



# Chebyshev Blossom in Muntz Spaces: Toward Shaping with Young Diagrams

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The notion of blossom in extended Chebyshev spaces offers adequate generalizations and extra-utilities to the tools for free-form design schemes. Unfortunately, such advantages are often overshadowed by the complexity of the resulting algorithms. In this work, we show that for the case of Muntz spaces with integer exponents, the notion of Chebyshev blossom leads to elegant algorithms whose complexities are embedded in the combinatorics of Schur functions. We express the blossom and the pseudo-affinity property in Muntz spaces in term of Schur functions. We derive an explicit expression of the Chebyshev-Bernstein basis via an inductive argument on nested Muntz spaces. We also reveal a simple algorithm for the dimension elevation process. Free-form design schemes in Muntz spaces with Young diagrams as shape parameter will be discussed.

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