

**NEW SOLUTIONS OF ANGULAR TEUKOLSKY EQUATION VIA
TRANSFORMATION TO HEUNS EQUATION WITH THE APPLICATION OF
RATIONAL POLYNOMIAL OF AT MOST DEGREE 2, 3, 4, 5, 6**

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ABSTRACT

The perturbation equation of massless fields for Kerr-de Sitter geometry are written in form of separable equations as in [17] called the Angular Teukolsky equation. The Angular Teukolsky equation is converted to General Heun's equation with singularities coinciding through some confluent process of one of five singularities. As in [4, 16, and 17] rational polynomials of at most degree six are introduced.

AMS Subject classification: 33XX.

KEYWORDS: Heun Equation, Teukolsky Equation, Type-D Metrics, Polynomial Solutions