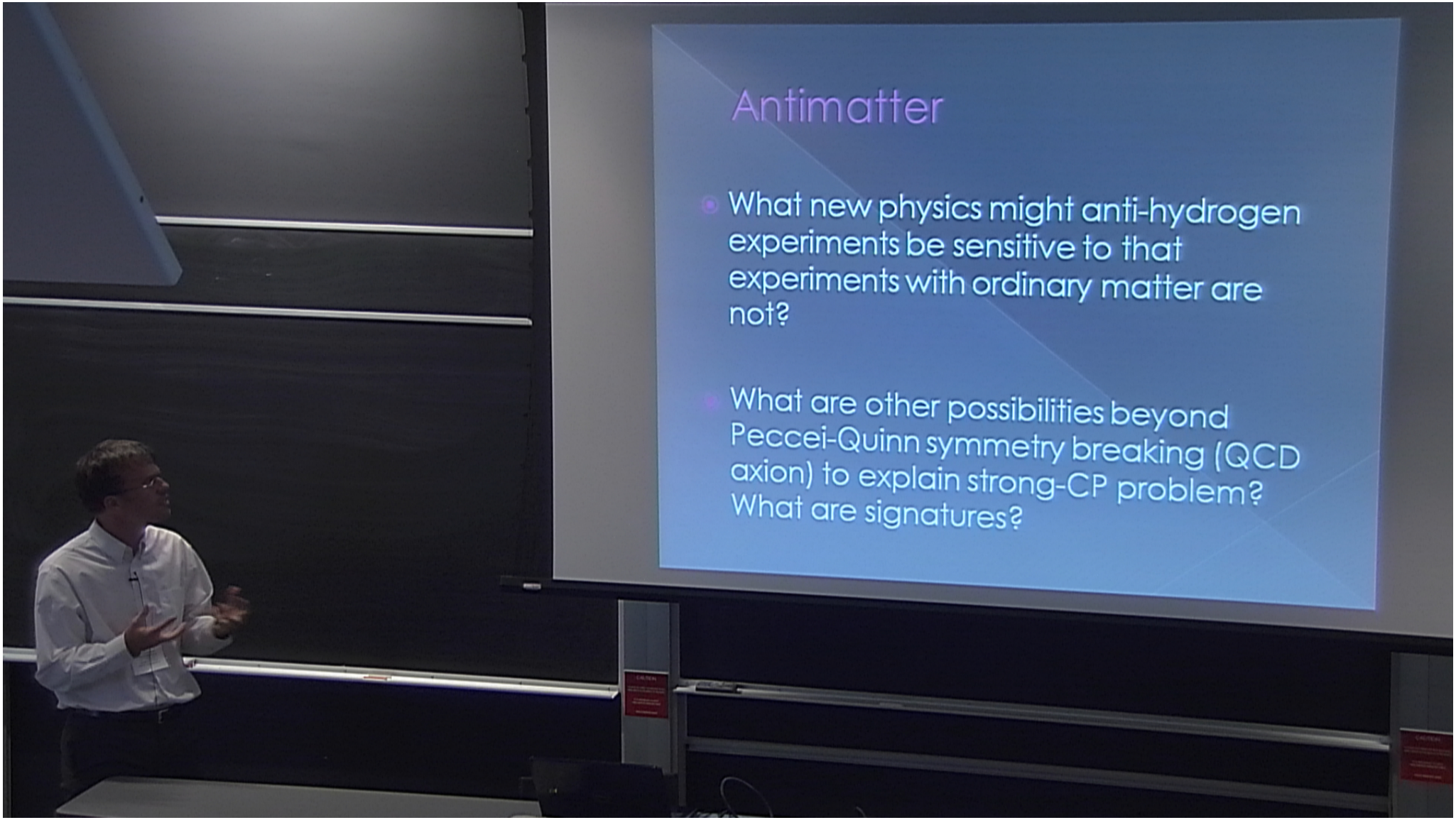
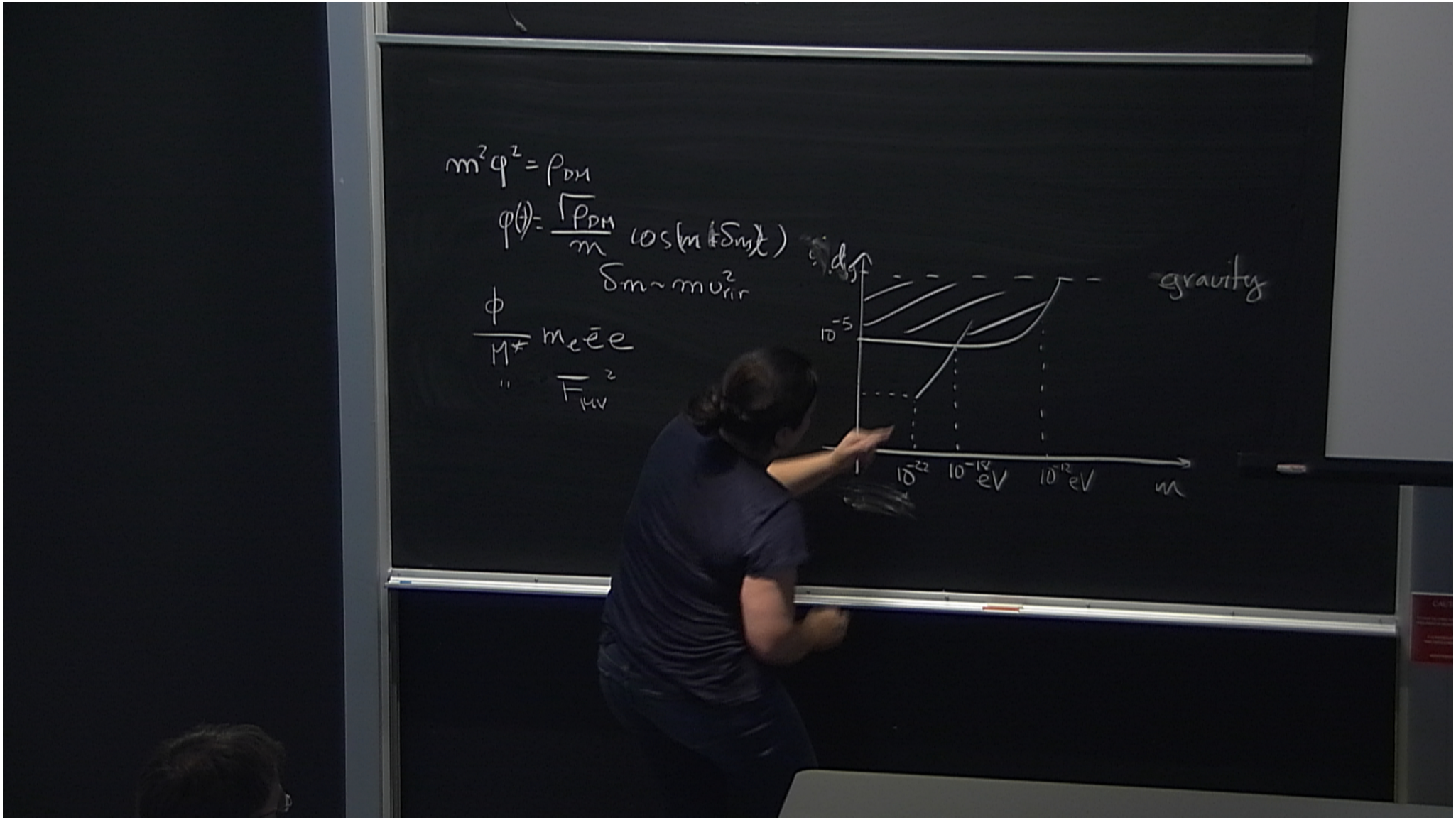
Title: Free Discussion

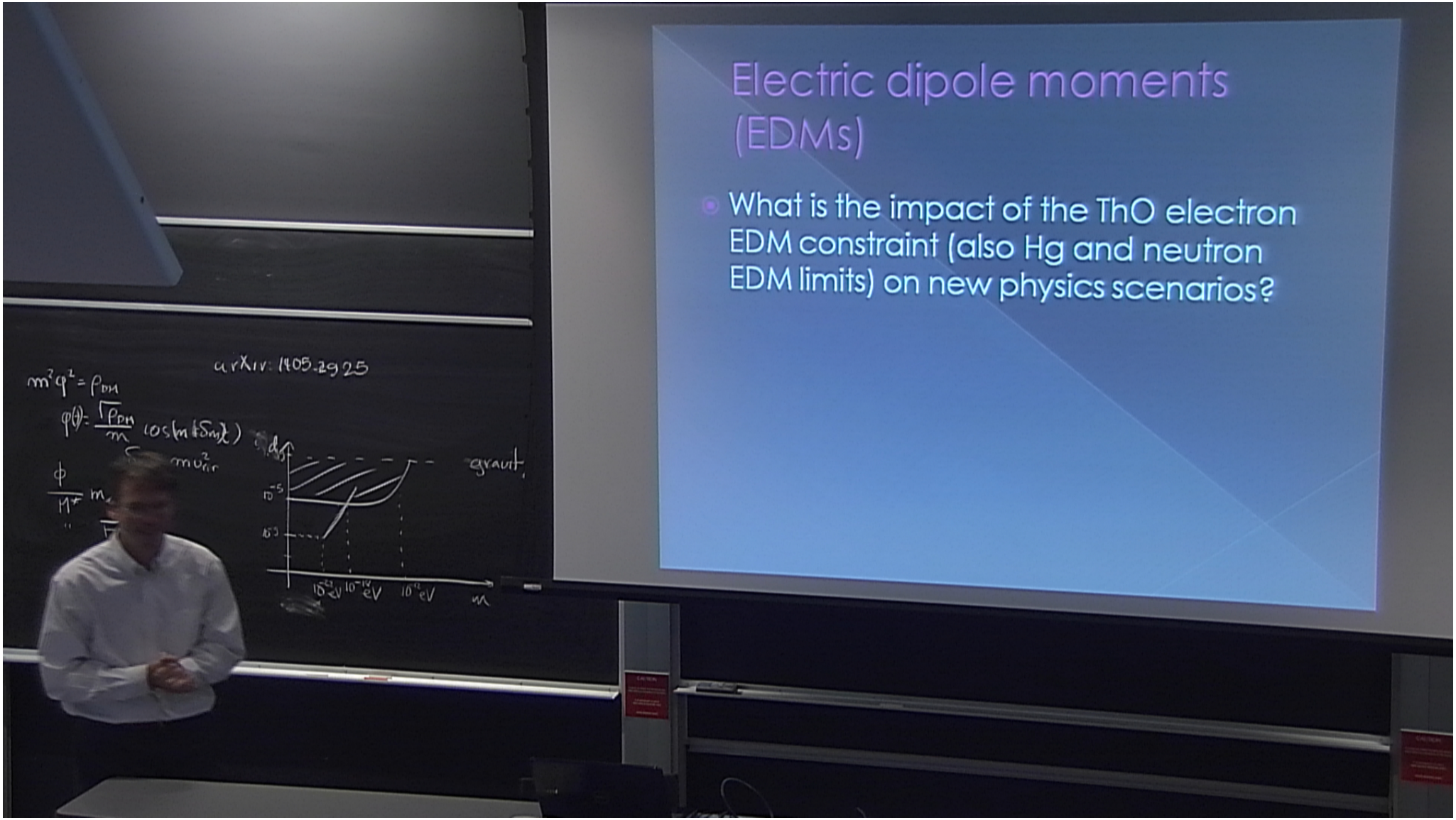
Date: Jun 19, 2014 04:00 PM

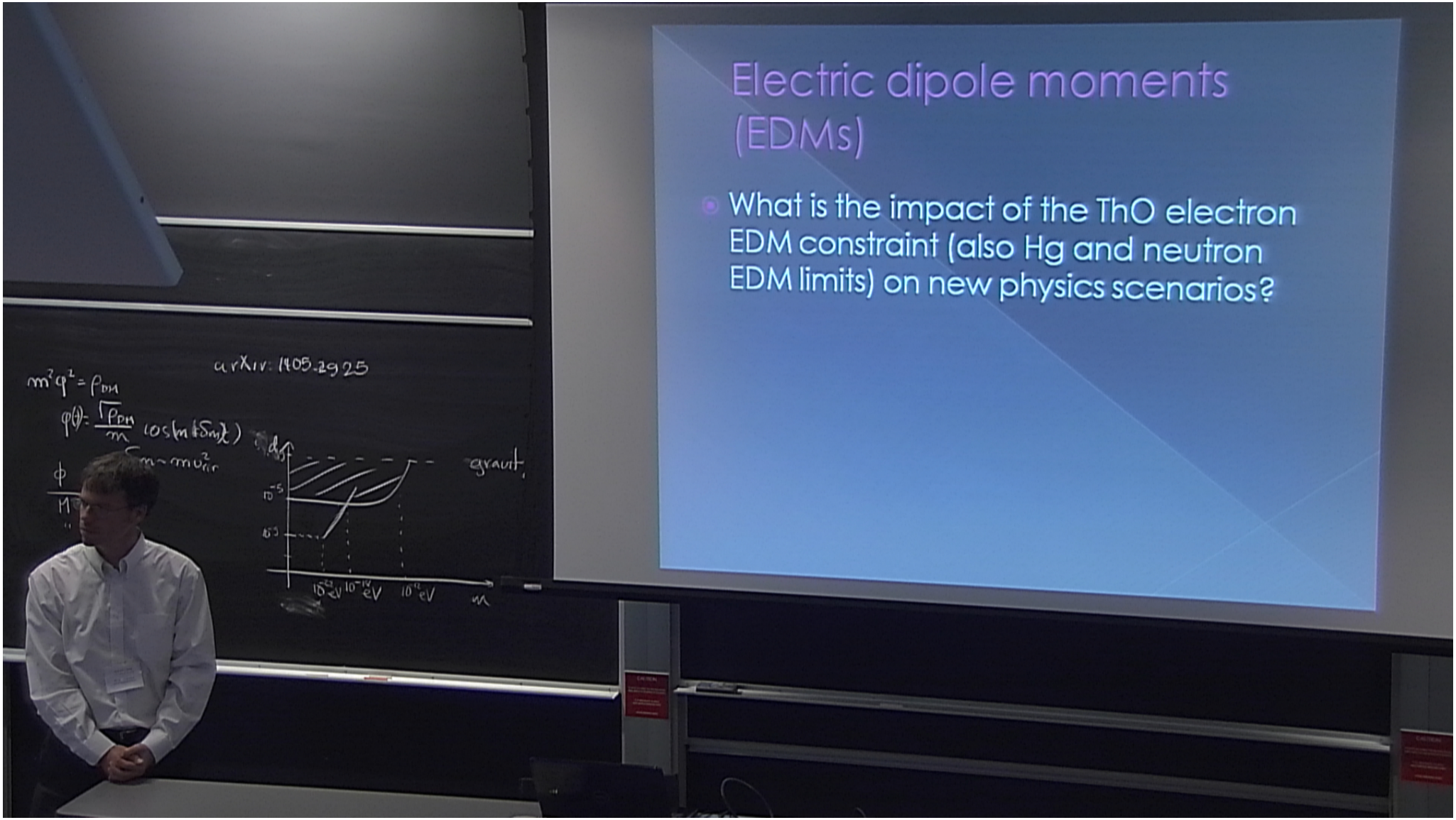
URL: http://pirsa.org/14060038

Abstract:


Antimatter
