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**Tatsuya Tate\*** ([tate@math.nagoya-u.ac.jp](mailto:tate@math.nagoya-u.ac.jp)), Fro-cho, Chikusa-Ku, Nagoya, Aichi 464-8602, Japan. *Asymptotic Euler-Maclaurin expansion over Delzant polytopes.*

Formulas for the Riemann sums over lattice polytopes given by the lattice points in the polytopes are often called Euler-Maclaurin formulas. We call the asymptotic expansion formula for such Riemann sums asymptotic Euler-Maclaurin formulas. An asymptotic Euler-Maclaurin formula over simple polytopes was first obtained by Guillemin-Sternberg, which generalized the classical Euler-Maclaurin expansion on the interval. Thus, the problem is to find effective formulas for each term of the asymptotic expansion. In this talk, a new asymptotic Euler-Maclaurin formula over Delzant polytopes will be presented. This formula is rather similar to the so-called local (exact) Euler-Maclaurin formula due to Berline-Vergne. Indeed, although this formula is proved without using results of Berline-Vergne, the differential operators appeared in each term of the asymptotics coincide with Berline-Vergne operators. This new formula enables us to obtain explicit formula for every terms in the asymptotics in two dimension, explicit formula for the third term in arbitrary dimension. In the talk, a sketch of the proof of the formula and some comments on further problems will also be explained. (Received April 07, 2010)