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Asymptotic generalized extended uncertainty principle

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We present a formalism which allows for the perturbative derivation of the Extended Uncertainty Principle for arbitrary spatial curvature models. The leading curvature induced correction is proportional to the Ricci scalar evaluated at the expectation value of the position operator. By Born reciprocity this method can be equivalently applied in curved momentum space allowing for a general uncertainty principle or curved momentum space quantum mechanics.

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