## Black Holes, Neutron Stars, and Gravitational Waves @ Black Sea



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## Black hole scalarization at all scales

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The most well-studied class of theories of gravity beyond General Relativity is represented by scalar-tensor gravity, in which at least one fundamental scalar degree of freedom is included in the gravitational sector. This family is theoretically appealing due to its simplicity and due to its capability to describe cosmic dynamics at large scales.

Within this class, a particularly relevant theory is the one in which the scalar field is coupled to the Gauss-Bonnet invariant. In fact, in this theory BHs can exist in different branches of solutions, including the GR solution and different "scalarized" ones.

The transition of black holes from the GR branch to a scalarized one is a process known as scalarization. I will discuss this phenomenon in BH binary systems, as well as its possible implications in gravitational wave observations.

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