

## ON THE POLAR DECOMPOSITION OF THE DUGGAL TRANSFORMATION AND RELATED RESULTS

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*Abstract.* Let  $T = U|T|$  be the polar decomposition of a bounded operator  $T$  on a Hilbert space. The transformation  $\Delta(T) = |T|^{1/2}U|T|^{1/2}$  is called the Aluthge transformation, and  $\Gamma(T) = |T|U$  is called the Duggal transformation of  $T$ . We discuss Aluthge transformation and Duggal transformation of binormal operators and centered operators. We obtain results about the polar decomposition of Duggal transformation. We give necessary and sufficient conditions for  $\Gamma(T)$  to have the polar decomposition  $\Gamma(T) = \Gamma(U)|\Gamma(T)|$ . As a consequence we get  $\Gamma(T) = \Gamma(U)|\Gamma(T)|$  to be the polar decomposition of  $\Gamma(T)$  if  $T$  is binormal.

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