1065-46-241 **Chris Lennard** and **Dan Radelet*** (dradelet@iup.edu), Mathematics Department, Indiana University of PA, Indiana, PA 15705. *Frames and n-Cesáro bases in Hilbert space.*

Let $(H, < \cdot, \cdot >)$ be a Hilbert space over $\mathbb{C}$ with orthonormal basis $(e_k)_{k\in\mathbb{N}}$; the reconstructive properties of the basis for elements of H are well known. Frames can be thought of as overcomplete bases with added flexibility, making frames desirable for certain applications such as signal processing. We examine classes of vector sequences that are Banach frames (but not Hilbert frames) for H of the form

$$(g_j)_{j\in\mathbb{N}} := \left(\sum_{k\in\mathbb{N}} a_k e_{j+k}\right)_{j\in\mathbb{N}}$$

with $(a_k) \in c_{00}$, which, when paired with a unique biorthogonal sequence in H, are Markuschevich bases for the Hilbert space. Although reconstruction of arbitrary $f \in H$ using only $(g_j)_{j\in\mathbb{N}}$ fails, an appropriate use of the Cesáro averaging operator will allow a frame type reconstruction of arbitrary vectors in H via the M-basis pair mentioned above. (Received September 14, 2010)