1070-58-287   **Carolyn S. Gordon*** (`csgordon@dartmouth.edu`) and **Dorothee Schueth**
(`schueth@math.hu-berlin.de`). *Quantum equivalent magnetic fields on flat tori that are not classically equivalent.* Preliminary report.

Given a translation invariant symplectic structure on a flat torus, one associates a Hermitian line bundle and a Laplace operator acting on sections of the line bundle and its tensor powers. We construct different symplectic structures for which the Laplacians on the associated line bundles and their non-trivial tensor powers are isospectral. The primary tool in the construction is the Heisenberg structure on the unit circle bundles.

In the context of geometric quantization, we interpret these examples as quantum equivalent magnetic fields that are not classically equivalent. (Received February 14, 2011)