

1020-47-231

Victor Kaftal and **David Larson*** (larson@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843-3368, and **Shuang Zhang**. *Operator Valued Frames*.

A frame can be regarded as a sequence of vectors in a Hilbert space which dilates to a basis in a larger space. Parseval frames are those which dilate to orthonormal bases. There is an equivalent form in terms of decomposition of operators: A frame is a sequence of vectors x_i such that the sequence of rank-one operators A_i with ranges the spans of the x_i sum in the strong operator topology to a bounded invertible operator. The frame is Parseval iff the operators A_i sum to the identity operator: i.e. A_i is a resolution of the identity in terms of positive operators. Viewed in this way, frame theory extends naturally to an operator-valued version by dropping the requirement that the positive operators A_i have rank-one. This has been done in the context of Hilbert C^* -modules by Michael Frank and the second author in three papers. In the present research, we have built onto and extended this work, and we have developed in particular the homotopy theory of operator-valued group frames. (Received August 28, 2006)