1067-35-551   **Jonatan Lenells*** (`Jonatan_Lenells@baylor.edu`), Baylor University, Department of Mathematics, One Bear Place 97328, Waco, TX 76706. *Boundary value problems for the stationary axisymmetric Einstein equations.*

Two of the most important solutions of the stationary axisymmetric Einstein equations are the Kerr black hole and the Neugebauer-Meinel disk. In this talk I will present exact solutions of a class of boundary value problems for the Einstein equations which combine the Kerr and Neugebauer-Meinel spacetimes. Thus, the presented solutions involve a disk of dust rotating uniformly around a central black hole. The solutions are given explicitly in terms of theta functions on a family of hyperelliptic Riemann surfaces of genus four. (Received September 09, 2010)