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Title: A Universal Contraction Algebra:  
From von Neumann's Inequality to Connes'  
Embedding Problem

Abstract: We give a  $*$ -polynomial analogue to von Neumann's inequality as well as a couple of sharpenings.

In particular, given any contractive Hilbert space operator  $T$  and any  $*$ -polynomial  $q$ , the norm of  $q(T)$  is bounded by the norm of  $q(a)$  as  $a$  ranges over all contractive nilpotent matrices.

When we try to find a similar analogue for Ando's inequality, we arrive at a new formulation of Connes' Embedding Problem.