The Electronic Journal of Linear Algebra ISSN 1081-3810
A publication of the International Linear Algebra Society
Volume 9, pp. 122-128, July 2002

ELA
http://math.technion.ac.il/iic/ela

ISOMETRIC TIGHT FRAMES*

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Abstract. A $d \times n$ matrix, $n \geq d$, whose columns have equal length and whose rows are orthonormal is constructed. This is equivalent to finding an isometric tight frame of n vectors in $\mathbb{R}^d$ (or $\mathbb{C}^d$), or writing the $d \times d$ identity matrix $I = \frac{d}{n} \sum_{i=1}^{n} P_i$, where the P_i are rank 1 orthogonal projections. The simple inductive procedure given shows that there are many such isometric tight frames.

Key words. Isometric tight frame, normalised tight frame, uniform tight frame.

AMS subject classifications. 42C15, 52B15, 42C40

*Received by the editors on 7 February 2002. Accepted for publication on 28 May 2002. Handling Editor: Bit-Shun Tam.

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