Let $R$ be a complete local Cohen-Macaulay ring of finite Cohen-Macaulay type. By a theorem of Auslander and Reiten, the Grothendieck group of the category of maximal Cohen-Macaulay $R$-modules depends only on its Auslander-Reiten sequences. In this talk I will discuss an ongoing project to understand the relationship between the higher $K$-theory and Auslander-Reiten theory of such a category. (Received September 24, 2012)