

EXACT SOLUTIONS OF THE EINSTEIN-MAXWELL EQUATIONS FOR SPHERICALLY SYMMETRIC ASTRONOMICAL OBJECTS WITH ELECTRICALLY POLARIZED MATERIAL

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A family of solutions to the Einstein-Maxwell equations for spherically symmetric, electrically polarized astronomical objects is presented. These solutions are obtained by considering a seed solution that describes one of the metric components and an equation of state that relates the variables of the fluid. By solving the Maxwell equations, a form of the electric field in terms of the electric polarization is derived, enabling us to solve the Einstein equations for a static and spherically symmetric space-time, assuming the source is a non-dissipative anisotropic fluid. Once a solution for the system of equations is obtained, we determine the pressure and density that describe the material content of the model. Similarly, we obtain the variables associated with the electric field and the electric polarization.

Nivel de formación

Maestría

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