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Pando G Georgiev* (pandogeorgiev@gmail.com), Orlando, FL 32816. *Reproducing Kernel Spaces with Multivalued Kernels*. Preliminary report.

We extend the theory of Reproducing Kernel Spaces (RKS) in two directions: the first one is when the resulting RKS is a non-Hilbert space; the second is when the kernel function depends on several variables. Some applications are given: in tensor networks - an emerging tool for dealing with big data, and in non-linear signal separation, showing that we can reveal the underlying latent variables by observing sufficiently large number of sensor signals obtained by transforming the latent variables by a non-linear mapping. (Received August 02, 2017)