



**Mark LAWRENCE** (lawrence@math.brown.edu),  
Department of Mathematics, Brown University, Providence, RI 02912, USA, *The CR Hartogs theorem and related topics.*

ABSTRACT. The classical Hartogs' theorem that separately holomorphic functions in  $\mathbf{C}^n$  are holomorphic is almost 100 years old. There is a natural analog of this question for identifying *CR* functions on the boundary of a domain in  $\mathbf{C}^n$ . This question has been examined by a few people, but not one positive result in this direction has been achieved until now. I will present a proof of the *CR* Hartogs theorem for a particular domain in  $\mathbf{C}^2$  for real analytic boundary functions. I will also discuss a related and new problem of 1 complex variable. All questions for less than real analytic regularity remain open; furthermore, these problems give rise to interesting function algebras and function spaces. The problems arising are difficult because they resist localization; moreover, it is not clear if there are any approximation theorems.