A von Neumann type inequality on the Siegel half-space

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The Drury–Arveson space on the unit ball is a well-known holomorphic function space which is sometimes considered *the* correct multi-dimensional version of the Hardy space on the unit disc. One of the reason is that DA plays the same role as H^2 in a multi-dimensional version of the famous von Neumann Inequality. In the 1-dimensional setting such inequality states that given a Hilbert space $\mathcal{H}$ and a contraction $T : \mathcal{H} \to \mathcal{H}$ then, for any complex polynomial $p(z)$,

$$\|p(T)\|_{\mathcal{B}(\mathcal{H})} \leq \|p\|_{\mathcal{M}(H^2(\mathbb{D}))}$$

where $\|\cdot\|_{\mathcal{B}(\mathcal{H})}$ and $\|\cdot\|_{\mathcal{M}(H^2(\mathbb{D}))}$ denote the norm of bounded linear operators on $\mathcal{H}$ and the multiplier operator norm on the Hardy space on the unit disc respectively.

In this talk I will present a version of this result for the Drury-Arveson space on the Siegel upper half-space, an unbounded biholomorphic realization of the unit ball in $\mathbb{C}^{d+1}$.

This is a joint work N. Arcozzi, N. Chalmoukis, M. Peloso and M. Salvatori.