Finitely generated structures are important subjects of study in various mathematical disciplines. Examples include finitely generated groups, Lie algebras and C*-algebras, etc. It is thus a fundamental question whether there exists a universal mechanism in the study of these vastly different entities. In 2009, the notion of projective spectrum for several elements \((A_1, \ldots, A_n)\) in a unital Banach algebra \(B\) was defined through the multiparameter pencil \(A(z) = z_1A_1 + \ldots + z_nA_n; z \in \mathbb{C}^n\). This conspicuously simple definition turned out to have a surprisingly rich content. The first talk briefly reviews some recent results on projective spectrum and the second talk focuses on its connection with self-similar group representations and the notion of Julia set in complex dynamics. Some details of the proof will be given, and an application of the result to the group of intermediate growth will be mentioned as well.