962-39-713 **Bruce R. Ebanks*** (ebanks@math.msstate.edu), Department of Mathematics & Statistics, 410 Allen Hall, Mississippi State University, Mississippi State, MS 39762. *On Non-homogeneous Cauchy Difference Equations of a Special Type.*

A problem posed at the 37th International Symposium on Functional Equations in May 1999 concerns equations of the form $Cf(x,y) = bf(R(x,y))$, for given rational functions R and for b equal to 1 or -1, where C is the Cauchy difference operator defined by $Cf(x,y) = f(x+y) - f(x) - f(y)$. Here the unknown f is a real-valued function on the positive reals. The problem is to determine which rational functions R admit nontrivial solutions of the equation. The author generalized the problem to $Cf(x,y) = g(R(x,y))$ for two unknown functions f and g. Sufficient conditions for the existence of nontrivial solutions have been found, and these conditions include most (if not all) known results on equations of this type for positive real x and y. (Received September 22, 2000)