CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

universidade de aveiro

Gravitational Geometry and Dynamics Group Seminar

Wed., November 4, 2026, at 11h00.

Room: Sala Sousa Pinto and **Teams ID:** 327 122 716 731 630 2

(*Password: contact h.sanchez@ua.pt*)

José Barrientos

Institute of Mathematics
Czech Academy of Sciences

Electromagnetized black holes and swirling backgrounds in ModMax

In this talk, I will discuss recent developments in Einstein–ModMax theory, a nonlinear extension of electrodynamics that preserves conformal invariance and electromagnetic duality. I will first introduce charged, accelerating black-hole solutions in the C-metric family and discuss their key geometric properties. I will then show that a suitable limiting procedure yields the Melvin–Bonnor–ModMax universe, connecting accelerating black holes to self-gravitating electromagnetic backgrounds. This construction also allows us to explore the embedding of static black holes into electromagnetic universes. Finally, I will discuss stationary Melvin–swirling configurations, where the nonlinear character of ModMax becomes more apparent, highlighting new possibilities for constructing exact gravitational solutions beyond Einstein–Maxwell theory.

More about Gr@v at: *gravitation.web.ua.pt*

The Gr@v Seminars are supported in part by the FCT – Portuguese Foundation for Science and Technology, through projects 2022.04560.PTDC and 2024.05617.CERN and through CIDMA (https://ror.org/05pm2mw36), under the Portuguese Foundation for Science and Technology (FCT, https://ror.org/00snfqn58) Multi-Annual Financing Program for R&D Units, grants UID/04106/2025 (https://doi.org/10.54499/UID/04106/2025) and UID/PRR/04106/2025 (https://doi.org/10.54499/UID/PRR/04106/2025).

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