1086-11-781 **Christopher Davis*** (davis@math.uci.edu), Dept. of Mathematics, UC Irvine, Irvine, CA 92697. *Base rings for global* (φ, Γ)*-modules.*

This talk is about adapting to number fields a theory which has been used to study cohomology theories of varieties over p-adic fields. We first recall the existing theory. Let X be a variety over the field of p-adic numbers, $\mathbb{Q}_p$. Under suitable assumptions, the associated étale cohomology groups with p-adic coefficients live in the category of $\mathbb{Z}_p$-modules equipped with a continuous action of the absolute Galois group $G_{\mathbb{Q}_p}$. The theory of (φ, Γ)-modules concerns certain equivalent categories, in which the objects are again modules equipped with certain actions. In the new category the actions come from simpler objects than $G_{\mathbb{Q}_p}$, but the base rings for the modules are much more complicated than $\mathbb{Z}_p$. In this talk we will construct a global analogue of these base rings, which makes use of big Witt vectors, overconvergence conditions, and inverse limits under the Witt vector Frobenius maps. We will indicate why this is a reasonable analogue. This is joint work with Kiran Kedlaya, who will be giving a follow-up talk. (Received September 12, 2012)