Models of quadratic quantum algebras and their relation to classical superintegrable systems

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Quadratic algebras arise out of consideration of both classical and quantum superintegrable systems.This gives rise to the question the representation theory of these quantum algebras.Various models of such algebras can be invented.A usefull guide to how these models arise comes from consideration of the classical counterparts of the corresponding quantum problems.It is explained how the classical models give a usefull guide to constructing such models in terms of Differential operators or Difference operators.The relationships implied for special functions is elaborated upon.