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Quasiminimizing properties of solutions to Riccati type equations

OLLI MARTIO

Abstract. Solutions u of the Riccati equation $-\nabla \cdot A(x, \nabla u) = b(x)|\nabla u|^q$ with $A(x, h) \cdot h \approx |h|^p$ and b a bounded function are studied in an open set $\Omega \subset \mathbf{R}^n$. It is shown that the solutions u are local quasiminimizers whenever $p - 1 \le q \le p$ for $p > n$ and $n - 1 \le q < n$ for $p = n$. This extends the results in the author's earlier paper [8] where the case $p < n$ was studied. Continuous solutions in the range $p/n + p - 1 \le q \le p$ are also local quasiminimizers. Examples show that the results are quite sharp.

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