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David Cruz-Uribe, Moen Kabe* (kabe.moen@ua.edu) and **Rodney Scott**. *Degenerate Sobolev spaces, elliptic equations, and matrix A_p weights.*

We will give a brief introduction into the theory of matrix weighted Sobolev spaces. As a result we derive local regularity for non linear elliptic equations when the defining matrix belongs to matrix A_p . (Received February 02, 2015)