



THE WONDERFUL WORLD OF COMPACT OBJECTS WITH BOSONIC FIELDS IN GR

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In Einstein-Maxwell theory there are no solitons, there are uniqueness theorems for black holes, which have "no hair" and there are no balanced neutral multi-black hole solutions. In this overview talk, we discuss, with concrete examples, how these different properties change in Einstein-Klein-Gordon and Einstein-Proca models, where the bosonic fields are candidates for ultralight bosonic matter, yielding a much richer landscape of solutions, both solitonic and with black holes, with some dynamical surprises.