

Invariant measures and dynamics for reducible generalized Bratteli diagrams

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In 2010, S. Bezuglyi, J. Kwiatkowski, K. Medynets and B. Solomyak found a complete description of the set of probability ergodic tail invariant measures on the path space of a standard stationary reducible Bratteli diagram. It was shown that every distinguished eigenvalue for the incidence matrix determines a probability ergodic invariant measure. We will show that this result does not hold for stationary reducible generalized Bratteli diagrams. We consider classes of stationary and non-stationary reducible generalized Bratteli diagrams with infinitely many simple standard subdiagrams, in particular, with infinitely many odometers, characterize the sets of all probability ergodic invariant measures for such diagrams and study orders under which the diagrams can support a Vershik homeomorphism.

In contrast to the case of standard Bratteli diagrams, there are examples of generalized Bratteli diagrams with a unique minimal and a unique maximal path such that the corresponding Vershik map cannot be prolonged to a homeomorphism. We show that in the class of ordered generalized Bratteli diagrams with a unique infinite minimal path and a unique infinite maximal path one can find examples of diagrams such that (i) both the Vershik map φ_B and its inverse φ_B^{-1} are not continuous; (ii) the Vershik map φ_B is continuous but the inverse φ_B^{-1} is discontinuous; (iii) both the Vershik map φ_B and its inverse φ_B^{-1} are continuous.

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