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Affiliation: Department of Mathematics, Sungkyunkwan University, Korea Title: Polar decompositions and Aluthge transforms

Abstract: We introduce a new polar decomposition on the Lie group of invertible matrices

$$M = P^t U P, \qquad t \neq \pm 1$$

and the absolute map $|M|_t := P^{1+t}$ (the usual polar decomposition is when t = 0). In this talk, we discuss the corresponding Aluthge transform

$$\Delta_{t,\lambda}(M) := |M|_t^{\lambda} U_t(M) |M|_t^{1-\lambda}$$

and its numerical range.

Co-author: Jorge Antezana.