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**Nsoki Mavinga\*** (nmaving1@swarthmore.edu) and **Rosa Pardo**. *A priori bounds and existence of positive solutions for semilinear elliptic systems.*

We provide a-priori  $L^\infty$ -bounds for positive solutions of semilinear elliptic systems in bounded convex domains when the nonlinearities are below the power functions  $v^p$  and  $u^q$  for any  $(p, q)$  lying on the critical Sobolev hyperbola. The proof combines moving planes method and Rellich-Pohozaev type identities for systems. Using these a-priori bounds, and local and global bifurcation techniques, we prove the existence of positive solutions for a semilinear elliptic system depending on two parameters. (Received September 12, 2016)