

1113-46-178

**Abdullah Bin Abu Baker\*** (abdullahmath@gmail.com), Department of Applied Sciences,  
Indian Institute of Information Technology, Allahabad, 211012, India. *Generalized 3-circular  
projections for unitary congruence invariant norms.*

A projection  $P_0$  on a complex Banach space is generalized 3-circular if its linear combination with two projections  $P_1, P_2$  having coefficients  $\lambda_1, \lambda_2$  respectively is a surjective isometry, where  $\lambda_1, \lambda_2$  are distinct unit modulus complex numbers different from 1, and  $P_0 \oplus P_1 \oplus P_2 = I$ . Such projections are always contractive. In this paper we prove structure theorems for generalized 3-circular projections acting on the spaces of all  $n \times n$  symmetric and skew-symmetric matrices over  $\mathbb{C}$ , when these spaces are equipped with unitary congruence invariant norms. (Received August 21, 2015)