# BAUMSLAG–SOLITAR GROUP $C^*$-ALGEBRAS FROM INTERVAL MAPS

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ABSTRACT. We yield operators $U$ and $V$ on Hilbert spaces that are parameterized by the orbits of certain interval maps that exhibit chaotic behavior and obey the (deformed) Baumslag–Solitar relation

$$UV = e^{2\pi i\alpha}VU^n, \qquad \alpha \in \mathbb{R},\ n \in \mathbb{N}.$$

We then prove that the scalar $e^{2\pi i\alpha}$ can be removed whilst retaining the isomorphism class of the $C^*$-algebra generated by $U$ and $V$. Finally, we simultaneously unitarize $U$ and $V$ by gluing pairs of orbits of the underlying noninvertible dynamical system and investigate these unitary representations under distinct pairs of orbits.

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