Stability conditions on derived categories

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Stability conditions on derived categories were introduced recently in an attempt to understand Mike Douglas' work on π-stability for D-Branes in string theory. Mathematically they have a similar feel to t-structures, but allow one to break up objects into pieces indexed by the reals instead of the integers. An important point is that the space of all stability conditions on a fixed triangulated category has the structure of a manifold. I hope to give the relevant definitions, give some motivating examples, and describe the space of stability conditions on the derived category of a $K3$ surface. The original papers are `math.AG/0212237` and `math.AG/0307164`, and a good explanation of the physics by Douglas can be found at `math.AG/0207021`.