

# MOND as the Weak Field Limit of a Relativistic Metric Theory of Gravity with Curvature-Matter Couplings

**Sergio Mendoza**

Institute of Astronomy of UNAM

## **Abstract**

I present a full relativistic metric theory of gravity with curvature-matter couplings for which its weak field limit yields a MOND (MODified Newtonian Dynamics) behavior and Tully-Fisher scalings. I will also show how this proposal can explain the deflection of light for individual, groups, and clusters of galaxies, and how it allows for the observed late-time accelerated expansion rate of the universe without the need of including dark matter/energy entities.

## **About the speaker:**

Sergio Mendoza did his undergraduate studies at the Faculty of Sciences of the University of Mexico UNAM. He got a certificate in Advanced Studies in Mathematics from the Department of Applied Mathematics and Theoretical Physics (DAMTP) of the University of Cambridge. He got his PhD in Astrophysics working at the Physics Department, Cavendish Laboratory from the University of Cambridge. He has been working as a Senior researcher at the Institute of Astronomy of UNAM since 2001 on topics of relativistic astrophysics; particularly the understanding of astrophysical jets and black holes, astrophysical cosmology, and extensions of the theory of gravity.