What new physics might anti-hydrogen experiments be sensitive to that experiments with ordinary matter are not?
What are other possibilities beyond Peccei-Quinn symmetry breaking (QCD axion) to explain strong-CP problem? What are signatures?


$m^2\varphi^2 = \rho_{DM}$
$\varphi(t) = \frac{\sqrt{\rho_{DM}}}{m}\cos(m\,\delta m\,t)$
$\delta m \sim m v_{vir}^2$
$\frac{\phi}{M_*} m_e \bar{e} e$
$F_{\mu\nu}^2$
d_f
10^{-5}
gravity
1
10^{-22}
10^{-18} eV
10^{-12} eV
m


Electric dipole moments (EDMs)
What is the impact of the ThO electron EDM constraint (also Hg and neutron EDM limits) on new physics scenarios?
arXiv: 1405.2925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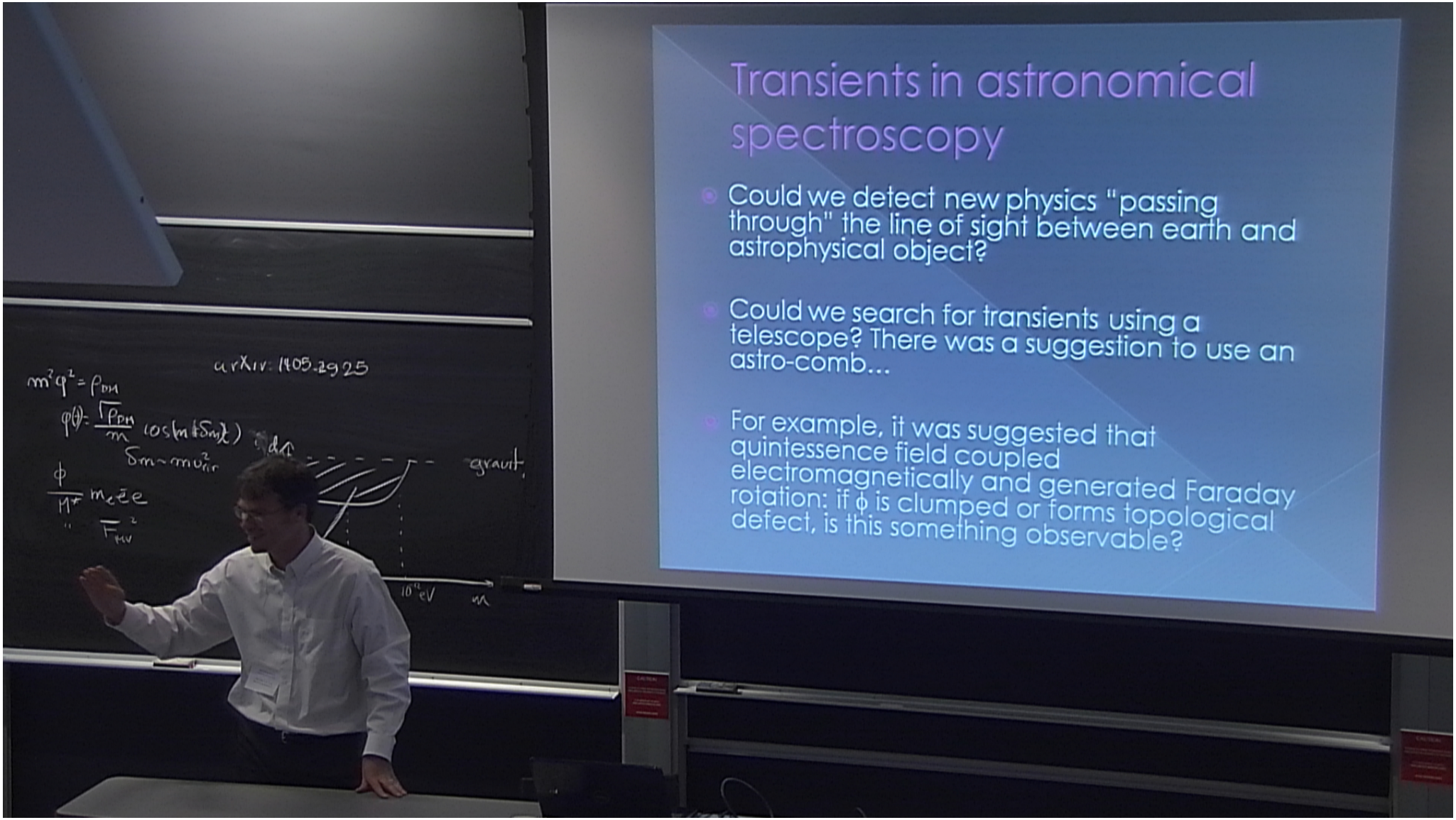
Transients in astronomical spectroscopy
Could we detect new physics "passing through" the line of sight between earth and astrophysical object?
Could we search for transients using a