New Exact Solution of the Relativistic Boltzmann Equation and its Hydrodynamic Limit JORGE NORONHA, University of Sao Paulo/Columbia University, GABRIEL DENICOL, McGill University, MICHAEL STRICKLAND, Kent State University, MAURICIO MARTINEZ, ULRICH HEINZ, The Ohio State University — We present an exact solution of the relativistic Boltzmann equation for a system undergoing boost-invariant longitudinal and azimuthally symmetric transverse flow ("Gubser flow"). The resulting exact nonequilibrium dynamics is compared to first and second order relativistic hydrodynamic approximations for various shear viscosity to entropy density ratios. This novel solution can be used to test the validity and accuracy of different hydrodynamic approximations in conditions similar to those generated in relativistic heavy-ion collisions.

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