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TWO GENERALIZED INTEGRO QUADRATIC SPLINE METHODS

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Abstract. This paper presents a new kind of quadratic quasi-interpolation and interpolation operators reproducing constant polynomial, trigonometric and hyperbolic functions. The quasi-interpolant to a given function is defined from the integrals on every interval of the function to be approximated without solving any system of equations and without the need additional end conditions. The interpolant agrees with the given integral values of a univariate real-valued function over the same intervals, rather than the functional values at the knots. The general approximation error is studied too and the numerical examples are also illustrated that both methods are very effective and our generalized integro quadratic spline has a higher approximation ability than others.

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