Abstract Form

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Title of talk:　Solving Chisini's functional equation　.........

Abstract:

We investigate the n-variable real functions G that are solutions of the Chisini functional equation $F(\mathbf{x}) = F(G(\mathbf{x}), \ldots, G(\mathbf{x}))$, where F is a given function of n real variables. We provide necessary and sufficient conditions on F for the existence and uniqueness of solutions. When F is nondecreasing in each variable, we show in a constructive way that if a solution exists then a nondecreasing and idempotent solution always exists. We also provide necessary and sufficient conditions on F for the existence of continuous solutions and we show how to construct such a solution. We finally discuss a few applications of these results.