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**Xiang Fang\*** (xfang@math.ksu.edu), mathematics department, Kansas State University, manhattan, KS 66502. *A canonical isomorphism from a Hilbert module to its sheaf model.*

There exists a canonical morphism from a Hilbert module to its sheaf model, which is, in general, neither surjective nor injective. We show that, after taking the so-called *I-adic completion*, the morphism becomes indeed an isomorphism.

*Applications:* (1) a solution of the semi-continuity problem of the Samuel multiplicity on Hilbert modules; (2) a generalization of the codimension- $N$  property on the Hardy space  $H^2(\mathbb{D})$ —that is, the codimension of an *arbitrary* invariant subspace  $\mathcal{M}$  of  $H^2(\mathbb{D}) \otimes \mathbb{C}^N$  is at most  $N$ ,  $\dim(\mathcal{M} \ominus z\mathcal{M}) \leq N$ —to the symmetric Fock space.

Sheaf models and I-adic completion will be illustrated by examples. (Received August 07, 2006)