

ABSTRACT

In this dissertation, homotheties of a class of spherically symmetric spacetimes (2.1.21) with $x(t, r) = 2 \ln r$ admitting G_3 as maximal isometry group have been found alongwith corresponding metrics (3.1.15) and (3.1.36), using homothety equations and without imposing any restriction on the stress-energy tensor. For the spacetime with $\dot{\lambda} = 0$, the solution has been provided in the form of derivatives of metric co-efficients which then requires further classification e.g. one could classify this metric according to different types of stress energy tensor as has been done by Eardley^[4], Cahill and Taub^[5] and McIntosh^[16].