

Remarks on commuting Toeplitz operators

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Consider two Toeplitz operators T_g, T_f on the Segal-Bargmann space over the complex plane. Let us assume that g is a radial function and both operators commute. Under certain growth condition at infinity of f and g we show that f must be radial, as well. In case of Toeplitz operators with bounded symbols acting on the Bergman space over the unit disc the corresponding result has been proven earlier by Ž. Čučković and N.V. Rao. In the Segal-Bargmann space setting we give a counterexample of this fact by choosing an appropriate fast growing radial symbol g . In this case the vanishing commutator $[T_g, T_f] = 0$ does not imply the radial dependence of f . Finally, we replace the complex plane by \mathbb{C}^n , $n > 1$ and give some remarks on the commuting property of Toeplitz operators. This talk is based on a joint work with Y.J. Lee.