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## Beyond General Relativity: The Geometric Deformation and New Black Hole Solutions

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In the context of extra-dimensional gravity, as the Randall-Sundrum brane-world, a consistent extension of the minimal geometric deformation approach (MGD) is used to study the exterior spacetime around spherically symmetric self-gravitating system. A modified Schwarzschild geometry is obtained and new black hole solutions are shown. A possible extension of this approach in  $F(R)$  theories is also presented.

**Author:** OVALLE, Jorge (Simon Bolivar University)

**Presenter:** OVALLE, Jorge (Simon Bolivar University)

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