Proposal Acronym	LPPC
Proposal Title:	Looking for Planck-scale patterns in cosmology
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Research area:	Physics PHY
Sub-discipline of research area:	Quantum Gravity Cosmology
Category of research:	basic
Keywords:	quantum gravity, relative locality, cosmology, Planck scale, phenomenology, curved momentum-space, k-Poincaré
Abstract:	Using the formalism of relative Locality I am looking for a simple way to express Planck-scale effects as deformations to physical models in a curved space-time framework, defining a momentum-dependent space-time metric (in some aspects similar to the Rainbow Metrics phenomenology, but with a more formal mathematical approach). Cosmology is indeed the most suitable arena to test those tiny effects, since long time-scales and its elevated characteristic energies would eventually magnify Planck-scale physics deformations (of course assuming those effects actually take place). I expect, at the end of this experience to be able to define a coherent cosmological model which formalizes many of the features arising from deformed spacetime symmetries models. This theoretical formulation could allow me also to propose a clear set of phenomenological tests, to try to understand the role of Planckian effects in early universe and begin to set upper bounds on many theoretical models.
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?:	No