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Dynamics of Potts-Bethe mapping of degree four on \hat{a}, \check{s}_5 (Conference Paper)

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Abstract

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We give the full descriptions of the dynamical behaviour of the Potts-Bethe mapping of degree four on \hat{a}, \check{s}_5 . For $a, b \in \mathbb{Z}_5$, the Potts-Bethe mapping is written as follows $f_{a,b}(x) = (ax + bx + a + b - 1)^4$. (1) When $|a - 1|_5 < |b + 1|_5 < 1$, there exists a subsystem $(\mathbb{Z}_5, f_{a,b})$ that is topologically conjugate to the chaotic full shift dynamics on four symbols. We also show that for any initial point $x \in \mathbb{Z}_5 \setminus \{0, a, b\}$, the trajectory of the Potts-Bethe mapping converges to a unique attracting fixed point. © 2019 Author(s).

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