

Noncommutative complex structures, sheaf theory and characteristic classes

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I will consider complex structures on noncommutative differential calculi, and the associated integrability condition. This can be combined with the idea of a sheaf in noncommutative geometry to give a holomorphic sheaf, and a resulting cohomology theory. The eventual aim would be to form a noncommutative version of the bridge between algebraic geometry and complex differential geometry (classically using Kahler manifolds). I will say something of the many problems still to be considered in building this bridge.