1054-46-105　　　　　**George A. Elliott*** (`elliott@math.toronto.edu`), Department of Mathematics, University of Toronto, Toronto, Ontario M6P 4B1. *Villadsen algebras.*

A brief survey of what is known concerning simple C*-algebra inductive limits of matrix algebras over compact metric spaces of unbounded dimension is given. The first such examples, which could not be obtained using bounded dimension, were given by Jesper Villadsen in his Ph.D. thesis. The question of extending the known classification result in the case of bounded dimension (due to Gong, Li, and the speaker) to the case of unbounded dimension is considered. It has been shown by Andrew Toms that the Cuntz semigroup is needed (in addition to the more usual invariants) to distinguish algebras in this class. It is not clear what other invariants will be needed. (Received September 09, 2009)