1056-13-179 **R. Karpman*** (rkarpman@scrippscollege.edu), Scripps College, Box 591, Claremont, CA 91711, and **N. Arnosti**, **C. Leverson**, **J. Levinson** and **S. Loepp**. *Excellent Local Rings with Semi-Local Formal Fibers.*

We begin by defining a metric on a polynomial ring. With respect to this metric, not all Cauchy sequences converge. When we complete the polynomial ring, we obtain a power series ring. The idea of completing a polynomial ring generalizes to any local ring. In this talk, we will present an original result relating the minimal prime ideals of a local ring to the prime ideals of its completion. In particular, we consider a complete local (Noetherian) ring T containing the rationals, and a finite set $\mathcal{C}$ of prime ideals of T. Let $\mathcal{C}_1, \ldots, \mathcal{C}_m$ partition $\mathcal{C}$ into m subsets. We find necessary and sufficient conditions for T to be the completion of an excellent reduced local ring A with precisely m minimal prime ideals $Q_1, \ldots, Q_m$, such that

$$\{P \in \operatorname{Spec}(T) \mid P \cap A = Q_i\} = \{P \in \operatorname{Spec}(T) \mid P \subseteq P' \text{ for some } P' \in \mathcal{C}_i\}$$

This talk will be accessible to those who have taken at least one semester of abstract algebra. (Received August 12, 2009)