1099-47-169   **Joseph A. Ball** and **Dmitry S. Kaliuzhnyi-Verbovetskyi*** (`dmitryk@math.drexel.edu`), Department of Mathematics, Drexel University, 3141 Chestnut St., Philadelphia, PA 19104, and **Cora Sadosky** and **Victor Vinnikov**. *Scattering systems with several evolutions and formal reproducing kernel Hilbert spaces.* Preliminary report.

A Schur-class function in d variables is defined to be an analytic contractive-operator valued function on the unit polydisk. Such a function is said to be in the Schur–Agler class if it is contractive when evaluated on any commutative d-tuple of strict contractions on a Hilbert space. It is known that the Schur–Agler class is a strictly proper subclass of the Schur class if the number of variables d is more than two. The Schur–Agler class is also characterized as those functions arising as the transfer function of a certain type (Givone–Roesser) of conservative multidimensional linear system. Previous work of the authors identified the Schur–Agler class as those Schur-class functions which arise as the scattering matrix for a certain type of (not necessarily minimal) Lax–Phillips multievolution scattering system having some additional geometric structure. The present paper links this additional geometric scattering structure directly with a known reproducing-kernel characterization of the Schur–Agler class. We use extensively the technique of formal reproducing kernel Hilbert spaces. (Received February 06, 2014)