1077-47-486 **Quanlei Fang***, quanlei.fang@bcc.cuny.edu, and **Jingbo Xia**. *Essential normality of polynomial-generated submodules.*

Recently, Douglas and Wang proved that for each polynomial q, the submodule $[q]$ of the Bergman module on the ball generated by q is essentially normal. Using improved techniques, we show that the analogue of this result holds in the case of the Hardy space $H^2(S)$ and in the first non-trivial case H_2^2 of free Hilbert module over $\mathbf{C}[z_1, z_2]$, and more. More specifically, we consider the family of reproducing-kernel Hilbert spaces $\mathcal{H}^{(t)}$, $-n \leq t < \infty$, where n is the complex dimension of the ball. Here, $\mathcal{H}^{(t)}$ is defined by the reproducing kernel $(1 - \langle \zeta, z \rangle)^{-n-1-t}$, and one can think of the value t as the "weight" for the space $\mathcal{H}^{(t)}$. We show that if $q \in \mathbf{C}[z_1, \ldots, z_n]$, then for each real value $-3 < t < \infty$ the submodule $[q]^{(t)}$ of $\mathcal{H}^{(t)}$ is p-essentially normal for every $p > n$. Applications of this general result to the cases $t = -1$ and $t = -2$ yield the above-mentioned results for $H^2(S)$ and H_2^2 respectively. (Received September 04, 2011)