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5. Differential Geometry and Global Analysis

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Okayasu, Takashi, Toyama University, Japan

A Bernstein result for minimal graphs of higher codimension

Suppose that $u : \mathbf{R}^n \to \mathbf{R}^p$ satisfies the system of minimal surface equation. Put $g = \det(\delta_{ij} + \sum_{k=1}^{p} \frac{\partial u^k}{\partial x^i} \frac{\partial u^k}{\partial x^j})$. When $p = 1$, Ecker and Huisken (1990) showed that if $|Du(x)| = o(\sqrt{|x|^2 + |u(x)|^2})$, then u is linear. In this talk we give an extension of their result to higher codimension. Our main theorem is as follows: *Suppose that u satisfies the system of minimal surface equation and its graph $graph(u)$ has flat normal connection.*
If $\sqrt{g(x)} = o\Big((|x|^2 + |u(x)|^2)^r\Big)$ for some $0 < r < 1/2$, then u is linear.