



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3092 Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) New BPS Gravitational Solitons in Anti-de Sitter Spacetimes

Monday 6 June 2022 10:45 (15 minutes)

Gravitational solitons are globally stationary, geodesically complete spacetimes with positive energy. These event-horizonless geometries do not exist in the electrovacuum by the classic Lichnerowicz Theorem. However, gravitational solitons exist when there are non-Abelian gauge fields in higher dimensions. In this talk, I will present a new class of supersymmetric asymptotically globally Anti-de Sitter gravitational solitons. I will then show that they contain evanescent ergosurfaces, a timelike hypersurface where the timelike Killing vector field becomes null. The presence of this hypersurface strongly suggests nonlinear instability due to the stable trapping phenomena. I will present an analytical argument for the derivation of this nonlinear instability. This is joint work with Dr. Hari K. Kunduri.

Author: DURGUT, Turkuler

Co-author: KUNDURI, Hari (Memorial University of Newfoundland)

Presenter: DURGUT, Turkuler

Session Classification: M1-10 Fields, Particles, and Strings I (DTP) | Champs, particules et cordes I (DPT)

Track Classification: Technical Sessions / Sessions techniques: Theoretical Physics / Physique théorique (DTP-DPT)