

1129-35-185

Martin Barlow, **Lyudmila Korobenko** and **Cristian Rios*** (crios@ucalgary.ca),
Department of Mathematics and Statistics, 2500 University Dr. NW, Calgary, AB T2N 1N4,
Canada, and **Eric Sawyer** and **Ruipeng Shen**. *Hölder continuity of bounded weak solutions to
certain degenerate elliptic equations in the plane*. Preliminary report.

We consider a model infinitely degenerate elliptic equation in the plane of the form $\frac{\partial}{\partial x^2} + f(x)\frac{\partial}{\partial y^2}$. Here $f \geq 0$ is allowed to vanish to arbitrary infinite order. Under certain geometric conditions on the domain of existence, we establish Hölder continuity for bounded weak solutions. We rely on probabilistic techniques and an approximation scheme in associated degenerate Sobolev spaces. (Received March 14, 2017)