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Kerr-Schild Method and the Geodesic Structure in a Codimension-2 Brane Black Holes NELSON ZAMORANO, SUSANA AGUILAR, Universidad de Chile, BERTHA CUADROS MELGAR, Universidad Nacional Andres Bello — In this work we consider black hole solutions in a five-dimensional gravity. We include a Gauss-Bonnet term in the bulk and an induced gravity term on a 2-brane of codimension-2. Applying the Kerr-Schild method[1] to a background known solution[2] we have been able to generate additional solutions which include charge, angular momentum and a scalar field. In an effort to understand the geometric structure of these new spacetimes, we display a set of relevant geodesic families generated in these geometries.

[1]A. H. Taub, Ann. of Phys. **220**, 326 (1981).
[2]B. Cuadros–Melgar, E. Papatonopoulos, M. Tsoukalas and V. Zamarias, *Phys. Rev. Lett.* **100,** 221601 (2008).

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