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DISCRETE SOBOLEV AND POINCARÉ INEQUALITIES FOR PIECEWISE POLYNOMIAL FUNCTIONS*

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Abstract. Discrete Sobolev and Poincaré inequalities are derived for piecewise polynomial functions on two dimensional domains. These inequalities can be applied to classical nonconforming finite element methods and discontinuous Galerkin methods.

Key words. discrete Sobolev inequality, discrete Poincaré inequality, piecewise polynomial functions, nonconforming, discontinuous Galerkin.

AMS subject classifications. 65N30.

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