

In this talk, we will interpret several well known integral transforms as parallel transport in a Hilbert space bundle. The machinery needed to produce this bundle is known as the program of geometric quantization. The first portion of the talk will be dedicated to an elementary review of geometric quantization. Next, we will recall the Fourier and Segal-Bargmann transforms, as well as the Bergman kernel. Finally, we will put all of the pieces together into a quantum Hilbert bundle where all of the transforms appear as parallel transport. No physics knowledge will be necessary, but I will assume at least a passing familiarity with bundles and connections. The emphasis of the talk will be on ideas and structures, and so we will eschew technicalities and proofs (for the experts, this means that we will apply the metaplectic correction with little explanation or excuse).

*The results to be presented in this talk are available in preprint form on the arxiv at [math.SG/0409555](https://arxiv.org/abs/math.SG/0409555).