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Francesca Rapetti* (frapetti@unice.fr), Laboratoire Dieudonne, Universite de Nice, Parc Valrose, 06108 Nice, France. *A simple construction of high-order Whitney forms.*

Low-order Whitney elements are widely used for electromagnetic field problems. Higher-order approximations are receiving increasing interest, but their definition remains unduly complex. In this paper we propose a new simple construction for Whitney p-elements of polynomial degree higher than one that use only degrees of freedom associated to p-chains. We provide a basis for these elements on simplicial meshes and give a geometrical localization of all degrees of freedom. Properties of the higher-order Whitney complex are deeply investigated. (Received September 24, 2012)