Stieltjes and inverse Stieltjes families of linear relations in Hilbert spaces and their representations

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Some analytic and geometric properties of Stieltjes and inverse Stieltjes families defined on a separable Hilbert space will be studied, including various minimal representations obtained by means of compressed resolvents of various types of linear relations. Also attention is paid to some peculiar properties of Stieltjes and inverse Stieltjes families. For instance, an analog for the notion of inner functions is introduced and characterized in an explicit manner. Also some transformers that naturally appear in the Stieltjes and inverse Stieltjes classes are studied and fixed points of these transformers are identified. These notions and results are closely connected to somewhat similar properties of a specific subclass of Schur functions.

The talk is based on some joint work with Yury Arlinskii.