Richard M. Aron (Kent State University)

Homomorphisms on $\mathcal{H}^\infty(\mathbb{D})$ and beyond

Let $\mathbb{D} = \{z \in \mathbb{C} \mid |z| < 1\}$ be the complex unit disc. For $n = 1, 2, ...,$ let $\mathcal{H}^\infty(\mathbb{D}^n)$ denote the set of functions $f : \mathbb{D}^n \to \mathbb{C}$ such that f is holomorphic and bounded, endowed with the norm $f \in \mathcal{H}^\infty(\mathbb{D}^n) \rightsquigarrow \|f\| = \sup_{z\in\mathbb{D}^n} |f(z)|$. It isn't hard to see that $\mathcal{H}^\infty(\mathbb{D}^n)$ is a complete, commutative, unital algebra. The *maximal ideal space* $\mathcal{M}(\mathcal{H}^\infty(\mathbb{D}^n))$ of homomorphisms (= non-trivial, linear, multiplicative functionals $\varphi : \mathcal{H}^\infty(\mathbb{D}^n) \to \mathbb{C}$) is a much-studied, very relevant, very interesting set.

In this *expository!* talk, we hope to justify the previous sentence. We will briefly describe past and present work as well as some intriguing problems for future study.