

FROM APPROXIMATING TO INTERPOLATORY SUBDIVISION SCHEMES

Costanza Conti, Luca Gemignani and Lucia Romani

University of Florence, Italy

University of Pisa, Italy

University of Milan-Bicocca, Italy

Abstract

In this paper we describe a general, computationally feasible strategy to deduce a family of interpolatory non-stationary subdivision schemes from a symmetric non-stationary, non-interpolatory one satisfying quite mild assumptions. It is shown that the interpolatory subdivision schemes are capable of generating the same functional space as the approximating one. Moreover, the interplay between structured matrices and polynomials provides an effective tool for designing efficient numeric and/or numeric-symbolic methods for their construction and analysis. Several examples of interpolatory subdivision schemes associated with classical approximating subdivision schemes are given in both the stationary and non-stationary situation.

References

- [1] C. Conti, L. Gemignani, L. Romani, From symmetric subdivision masks of Hurwitz type to interpolatory subdivision masks, *Linear Algebra Appl.*, 431, pp. 1971–1987, (2009).
- [2] C. Conti, L. Gemignani, L. Romani, From approximating to interpolatory non-stationary subdivision schemes with the same reproduction properties, Submitted, October (2009).