Liouville Theorem for Surfaces Translating by Powers of Gauss Curvature

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We discuss the classification of entire solutions to degenerate Monge-Amp\`ere equations $\det D^2u = (1+|Du|^2)^\beta$ on $\mathbb{R}^2$ for negative β, corresponding to translating solitons under sub-affine-critical Gauss curvature flows. While the celebrated result of J\"orgens, Calabi, and Pogorelov addresses the critical case $\det D^2u=1$, our work focuses on the sub-affine-critical regime, concerning the construction, uniqueness, and topology of these solutions' moduli space. This talk is based on joint works with K. Choi and S. Kim.