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The Dolbeault-Dirac operator on the irreducible quantum flag manifolds

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In this talk I will comment about some aspects in the construction of the Dolbeault-Dirac operator $d+d^*$ associated to some type of quantum homogeneous spaces generalizing the classical construction of the Rham complex of smooth manifolds. I will introduce a quantum version of the Bernstein-Gelfand-Gelfand resolution of irreducible quantum flag manifolds in order to dualize it in some way to get the Dolbeault complex and define the Dolbeault-Dirac operator. If time permits, I will give the example of the irreducible quantum flag of type B_2 for which the Dolbeault-Dirac operator leads to a spectral triple in the sense of Connes, also I will give some comments on the case of the quantum Grassmanian $Gr(2,4)$ which is an ongoing project joint with E. Wagner.

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