

Discrete Mathematics & Combinatorics

k-regular maps

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A continuous map $f: \mathbf{C}^n \rightarrow \mathbf{C}^N$ is *k*-regular if the image of any *k* points spans a *k*-dimensional subspace. It is an important problem in topology and interpolation theory to determine the minimal value of *N* for which such maps exist. Methods in algebraic topology provide lower bounds for *N*, but are largely non-constructive. In fact, only a few nontrivial examples are known. Applying tools from algebraic geometry, we construct a 4-regular polynomial map $\mathbf{C}^3 \rightarrow \mathbf{C}^{11}$ and provide generalizations.