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POST-NEWTONIAN CIRCULAR RESTRICTED 3-BODY PROBLEM: SCHWARZSCHILD PRIMARIES

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The restricted three-body problem (RTBP) has been extensively studied to investigate the stability of the solar system, extra-solar subsystems, asteroid capture, and the dynamics of two massive black holes orbited by a sun. In the present work, we study the stability of the planar circular restricted three-body problem in the context of post-Newtonian approximations. First of all, we review the results obtained from the post-Newtonian equations of motion calculated in the framework of the Einstein-Infeld-Hoffmann formalism (EIH). Therefore, using the Fodor-Hoenselers-Perjes formalism (FHP), we have performed an expansion of the gravitational potential for two primaries, deriving a new system of equations of motion, which unlike the EIH-approach, preserves the Jacobian integral of motion. Additionally, we have obtained approximate expressions for the Lagrange points in terms of a mass parameter μ, where it is found that the deviations from the classical regime are larger for the FHP than for the EIH equations.

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THE NATURE OF FIFTY PALERMO *SWIFT*-BAT HARD X-RAY OBJECTS THROUGH OPTICAL SPECTROSCOPY

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We present the nature of 50 unidentified hard X-ray emitting objects detected with *Swift*-BAT and listed as of unidentified nature in the 54-month Palermo BAT catalogue. We found 45 extragalactic sources: 26 type 1 AGN, 15 type 2 AGN, one type 1 QSO, one starburst galaxy, one X-ray bright optically normal galaxy, and one LINER. We report 30 new redshift measurements, 13 confirmations and 2 more accurate redshift values. The remaining five objects are galactic sources: three are Cataclismic Variables, one is a X-ray Binary, and one is an active star.

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