998-13-127 **Bruce M Olberding** (olberdin@emmy.nmsu.edu), Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003-8001, and **Jay Shapiro*** (jshapiro@gmu.edu), Department of Mathematics, George Mason University, Farifax, VA 22030. *Prime ideals in ultraproducts of commutative rings.*

An ultraproduct of the rings $\{R_i : i \in I\}$ is a homomorphic image of the Cartesian product of the rings R_i given by identifying two elements of the product which agree on a fixed ultrafilter on I. In general, even if the rings R_i are Noetherian, the ultraproduct is a large and complicated object. It is almost never Noetherian and nonzero ideals have infinite height.

We examine the maximal ideals in an ultraproduct of Noetherian rings and are able to give a more complete description of these ideals when there is a uniform bound on the Krull dimension of each R_i. We also introduce an "ultra-height" function for ideals in ultraproducts and describe the prime ideals of ultra-height one in an ultraproduct of Krull domains. (Received February 20, 2004)