

On the stability of interpolation formulae

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SUMMARY

A pointwise condition number associated to a representation of an interpolation operator is introduced. We show that the Lagrange formula is optimal with respect to this conditioning. For other representations of the interpolation operator, an upper bound for the conditioning is derived. A quantitative measure in terms of the Skeel condition number is used to compare the conditioning with the Lagrange representation. The relevant case of the Newton polynomial interpolation formula for equidistant nodes is analyzed.

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