telescope? There was a suggestion to use an astro-comb…
For example, it was suggested that quintessence field coupled electromagnetically and generated Faraday rotation: if ϕ is clumped or forms topological defect, is this something observable?
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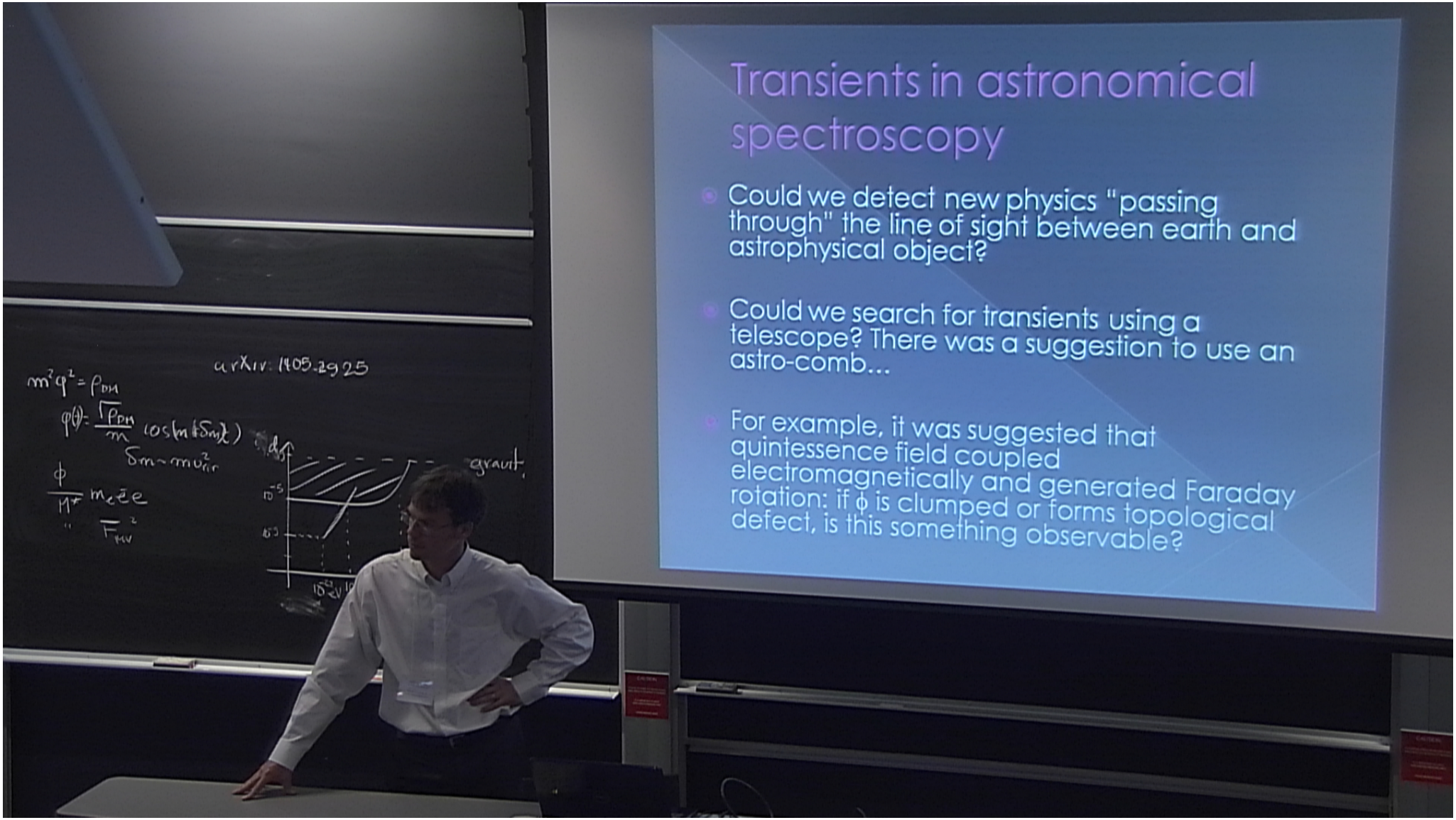
