Geometric quantization of Lagrangian torus fibrations

Yael Karshon

Abstract:

By the Arnold-Liouville theorem, a regular completely integrable system on a compact symplectic manifold M is Lagrangian torus fibration over an integral affine manifold B. When M is pre-quantized, we give a simple proof that its Riemann-Roch number coincides with its number of Bohr-Sommerfeld leaves. This can be viewed as an instance of the mysterious "independence of polarization" phenomenon of geometric quantization.