John DUNCAN, (jduncan@comp.uark.edu), Department of Mathematical Sciences, University of Arkansas, Fayetteville, AR 72701-1201, ***Extremal Problems for Hermitians: Progress and Roadblocks.***

ABSTRACT. An element h of a complex unital Banach algebra A is *hermitian* if $\|\exp(ith)\| = 1$ for all real t. The extremal behavior for algebras generated by one or two hermitians is well understood. We discuss recent progress on the implications of imposing algebraic and other conditions on the generators; in particular the surprising result that the extremal algebra on two hermitian generators u, v with $u^2 = v^2 = 1$ is C^*-equivalent to the C^*-algebra of the infinite dihedral group.

On the other hand, some older problems stubbornly resist progress. Given that h, k, hk are hermitian, does it follow that $hk = kh$? Even more primitively, what are the best bounds relating $\|h+ik\|$ and $\|h-ik\|$ when h, k are hermitian?