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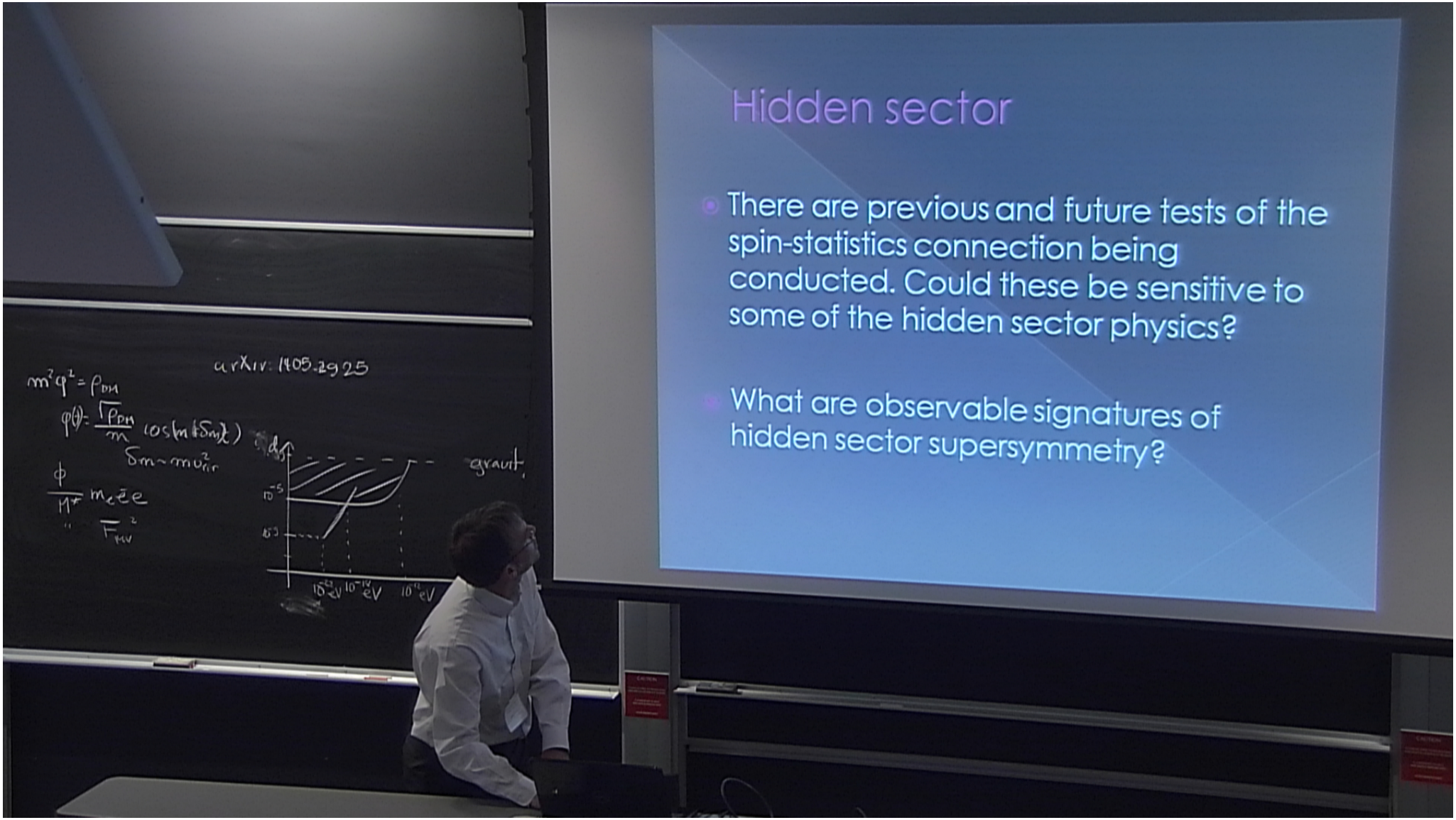
Hidden sector
There are previous and future tests of the spin-statistics connection being conducted. Could these be sensitive to some of the hidden sector physics?
