1125-42-1477 **Willi Freeden*** (freeden@rhrk.uni-kl.de), University of Kaiserslautern, Geomathematics Group, MPI-Building, Paul-Ehrlich-Strasse 26, 67663 Kaiserslautern, Palatinate, Germany, and **M Zuhair Nashed** (m.nashed@ucf.edu), Department of Mathematics, University of Central Florida, Orlando, FL 32816-1. *Shannon-Type Sampling, Paley-Wiener Reproducing Hilbert Space Structure, and Multi-Variate Antenna Problem.*

The famous Shannon sampling theorem gives an answer to the question of how a one-dimensional time-dependent bandlimited signal can be reconstructed from discrete values in lattice points. In this talk, we are concerned with multi-variate space-dependent Shannon-type sampling theorems . An answer is given to the problem of how a signal bandlimited to a regular region allows a reconstruction from discrete values in the lattice points of a (general) multi-dimensional lattice. Explicit characterizations of over- and undersampling are studied, thereby specifying not only the occurrence, but also the type of aliasing in a thorough mathematical description. As a consequence, multi-variate Shannon-type lattice sampling becomes available in a standard and Gaussian summability context.Some aspects of constructive approximation in a resulting Paley–Wiener framework are indicated, such as the recovery of a finite set of lost samples, the Paley-Wiener reproducing Hilbert space context of spline interpolation. Finally, a solution of the inverse multivariate antenna problem is investigated within the Paley-Wiener framework. (Received September 17, 2016)