1019-47-26 **Joseph A. Ball*** (ball@math.vt.edu), Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123, and **Vladimir Bolotnikov** and **Quanlei Fang**. *Transfer-function realization and de Branges-Rovnyak functional models: multivariable settings.*

We introduce and study a Fock-space noncommutative analogue of reproducing kernel Hilbert spaces of de Branges-Rovnyak type. Results include: use of the de Branges-Rovnyak space $\mathcal{H}(K_S)$ as the state space for the unique (up to unitary equivalence) observable, coisometric transfer-function realization of the Schur-class multiplier S, realization-theoretic characterization of inner Schur-class multipliers, and a calculus for obtaining a realization for an inner multiplier with prescribed left zero-structure. Actually all these results have "left" and "right" versions. In contrast, for the parallel theory for the Arveson space on the unit ball $\mathbb{B}^d \subset \mathbb{C}^d$ (which can be viewed as the symmetrized version of the Fock space), there is no distinction between "left" and "right", but observable, coisometric realizations for a contractive multiplier have only partial uniqueness properties. This nonuniqueness can be described explicitly in a particularly concrete form in the de Branges-Rovnyak functional-model context. (Received July 18, 2006)