## 1107-42-47Joseph D Lakey\* (jlakey@nmsu.edu) and Jeffrey A Hogan

(jeff.hogan@newcastle.edu.au). Prolate shift frames and bandpass prolate functions.

In the early 1960s, Landau, Slepian and Pollak established the fundamental role of zero order prolate spheroidal wavefunctions in the theory of time and frequency limiting. In particular, when ordered by time concentration, these prolates are the basic elements of the space of "approximately time and band limited signals." Prolate shift frames are frames for the Paley-Wiener space of square-integrable functions bandlimited to an interval that are generated by the shifts of a finite number of the most time-concentrated prolate functions. Some elementary properties of such frames were recently established by Hogan and Lakey. Here we will extend some of those frame properties to the case of what we call bandpass prolates, which are eigenfunctions of an operator that first time-limits to an interval then frequency-limits to a pair of intervals of equal length. (Received December 12, 2014)