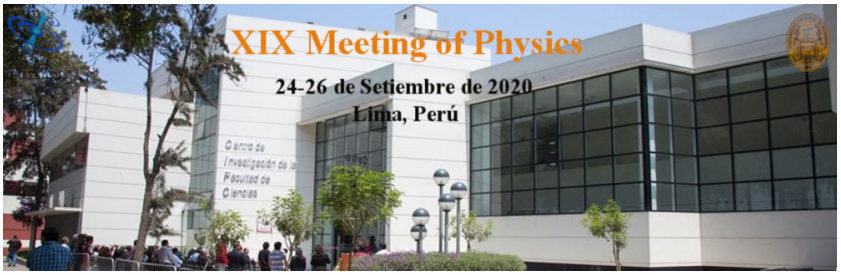

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Gravitational dipole analyses with partial-sky coverage data

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We can obtain the cosmic growth rate of structures, $f(z)$, when we compare the gravitational acceleration of a galaxy distribution in the local group with its peculiar velocity measured using the earth relative motion with respect to the Cosmic Background Radiation. The quantity $f(z)$, expected to be $f(z) \approx \Omega_m(z)^\gamma$ in the ΛCDM model, can distinguish alternatives models of gravity, an important task to understand the nature of dark energy. In this work we study the systematic error when we use a partial full-sky coverage survey in the measure of f. For this analysis we produce a set of mock catalogs and calculate for each of it the gravitational acceleration, for the whole and partial sky, when we randomly choose regions in the sky to remove. Our results show a noticeable increase in the uncertainty of the measure of f, however, we can say that, considering the density of objects in the catalog, it is possible to study the growth function with partial sky coverage surveys.

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