

DETERMINING GENERAL RELATIVITY-BASED STATIC SPHERICALLY SYMMETRIC SOLUTIONS TO EINSTEIN'S EQUATION

MD. Imran Hossain Sakib , M. A. Kauser*

Department of Mathematics, Chittagong University of Engineering and Technology, Chattogram-4349, Bangladesh

ABSTRACT

Exact solutions of Einstein's field equations in closed analytic form are difficult to obtain, on account of complicated and nonlinearity of the equations. In the study of generating static spherically symmetric solutions in general relativity, researchers often manipulate the field equations to simplify the analysis. This paper outlines various methodologies for deriving static spherically symmetric solutions based on existing solutions. On use of the techniques, we have generated a 1-parameter family of two new solutions.

KEYWORDS: *Constant density, Perfect fluid, Spherically symmetric, Pressure, 1-Parameter*

Article History

Received: 11 Sep 2024 | Revised: 07 Nov 2024 | Accepted: 15 Nov 2022
