Nikolaos Dimitrios Atreas* (natreas@csd.auth.gr), Thessaloniki, Greece. Non-uniform sampling expansions and local reconstruction on subspaces of $L_2(\mathbb{R})$.

Given a regular function whose Fourier transform has no real zeros and a set of measurements $L_n(f)$ on a $\delta$-separated sampling set ($\delta > 0$), we determine a closed subspace of $L_2(\mathbb{R})$ whose elements are uniquely reconstructed by means of the set $L_n(f)$. We show that the corresponding non-uniform average sampling reconstruction formula for functions in this space exhibits local properties and we present a local reconstruction formula suitable for practical applications. (Received September 21, 2009)