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Line-Intensity Mapping: opportunities, challenges and new windows for new physics

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Line-Intensity mapping (LIM) uses the integrated flux along the line of sight with relatively low-aperture telescopes, recovering radial information targeting known spectral lines discarding the continuum emission. Mapping the intensity fluctuations of an array of lines from HI 21cm to optical-UV lines offers a unique opportunity to probe redshifts well beyond the reach of other cosmological observations, access regimes that cannot be explored otherwise, and exploit the enormous potential of cross-correlations with other measurements. This promises to open new windows to probe new physics and deepen our understanding of the main unknowns of the Universe. In this talk I will cover the current status of LIM, current experiments and discuss the main challenges to fulfill its promise, and will mention the potential that it holds for probing physics beyond the standard model in the future.

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