Meeting: 1003, Atlanta, Georgia, SS 20A, AMS Special Session on Commutative Algebra, I

1003-13-467 **Nicholas R. Baeth*** (nbaeth@math.unl.edu), Department of Mathematics, 203 Avery Hall, University of Nebraska-Lincoln, Lincoln, NE 68588-0130. *One-dimensional equicharacteristic local rings of finite Cohen-Macaulay type.*

Let $(R, \mathfrak{m}, k)$ be a one-dimensional Cohen-Macaulay (CM) local ring containing a field. We assume that the residue field k is perfect and not of characteristic $2, 3$ or 5. Suppose that R has finite CM type, that is, there are only finitely many non-isomorphic maximal CM modules. The monoid $\mathfrak{C}(R)$ of maximal CM modules is then isomorphic to a submonoid of some $\mathbb{N}^t$ defined by a finite family of homogeneous linear equations with integer coefficients. We determine exactly the defining equations for the monoid $\mathfrak{C}(R)$. From these defining equations we are able to determine exactly when $\mathfrak{C}(R)$ is free, that is, direct-sum decompositions of maximal CM R-modules have the Krull-Schmidt uniqueness property. Further, we determine which rings have the weaker property that any two representations of a maximal Cohen-Macaulay module as a direct sum of indecomposables have the same number of indecomposable summands. Finally, we compare the monoid $\mathfrak{C}(R)$ with the monoid $M(R)$ of all finitely generated R-modules. (Received September 15, 2004)