PALEY-WIENER SPACES OF DISCRETE ENTIRE FUNCTIONS ON $\mathbb{Z}^2$

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In this talk I will present a Paley–Wiener type theorem for the class of discrete entire functions on $\mathbb{Z}^2$. Similarly to the continuous case, I will show how a suitable exponential growth condition of a discrete entire function F is interlinked with the support of the Fourier transform of the restriction of F to $\mathbb{Z} \times \{0\}$.

I will then define some reproducing kernel Hilbert spaces PW_α. For such spaces I will provide a sampling result. Namely, I will provide sufficient conditions to reconstruct the function on $\mathbb{Z}^2$ starting only from the sampling of the function on a proper subsets of $\mathbb{Z}$.

This is a joint work with Alessandro Monguzzi.