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Friedrichs Operator on Pseudoconvex Domains in $\mathbb{C}^n$

Let Ω be a smooth bounded domain in $\mathbb{C}^n$ and let $L^2(\Omega)$ denote the space of square integrable functions on Ω with respect to the Lebesgue measure. We denote the subspace of holomorphic functions in $L^2(\Omega)$ by $A^2(\Omega)$ and the Bergman projection from $L^2(\Omega)$ to $A^2(\Omega)$ by $\mathbf{B}$.

The Friedrichs operator T is a conjugate linear mapping from $A^2(\Omega)$ onto itself, defined by $f \to \mathbf{B}(\overline{f})$. It was recently observed that this operator exhibits some additional smoothing properties under certain geometric assumptions on the domain. In this talk, after a quick review these results, we will prove that T is compact on any pseudoconvex domain without any further geometric conditions. We will also discuss some further implications of this observation.