

Affine actions of $U_q(sl(2))$ on polynomial rings

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Abstract. We classify the affine actions of $U_q(sl(2))$ on commutative polynomial rings in $m \geq 1$ variables. We show that, up to scalar multiplication, there are two possible actions. In addition, for each action, the subring of invariants is a polynomial ring in either m or $m - 1$ variables, depending upon whether q is or is not a root of 1.