Proceedings of ITC/ISHW2007

## **Research of effective ripples in helical systems**

## O. Yamagishi

National Institute for Fusion Science, 322-6 Oroshi-cho, Toki 509-5292, Japan

e-mail address: yamagisi@nifs.ac.jp

The ripple transport is one of problems that need to be overcome in the helical systems. Thus quasi-(toroidally, poroidally, helically) symmetric configurations have been designed in the world. On the other hand, it has been found in LHD [1] that the effective ripple, which is a measure of ripple transport, can be significantly reduced, without depending on the symmetry of the magnetic fields. This feature in asymmetric configurations like LHD seems to be important because it does not rely on the complicated coil geometry. However, the major radius at the magnetic axis in the vacuum is clearly inadequate to parameterize the effective ripple in general. One of attempts to explain the behavior of the effective ripple [2] is based on the combination of complicated magnetic field spectrum. In this work, it is tried to investigate how the effective ripple is related to B spectrum and other parameters. For example, since the ripples along a field line are affected by the rotational transform, it can be controlled simply if external currents can be controlled.

[1] S.Murakami et al., Nucl. Fusion 42, L19 (2002)
[2] M.Yokoyama et al., Nucl. Fusion 42, 1600 (2005)