

Abu Fadlol Arrosyidi, 2012. **Schwarzschild and Kerr Solution for Einstein Gravitational Field Equation.** This thesis is under the guidance of Drs. Adri Supardi M.S Physics Department , Faculty of Science and Technology , Airlangga University and Agus Purwanto D.Sc Physics Department, Faculty of Mathematic and Natural Sciences.

ABSTRACT

A theoretical study of the Schwarzschild and Kerr solution for Einstein gravitational field equations has been done. Schwarzschild solution is obtained by creating a line element for spherical coordinates that has a new constant. The value of this constant is acquired by derivating the Riemann curvature tensor and Cristoffel symbol therefore generating the Schwarzschild and Kerr solution. While Schwarzschild solution in metric form suggesting a non-rotating black hole, the form of Kerr metric solution evokes a rotating black hole.

Keyword : Gravitational field equation, Line element, Cristoffel symbols, Riemman tensor curvatur, Metric, Blac khole