What are observable signatures of hidden sector supersymmetry?
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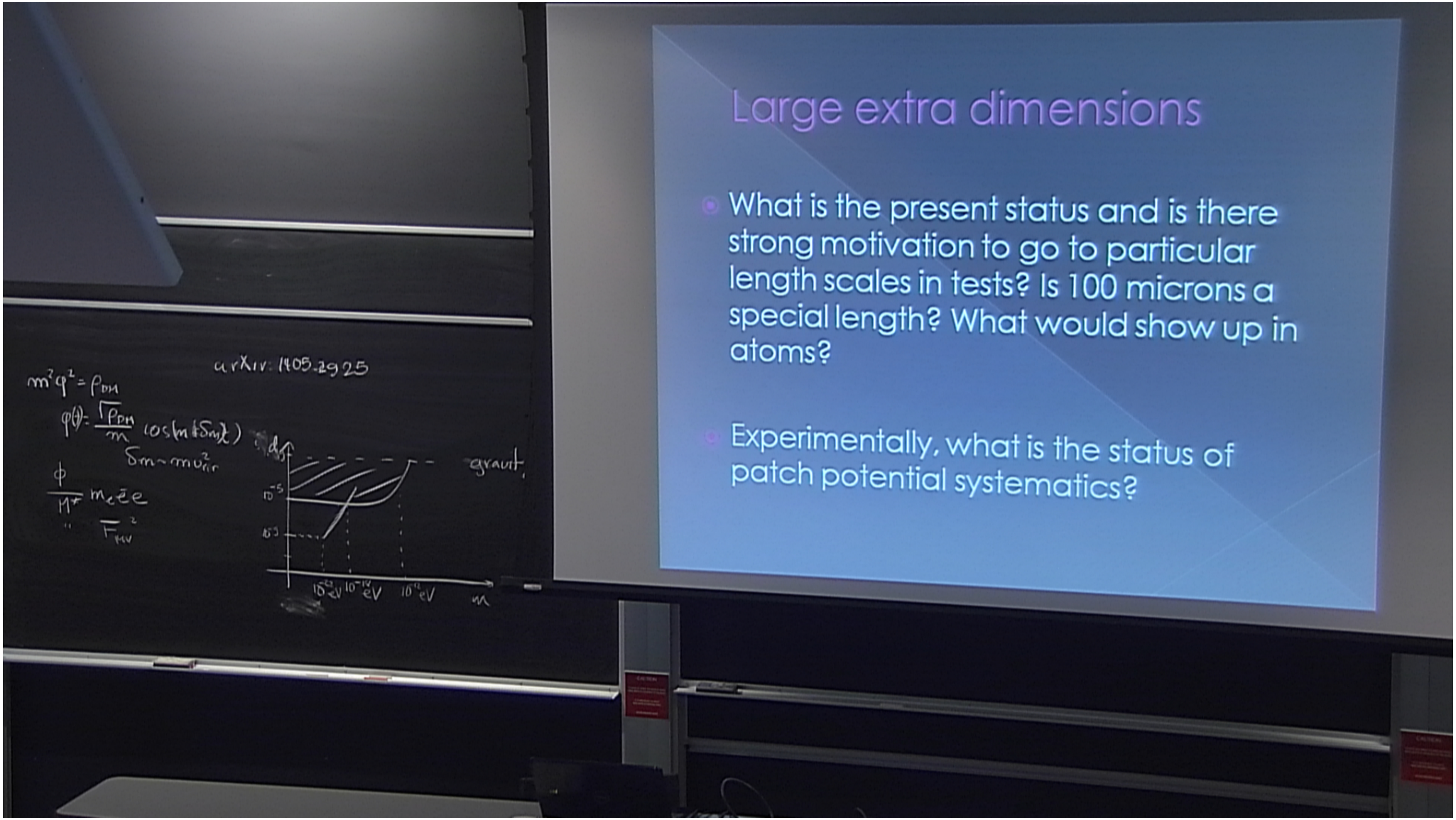
Large extra dimensions
What is the present status and is there strong motivation to go to particular length scales in tests? Is 100 microns a special length? What would show up in atoms?
