Irreducible inclusions of simple C*-algebras

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The literature contains a number interesting examples of inclusions of simple C*-algebras, typically arising from dynamical systems, with the property that all intermediate C*-algebras are also simple. One can argue that this property of an inclusion of C*-algebras is the natural C*-analog of an irreducible inclusion of von Neumann algebras (i.e., one with trivial relative commutant). I will present an intrinsic description of when an inclusion of C*-algebras is C*-irreducible, and relate this to the parallel situation of von Neumann algebras. I will further show how C*-irreducible inclusions can arise from groups, dynamical systems, inductive limits (and AF-algebras), and tensor products.