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Quantization of symplectic manifolds

Quantization of symplectic manifolds

We must manufacture a [Hilbert space](#) for the symplectic manifold

$$(M,\omega) \rightarrow \mathcal{H} \in \mathbf{Hilb}_{\mathbb{C}}$$

and a lie algebra morphism

$$(\mathcal{C}^{\infty}(M),\{,\}) \rightarrow (\mathbf{Herm}(\mathcal{H}),[,])$$

- **geometric quantization**
 - $\mathcal{H}$ are the L^2 sections of a line bundle (whose curvature is ω)
 - **real polar** For (T^*X,θ) we can just
$$\mathcal{H} := L^2(M \rightarrow \mathbb{C}, \lambda_{\theta})$$
 - **complex polar** For (T^*X,θ) where X is compact Kahler, then $\mathcal{H}$ be the holomorphic sections of a line bundle
 - for a [Hamiltonian Lie group action on a symplectic manifold](#)

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