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Lagrangian fibrations, quantization, and integral-integral affine geometry

The geometry of Lagrangian fibrations has been studied by a number of authors, and turns out to be quite rigid; as one example, the Arnold-Liouville theorem implies that the base B of a Lagrangian fibration $M \rightarrow B$ can be equipped with an integral affine structure. In the presence of a prequantization $L \rightarrow M$, more can be said. In this talk we will review some facts about Lagrangian fibrations and describe an “Enhanced Arnold-Liouville Theorem” that equips B with what we call an *integral-integral affine* structure. We will also discuss some results from “integral-integral affine geometry” and their relation to quantization.