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**Black hole spin and Lagrange points in the restricted general relativistic three body problem** MICHAEL CRESCIMANNO, Department of Physics and Astronomy, Youngstown State University, MARTIN STRONG, Dept. of Physics, Louisiana State University — In this new era of gravitational wave astrophysics, observations have indicated the likely existence of black holes with significant spin. In order to better understand the potential imprint orbital dynamics has on the multi-messenger data, we include rotation of the primary mass to leading order in the analysis of the stability boundary pertaining to the triangular equilibrium points, L4 and L5, in the relativistic, restricted, circular three body problem. For Lagrange point stability these rotation effects are of the same order as the leading order relativistic corrections ignoring rotation and make both L4 and L5 more stable for retrograde orbital motion. (pub. as. Phys. Rev. D. 102, 024052 (2020))

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