Chain recurrence is not hereditary in Linear Dynamics

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We exhibit the existence of continuous (and even invertible) linear operators acting on Banach (and even Hilbert) spaces whose restriction to their respective closed linear subspaces of chain recurrent vectors are not chain recurrent operators. This example completely solves in the negative a problem posed in [1] by N. C. Bernardes Jr. and A. Peris on chain recurrence in Linear Dynamics. The results exhibited along this talk can be found in [2], which is a joint work with Dimitris Papathanasiou.

References

[1] N. C. Bernardes Jr. and A. Peris. On shadowing and chain recurrence in linear dynamics. *Adv. Math.*, **441** (2024), number 109539.

[2] A. López-Martínez and D. Papathanasiou. Shifts on trees versus classical shifts in chain recurrence. *arXiv preprint* (2024), arXiv:2402.01377.

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*This is a joint work with Dimitris Papathanasiou (Sabanci University).