Geoffrey Dietz introduced a set of axioms for a closure operation on a complete local domain $R$ such that the existence of a closure operation satisfying these axioms is equivalent to the existence of a big Cohen-Macaulay module. These are called Dietz closures. In characteristic $p > 0$, solid closure, tight closure, and plus closure all satisfy the axioms. I will give an additional axiom for a closure operation such that the existence of a Dietz closure satisfying this axiom is equivalent to the existence of a big Cohen-Macaulay algebra.

I will also discuss module closures, including those coming from modules of syzygies and from canonical modules. As an application, I will show that under mild conditions, a ring $R$ is regular if and only if all Dietz closures on $R$ are trivial. The proof of this statement leads to results relating Dietz closures to familiar closures such as integral closure and regular closure. (Received September 21, 2015)