

Minimal surfaces, Minkowski spaces and pluriharmonic functions

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A classical question in the theory of minimal surfaces is whether entire graphical ones are affine planes. Despite the answer being "No" in high dimensions, the analogous answer is "Yes" for space-like graphs in Minkowski space. The analogous question for entire convex graphical Gauss flat surfaces has a negative answer in both settings. Nevertheless affinity holds under a second order conditions that will be described during the talk.

All this serves as a real motivation for the following basic question: given an entire maximal plurisubharmonic function which additional assumptions imply pluriharmonicity.