Bratteli diagrams and their generalizations

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Bratteli diagrams are a very powerful tool for the study of dynamical systems not only on a measure space but also on Cantor and Borel spaces. This is due to the fact that homeomorphisms of a Cantor space and Borel automorphisms of a standard Borel space can be represented as Vershik maps acting on the path spaces of corresponding Bratteli diagrams. Various properties of the transformations become more transparent when one deals with corresponding Bratteli-Vershik dynamical systems. We will discuss some natural methods for the study of the set of invariant measures in Cantor and Borel dynamics based on the structure of the underlying diagram. We consider different classes of the so-called generalized Bratteli diagrams, study the properties of the tail equivalence relation and give conditions for the existence of a finite ergodic invariant measure on a diagram. We also consider ordered Bratteli diagrams and the properties of the corresponding Vershik maps. The talk is based on a joint work in progress with Sergey Bezuglyi, Palle E.T. Jorgensen and Shrey Sanadhya.