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Algorithm for determining pure point spectrum on substitution tilings

There has been considerable interest in understanding the structures of substitution tilings which have pure point dynamical spectrum. There are a number of equivalent properties to the pure point dynamical spectrum in the setting of substitution tilings. One of the properties is "overlap coincidence" which was first introduced by Solomyak '97. In this talk, we give a computable algorithm to check the overlap coincidence and show a few interesting examples which are computed using this algorithm. This algorithm has been applied to the einstein tiling which was recently introduced by Socolar and Taylor. We present a result on dynamical spectrum of this tiling as well. This is a joint-work with Shigeki Akiyama.