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Abdou K. Drame and **David G Costa*** (costa@unlv.nevada.edu), 4505 Maryland Pkwy,
Department of Mathematical Sciences, Box 454020, Las Vegas, NV 89154-4020. *On existence of
positive solution for a class of 2x2 semipositone systems.*

We consider the question of existence of positive solution for a class of 2x2 semipositone systems. The study of semipositone problems (where the nonlinearity satisfies $f(0) < 0$) essentially started in the late 80's by Castro and Shivaji, who initially called them 'nonpositone', in contrast with the terminology 'positone' problems coined in the 60's by Cohen and Keller (when the nonlinearity $f(s)$ was positive and monotone).

Typically such problems arise in population models where there is 'harvesting'. Most cases considered in the literature involve one species. Here we present a general class of 2x2 semipositone systems of ODEs. An application is given involving two competing species in an environment assumed to be one-dimensional. The main ingredients in our approach are phase-plane analysis and fixed point theory. (Received March 11, 2008)