1114-35-351 **Nestor D Guillen***, 140 Long Plain Road, Leverett, MA , and **Jun Kitagawa**. *Regularity for surfaces in geometric optics and other Generated Jacobian Equations.*

The study of reflector surfaces in geometric optics necessitates the analysis of nonlinear equations of Monge-Ampère type. For many important examples (including the near field reflector problem), the equation no longer falls within the scope of optimal transport, but within the class of "Generated Jacobian equations", recently introduced by Trudinger.

Under natural assumptions, we prove Holder regularity for the gradient of weak solutions. Among the assumptions, there is one analogous to the A3-weak condition introduced by Ma, Trudinger and Wang in optimal transport. The results are new in particular for the near-field reflector problem. (Received September 01, 2015)