

M. J. Crabb, J. Duncan, C. M. McGregor and T. J. Ransford, **Hermitian powers: A Müntz theorem and extremal algebras**, *Studia Math.* 146 (2001), 83–97.

**Abstract**

Given  $\mathbf{S} \subset \mathbf{N}$ , let  $\hat{\mathbf{S}}$  be the set of all positive integers  $m$  for which  $h^m$  is hermitian whenever  $h$  is an element of a complex unital Banach algebra  $A$  with  $h^n$  hermitian for each  $n \in \mathbf{S}$ . We attempt to characterize when (i)  $\hat{\mathbf{S}} = \mathbf{N}$ , or (ii)  $\hat{\mathbf{S}} = \mathbf{S}$ . A key tool is a Müntz type theorem which gives remarkable conclusions when  $1 \in \mathbf{S}$  and  $\sum\{1/n : n \in \mathbf{S}\}$  diverges. The set  $\hat{\mathbf{S}}$  is determined by a single *extremal* Banach algebra  $Ea(\mathbf{S})$ . We describe this extremal algebra for various  $\mathbf{S}$ .