Anisotropic heat diffusion on stochastic magnetic field in the Large Helical Device YASUHIRO SUZUKI, Natl Inst Fusion Science-Toki — The magnetic topology is a key issue in fusion plasma researches. An example is the Resonant Magnetic Perturbation (RMP) to control the transport and MHD activities in tokamak and stellarator experiments. However, the physics how the RMP affects the transport and MHD is not clear. One reason is a role of the magnetic topology is unclear. That problem is connecting to the identification of the magnetic topology in the experiment. In the experiment, the finite temperature gradient is observed on the stochastic field where is stochastized by the theoretical prediction. In a classical theory, the electron temperature gradient should be zero on the stochastic magnetic field. We need to study the stochastic magnetic field can keep the finite temperature gradient or not. In this study, we study the anisotropic heat diffusion equation to simulate the heat transport on the stochastic magnetic field. Changing a ratio of $\kappa_{\parallel}$ and $\kappa_{\perp}$, the distribution of the temperature on the stochastic magnetic field is obtained. Hudson *et al.* pointed out the KAM surface is a barrier to keep the finite temperature. We simulate those results in realistic magnetic field of the Large Helical Device.

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