THE POLAR DECOMPOSITION FOR ADJOINTABLE
OPERATORS ON HILBERT $C^*$-MODULES
AND CENTERED OPERATORS

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ABSTRACT. Let $T$ be an adjointable operator between two Hilbert $C^*$-modules, and let $T^*$ be the adjoint operator of $T$. The polar decomposition of $T$ is characterized as $T = U(T^*T)^{1/2}$ and $R(U^*) = \overline{R(T^*)}$, where $U$ is a partial isometry, $R(U^*)$ and $\overline{R(T^*)}$ denote the range of $U^*$ and the norm closure of the range of $T^*$, respectively. Based on this new characterization of the polar decomposition, an application to the study of centered operators is carried out.

REFERENCES


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