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Quantitative evaluation of wall heat loads by lost fast ions in the Large Helical Device JUNKI MORIMOTO, Sokendai (The Graduate University for Advanced Studies), YASUHIRO SUZUKI, RYOSUKE SEKI, National Institute for Fusion Science — In fusion plasmas, fast ions are produced by neutral beam injections (NBI), ion cyclotron heating (ICH) and fusion reactions. Some of fast ions are lost from fusion plasmas because of some kinds of drift and instability. These lost fast ions may cause damages on plasma facing components such as divertors and diagnostic instruments in fusion reactors. Therefore, wall heat loads by lost fast ions in the Large Helical Device (LHD) is under investigation. For this purpose, we have been developing the Monte-Carlo code for the quantitative evaluation of wall heat loads based on following the guiding center orbits of fast ions. Using this code, we investigate wall heat loads and hitting points of lost fast ions produced by NBI in LHD. Magnetic field configurations, which depend on beta values, affect orbits of fast ions and wall heat loads. Therefore, the wall heat loads by fast ions in equilibrium magnetic fields including finite beta effect and magnetic islands are quantitatively evaluated. The differences of wall heat loads and particle deposition patterns for cases of the vacuum field and various beta equilibrium fields will be presented at the meeting.

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