



University of Crete
Department of Physics



FORTH
INSTITUTE OF ASTROPHYSICS



2026 Nick Kylafis Lecture

Joint Physics & IA/FORTH Colloquium

Monday, 26 October 2026 | 14:00 – 16:00, FORTH new Amphitheater & Online

A puzzle solved: the world is flat

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ABSTRACT

When Hubble discovered the cosmic expansion, he already knew that the nearest large galaxy, M31, is approaching the Milky Way at about 100 km/s. Kahn and Woltjer (1959) demonstrated that this provides direct evidence for dark matter around the individual galaxies, since the total mass it requires is much larger than that of the stars. In the 1980's Sandage found the Hubble flow around the Local Group to be remarkably weakly perturbed; Lynden-Bell argued that this puts an upper limit on the total mass in the region which is comparable to or smaller than that estimated by Kahn and Woltjer's "Timing Argument" for the two central galaxies alone. New observational data over the last 40 years have reinforced this puzzle: why is Andromeda approaching us rapidly while only slightly more distant galaxies seem to follow a quiet and almost unretarded Hubble flow? Modern Bayesian methods show how this apparent contradiction is resolved within today's standard cosmological paradigm.

Join via ZOOM at:

<https://uoc-gr.zoom.us/j/83253494877?pwd=bZxzDB6Kg2yqlx1kllxMkcddMYtWRO.1>