Treating the Gibbs phenomenon in barycentric rational interpolation via the S-Gibbs algorithm

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In [1] a new method of interpolation based on mapped polynomial bases has been presented. In the present work we extend it to the barycentric rational interpolation case, focusing on Floater-Hormann interpolants [2] and on approximants produced via the AAA algorithm [4]. The barycentric representation of the interpolants provides a better stability which allows to use a higher degree than with the polynomials [3].

In particular, we focus on the *S-Gibbs* algorithm described in [1] and we run numerical tests which show that its application to barycentric rational interpolation yields an accurate interpolation of discontinuous functions.

References

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