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Rational singularities and quotients by holomorphic group actions

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Abstract. We prove that rational and 1-rational singularities of complex spaces are stable under taking quotients by holomorphic actions of reductive and compact Lie groups. This extends a result of Boutot to the analytic category and yields a refinement of his result in the algebraic category. As one of the main technical tools vanishing theorems for cohomology groups with support on fibres of resolutions are proven.

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