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POSITIVE TOEPLITZ OPERATORS ON THE BERGMAN SPACE

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ABSTRACT. In this paper we find conditions on the existence of bounded linear operators A on the Bergman space $L_a^2(\mathbb{D})$ such that $A^*T_\phi A \geq S_\psi$ and $A^*T_\phi A \geq T_\phi$ where T_ϕ is a positive Toeplitz operator on $L_a^2(\mathbb{D})$ and S_ψ is a self-adjoint little Hankel operator on $L_a^2(\mathbb{D})$ with symbols $\phi, \psi \in L^\infty(\mathbb{D})$ respectively. Also we show that if T_ϕ is a non-negative Toeplitz operator then there exists a rank one operator R_1 on $L_a^2(\mathbb{D})$ such that $\tilde{\phi}(z) \geq \alpha^2 \tilde{R}_1(z)$ for some constant $\alpha \geq 0$ and for all $z \in \mathbb{D}$ where $\tilde{\phi}$ is the Berezin transform of T_ϕ and $\tilde{R}_1(z)$ is the Berezin transform of R_1 .

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