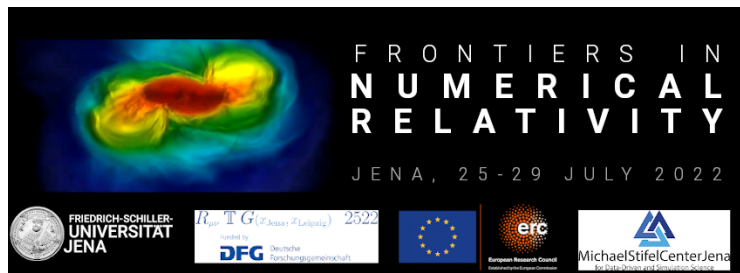


## Frontiers in Numerical Relativity 2022 (FNR2022)



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### **l-boson stars**

*Thursday, 28 July 2022 17:45 (15 minutes)*

Recently, a new class of fully nonlinear numerical solutions to the static, spherically symmetric Einstein-Klein-Gordon system for a collection of an arbitrary odd number of complex scalar fields with an internal  $U(N)$  symmetry was found. These solutions are parametrized by an angular momentum number  $l$ , an excitation number  $n$ , and a continuous parameter representing the amplitude of the fields. They are regular at every point, possess a finite total mass, and they generalize the standard spherically symmetric boson stars to arbitrary values of  $l$ . In this talk, we discuss the main properties of these  $l$ -boson stars, including their stability with respect to small perturbations, their compactness, the large  $l$  limit, their pressure anisotropy and some preliminary results regarding their interpretation as a solution of the semi-classical Einstein-Klein-Gordon equations.

**Presenter:** Prof. SARBACH, Olivier (Universidad Michoacana de San Nicolás de Hidalgo)

**Session Classification:** Short talks