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(G*) Negative Mass de Sitter Black Holes

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Higher curvature gravity theories have long been known to have a variety of black hole solutions that differ from the standard cases in general relativity. A common feature amongst these solutions is that their horizons have constant curvature. We have recently obtained a class of black hole solutions in Lovelock gravity that do not not have constant curvature horizons. We find that negative mass solutions are possible even in spacetimes with positive cosmological constant. We reveal simple formulas that provide a lower bound on the black hole mass and discuss the implications of these solutions.

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