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**[7GC-21] Faraday Rotation Measure in the Large-Scale Structure II**Takuya Akahori, Dong su Ryu  
*Chungnam National University*

In the last meeting of KAS, we reported the first statistical study of Faraday rotation measure (RM) in the large-scale structure of the universe using the data of cosmological structure formation simulations. With a turbulence dynamo model for the intergalactic magnetic field (IGMF), we predicted that the root mean square of RM through filaments is  $\sim 1 \text{ rad/m}^2$ . Future radio observatories such as the Square Kilometer Array (SKA) could detect this signal level. However, it is known that the typical foreground galactic RM is a few tens and less than ten  $\text{rad/m}^2$  in the low and high galactic latitudes, respectively. So the RM in the large-scale structure could be detected only after the foreground galactic RM is removed. In this talk, we show how we remove the foreground galactic RM and what we obtain from the masked data, by using some noise models and masking techniques. Our results can be used to simulate future RM observations by SKA, and eventually to constrain the origin and evolution of the IGMF in the large-scale structure.

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**[7GC-22] Cosmological shocks and the cosmic gamma-ray background**Renyi Ma, Dongsu Ryu, Hyesung Kang  
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During the formation of cosmic web, collisionless shock waves are produced around and inside the substructures. In these shock waves electrons and ions are accelerated to such high energies that they can produce gamma rays in several ways. Many authors have studied the contribution of shock-induced radiation to the cosmic gamma-ray background. However not all the important physical processes are included in their calculation. By considering more complete physical process, we re-investigate the problem. In our model, the energy distribution of the cosmic rays (CRs) are calculated by widely accepted diffusive shock acceleration model, both primary and secondary CR electrons are included, both inverse Compton scattering and bremsstrahlung process are considered. The difference of the results are discussed.