

1108-42-22

Richard G Lynch* (rgl282@mail.missouri.edu), 202 Mathematical Sciences Bldg, University of Missouri, Columbia, MO 65211. *Weaving Hilbert Space Frames*. Preliminary report.

A new area of research called *Weaving Frames* is introduced. Two frames $\{\varphi_i\}_{i \in I}$ and $\{\psi_i\}_{i \in I}$ for a Hilbert space \mathbb{H} are *weaved* if there are constants $0 < A \leq B$ so that for every subset $\sigma \subset I$, the family $\{\varphi_i\}_{i \in \sigma} \cup \{\psi_i\}_{i \in \sigma^c}$ is a frame for \mathbb{H} with frame bounds A, B . Fundamental properties of weaved frames are developed and key differences between weaving Riesz bases and weaving frames are considered. In particular, it is shown that you cannot weave a Riesz basis with a redundant frame. We also introduce an apparently weaker form of *weaving* but show that it is equivalent to weaving. Weaving frames have potential applications in wireless sensor networks that require distributed processing under different frames, as well as preprocessing of signals using Gabor frames. (Received November 12, 2014)