

Cuntz-Krieger sub-algebras and orbit representations

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Abstract

Given a Cuntz-Krieger algebra \mathcal{O}_A we build a Markov map f , defined in the interval $I = [0, 1]$, whose transition matrix is A . The orbits of the discrete dynamical system (Ω, f) , where $\Omega \subset I$ is the minimal invariant set under iteration of f , gives us a family of representations of \mathcal{O}_A . In our work we go further and analyze the conditions in which we obtain orbit representations of Cuntz-Krieger algebras $\mathcal{O}_{A'}$ arising from the iterates f^k defined on some appropriate Cantor set $\Omega' \subset \Omega$. In this case these Cuntz-Krieger algebras $\mathcal{O}_{A'}$ are sub-algebras of the original algebra \mathcal{O}_A .

References

- [1] Bratteli, O.; Jorgensen, P.E.T. *Iterated function systems and permutation representations of the Cuntz algebra*. *Memoirs of AMS* **663** (1999) 1–89.
- [2] Cuntz, J.; Krieger, W. *A class of C^* -algebras and topological markov chains*. *Inv. Math.* **56** (1980) 251–268.
- [3] Correia Ramos, C.; Martins, N.; Pinto, Paulo R.; Sousa Ramos, J. *Cuntz-Krieger algebras representations from orbits of interval maps*, *Journal of Mathematical Analysis and Applications*. **341** (2008) 825–833.
- [4] Correia Ramos, C.; Martins, N.; Pinto, Paulo R. *Orbit Representations and Circle Maps*, *Operator Algebras, Operator Theory and Applications*, (Eds.) A. Bastos; I. Gohberg; A. B. Lebre; F. -O. Speck, Birkhauser (2008) 417–429.

- [5] Martins, N.; Sousa Ramos, J. *Cuntz-Krieger algebras arising from linear mod one transformations*. Differential Equations and Dynamical Systems (Lisbon 2000), Fields Inst. Commun., **31**, American Mathematical Society, Rhode Island, (2002) 265–273.
- [6] Martins, N.; Severino, R.; Sousa Ramos, J. *K-theory for Cuntz-Krieger algebras arising from real quadratic maps* International Journal of Mathematics and Mathematical Sciences, **34** (2003) 2139–2146.
- [7] Pedersen, G.K. *C*-algebras and their automorphism groups*. Academic Press, London Mathematical Society Monographs, **14**, ix+416, 1979.