Contribution ID: **302**   Type: **Oral presentation**

Hamiltonian Reduction for Einstein's Equations without isometries

Tuesday, 10 July 2018 11:00 (30 minutes)

I apply the Hamiltonian reduction procedure to spacetimes of 4 dimensions without isometries in the (2+2) formalism and find privileged spacetime coordinates in which the physical Hamiltonian is expressed in terms of the conformal two metric and its conjugate momentum. Physical time is the area element of the spatial cross-section of null hypersurfaces, and the physical radial coordinate is defined by "equipotential" surfaces on a given spacelike hypersurface of constant physical time. The physical Hamiltonian is local and positive in the privileged coordinates. I present the complete set of Hamilton's equations and find that they coincide with the Einstein's equations written in the privileged coordinates. This shows that the Hamiltonian reduction is self-consistent and respects general covariance.

Primary author: Prof. YOON, Jong Hyuk (Konkuk University)

Presenter: Prof. YOON, Jong Hyuk (Konkuk University)

Session Classification: Workshop on Frontiers in Gravitation, Astrophysics, and Cosmology