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 <h2>From the Planck Scale to the Electroweak Scale</h2>

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Effective Theory of Dark Matter Decay into Monochromatic Photons and its Implications: Constraints from Associated Cosmic-Ray Emission

Wednesday 22 May 2013 16:00 (15 minutes)

We show that there exists only a quite limited number of higher dimensional operators which can naturally lead to a slow decay of dark matter particles into monochromatic photons. As each of these operators inevitably induces decays into particles other than photons, we show that the g-lines it induces are always accompanied by a continuum flux of cosmic rays. Hence constraints on cosmic-ray fluxes imply constraints on the intensity of g-lines and vice versa. A comparison with up to date observational bounds shows the possibilities to observe or exclude cosmic rays associated to g-line emission, so that one could better determine the properties of the DM particle, possibly discriminating between some of the operators.

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