Some new models of Charged Dark Energy Stars in Conformal Symmetry

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Abstract: In this paper we obtained some stellar configurations that represent new models of dark energy stars in presence of a conformal Killing vector with the linear equation of state $p_r = \omega\rho$, where ω is the dark energy parameter, p_r is the radial pressure and ρ is the energy density. By combining the linear equation of state with the Einstein-Maxwell field equations, an equation for electric field is obtained. The generated solution well behaved in the stellar interior but it is important to mention that the denomination of dark energy is applied to fluids which violate the strong energy condition and the causality. Since multiple independent observations suggest that the universe is experiencing accelerated expansion, which can be explained by the presence of undetected dark energy, these theories have significant implications in physics and cosmology.

Keywords: Dark energy, Conformal Killing vector, Linear equation of state, Strong Energy, Causality.