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## Testing dark matter interactions with CMB spectral distortions

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Possible interactions of dark matter (DM) with Standard Model (SM) particles can be tested with spectral distortions of the cosmic microwave background (CMB). In particular, a non-relativistic DM particle that scatters elastically with photons, electrons or nuclei imprints a negative chemical potential  $\mu$  to the CMB spectrum, as I will explain in this talk. I will show how this effect can be used to derive upper bounds to the DM-SM elastic-scattering cross section for DM masses  $m\chi \lesssim 0.1$  MeV, from the non-detection of  $\mu$ -distortions by FIRAS, and forecast the sensitivity of future spectral distortion measurements. As a specific example, I will discuss the sensitivity of spectral distortions to the electric and magnetic dipole moments of DM.

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**Session Classification:** New Horizons in Cosmology with CMB Spectral Distortions

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