

*Ciclo de Colóquios 2023.2*

## Colóquio #02:

# “Gravitaional collapse and exotic compact objects beyond General Relativity”

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### RESUMO

The collapse of massive objects in general relativity (GR) leads to the formation of singularities under rather general conditions. Though nonsingular compact objects with a horizon can be found as exact solutions of Einstein's theory, their dynamical formation is still an open question. Examples of this are non-singular black holes with de Sitter cores and the family of “black bounce” solutions of Simpson and Visser, all of which are static, spherically symmetric solutions. Considering the dynamical collapse of boson stars in a quadratic extension of GR, I will show that nonsingular compact objects whose internal dynamics closely resembles the idea of a baby universe are possible. The baby universe represents a growing bubble of space-time that emerges from the stretching of the innermost region of a collapsed object when the energy density reaches a critical value. The asymptotic state of these solutions is compatible with the notion of “black bounce” and represents an expanding cosmology. I will comment on the observational features of objects of this type and of possible generalizations

**Sexta-feira, 22 de setembro de 2023 às 14h**

Link: <http://meet.google.com/jtx-akpx-ysc>