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Sergiy Borodachov* (sborodachov@towson.edu), 7800 York Rd., Towson, MD 21252. *Optimal recovery of three times differentiable functions on a convex polytope inscribed in a sphere.*

We consider the problem of global recovery on the class $W^3(P)$ of three times differentiable functions which have uniformly bounded third order derivatives in any direction on a d -dimensional convex polytope P inscribed in a sphere and containing its circumcenter. The information $I(f)$ known about each function $f \in W^3(P)$ is given by its values and gradients at the vertices of P . The recovery error is measured in the uniform norm on P . We prove the optimality on the class $W^3(P)$ of a certain quasi-interpolating recovery method among all non-adaptive global recovery methods which use the information $I(f)$. This method was constructed earlier for the case of a d -dimensional simplex T in the work by the author and T.S. Sorokina in 2011, where its optimality was proved for an analogous class $W^2(T)$ of twice differentiable functions. (Received January 18, 2018)