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**[박GC-18] Formulation for the Relativistic Blast Waves and GRB Afterglows**Z. Lucas Uhm (엄정휘)<sup>1</sup>*<sup>1</sup>Institute for the Early Universe and Research Center of MEMS Space Telescope, Ewha Womans University, Seoul 120-750, South Korea*

We present a detailed description of the blast-wave modeling technique for a very general class of GRB explosions. Providing a simple method of evaluating the blast energy, we demonstrate that a common approximation of pressure balance for the blast wave violates the energy-conservation law significantly for adiabatic blast waves. We show that the energy-violation problem is successfully resolved by the "mechanical model" that we developed. GRB afterglow lightcurves that are produced by the forward and reverse shock waves of the blast wave are presented.

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**[구GC-19] The spin of spiral galaxies in different environments.**Bernardo Cervantes-Sodi<sup>1</sup>*<sup>1</sup>Korea Astronomy and Space Science Institute*

The origin of galactic angular momentum is commonly explained as a result of tidal torques of neighbouring protogalaxies on the forming galactic halo. In this context, the environment plays a preponderant role establishing the total angular momentum of present day galaxies. For the last four decades, most of the observational studies focused their attention on the spatial orientation of galaxies in filaments, groups or clusters, leaving behind the magnitude of the angular momentum. We have implemented a simple model to account for the spin of disk galaxies that allow us to obtain an estimate for any galaxy requiring a minimum of information. Applying this method to a sample of galaxies extracted from the Sloan Digital Sky Survey, we have been studying angular momentum distributions of galaxies in different environments. In this talk I will present some results for galaxies immersed in different environments, spanning three orders of magnitude in environmental density, galaxies having nearby companions and clustered galaxies.