Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 7 Avril 2022, 10:00

Pierre Heidmann

Johns Hopkins U.

Topological Solitons in (Super)gravity

We derive new non-supersymmetric horizonless solitons in M-theory on T6xS1. They are obtained by decomposing the Einstein equations into decoupled sectors of 4d-Ricci-flat equations which have a known integrable structure. They are axially symmetric and static and are induced by smooth non-BPS bubbles that can carry M2-M2-M2-KKm brane charges. We calculate several families of smooth bubbling geometries, and focus on those with zero net charges. We show that they are Schwarzschild-like with a high redshift but terminate the spacetime smoothly in a chain of non-BPS bubbles supported by flux. Finally, we discuss the classical and quantum stability of the solutions by showing that the main ingredient, the charged bubble, is a meta-stable state in gravity.

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