SAB

# RELATIVIDADE E GRAVITAÇÃO

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## POSSIBLE GRAVITATIONAL WAVE SOURCES FOR THE BRAZILIAN ANTENNA SCHENBERG

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The Schenberg Gravitational wave (GW) antenna will operate in a frequency band ranging from 3.0 - 3.4 kHz. In this bandwidth, there are some important astrophysical sources of GWs, namely: core collapse in supernova events; neutron stars going into hydrodynamical instability; quakes and oscillations of neutron stars (e.g., f, p, and w modes); excitation of the first quadrupole normal models of 4 M¤ black holes; coalescence of neutron stars and black holes in binary systems. "Exotic" sources such as: sub-millisecond rotating bosonic, or strange stars, and inspiralling of mini-black holes can also be spectulated. We here present the characteristic amplitudes and frequencies, as well as the event rates and detectability of some of these GW sources.

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## NULL DUST SOLUTIONS OF 5D EINSTEIN FIELD EQUATIONS COUPLED WITH COSMOLOGICAL CONSTANT

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Gravitational collapse of a realistic body has been one of the most thorny and important problems in Einstein's theory of General Relativity. Due to the complexity of the Einstein field equations, the problem even in simple cases, such as, spacetimes with spherical symmetry, is still not well understood, and new phenomena keep emerging. On the other hand, a scenario, so-called braneworld has been proposed lately, motivated by the possibility of resolving the large difference in magnitudes between the Planck and electroweak scales (the so-called hierarchy problem), in addition to possibly solving the long-standing cosmological constant problem. According to this scenario, the Standard Model