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*Continuity of solutions to infinite degenerate elliptic equations in the plane*

We obtain the continuity of weak solutions to infinite degenerate quasilinear equations

$$-\operatorname{div} \mathcal{A}(x, u) \nabla u = \phi_0 - \operatorname{div}_A \vec{\phi}_1$$

where one of the eigenvalues of the elliptic matrix  $\mathcal{A}$  is allowed to vanish to infinite order as  $x$  approaches the vertical axis. This is an application of an abstract result obtained in all dimensions  $n \geq 2$ . The Carnot-Carathéodory metric associated with the operator is highly non-doubling, so traditional methods have to be adapted to Orlicz-Sobolev embeddings with gains smaller than any power  $p > 1$ . In particular, our methods include the first realization of a Moser iteration technique in such infinite degenerate geometries. This work was done in collaboration with Lydmila Korobenko, Eric Sawyer, and Ruipeng Shen.