© 2026 Heldermann Verlag
Journal for Geometry and Graphics 30 (2026) 229–236

S. Korotov
Department of Business and Mathematics, Mälardalen University, Västeras, Sweden
sergey.korotov@mdu.se

M. Křìžek
Institute of Mathematics, Czech Academy of Sciences, Prague, Czech Republic
krizek@math.cas.cz

On the Inscribed Balls of Bisected d-Simplices

We bisect a d-dimensional simplex S into two d-subsimplices S_1 and S_2, and prove that $r < r_1 + r_2$, where r, r_1, r_2 are inradii of S, S_1, S_2, respectively. If a given edge is bisected by its midpoint then even two-sided bounds $r_1 < r < 2r_1$ and $r_2 < r < 2r_2$ hold. All these inequalities can be used in the face-to-face longest-edge bisection algorithm for refinement of simplicial partitions of bounded polytopic domains for controlling the shape and size of subsimplices produced.

Keywords: d-simplex, inscribed ball, inradius, bisection.

MSC: 52A20; 52B11, 65N30.