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Raul E Curto* (raul-curto@uiowa.edu), Department of Mathematics, The University of Iowa, Iowa City, IA 52242. *Limits of iterates of spherical Aluthge transforms*. Preliminary report.

Let $\mathbf{T} \equiv (T_1, T_2)$ be a commuting pair of Hilbert space operators, and let $P := \sqrt{T_1^*T_2 + T_1T_2^*}$ be the positive factor in the (joint) polar decomposition of \mathbf{T} , i.e., $T_i = V_iP$ ($i = 1, 2$). The spherical Aluthge transform of \mathbf{T} is the (necessarily commuting) pair $\widehat{\mathbf{T}} := (\sqrt{P}V_1\sqrt{P}, \sqrt{P}V_2\sqrt{P})$. We study the iterates of the spherical Aluthge transform, that is, the commuting pairs given by $\widehat{\mathbf{T}}^{(1)} := \widehat{\mathbf{T}}$ and $\widehat{\mathbf{T}}^{(n)} := \widehat{\widehat{\mathbf{T}}^{(n-1)}}$ ($n \geq 2$).

In this talk, we will focus on the asymptotic behavior of the sequence $\{\widehat{\mathbf{T}}^{(n)}\}_{n \geq 1}$ as $n \rightarrow \infty$. In those cases when the limit exists, the limit pair is a fixed point for the spherical Aluthge transform, that is, a spherically quasinormal pair. For large suitable classes of 2-variable weighted shifts we will establish the convergence of the sequence of iterates in the weak operator topology.

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