Experimentally, what is the status of patch potential systematics?
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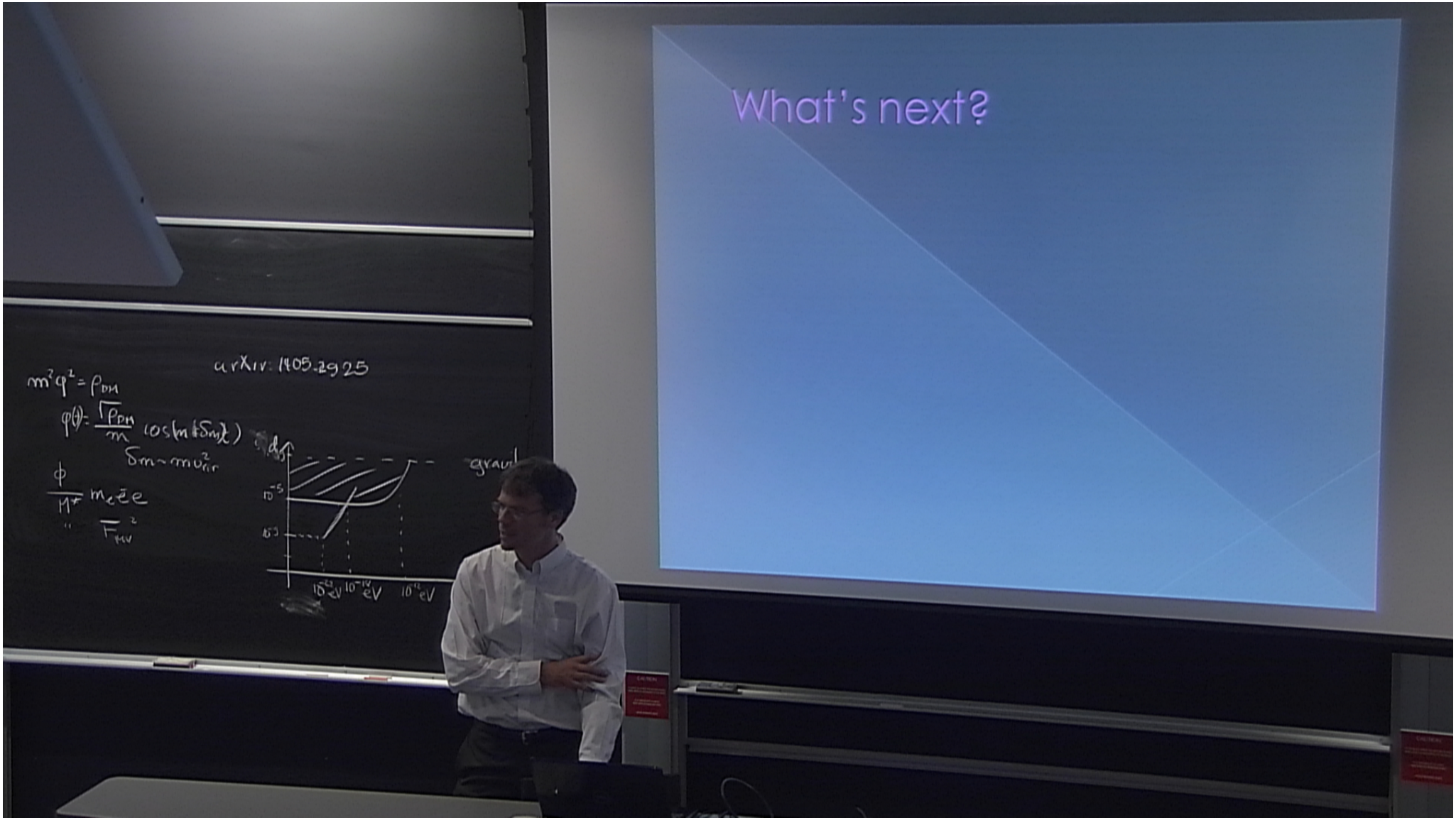
What's next?
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