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Sachi Hashimoto* (sachi@uchicago.edu). *Sharper Lower Bounds in the Maximum Degree and Diameter Bounded Subgraph Problem in the Mesh.*

The Maximum Degree and Diameter Bounded Subgraph Problem (MaxDDBS) asks: given a host graph G , a bound on maximum degree Δ , and a diameter D , what is the largest subgraph of the host graph with degree bounded by Δ and diameter bounded by D ? We investigate the problem when the host graph is k -dimensional mesh. We provide lower bounds for the size of the largest subgraph of the mesh satisfying MaxDDBS for all k and $\Delta \geq 4$ that agree with the known upper bounds up to the first two terms, and show that for $\Delta = 3$, the lower bounds are at least the same order of growth as the upper bounds. (Received September 18, 2012)