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Gaku Liu* (gakuliu@math.mit.edu). *A counterexample to the extension space conjecture for realizable oriented matroids.*

The extension space conjecture of oriented matroid theory states that the space of all one-element, non-loop, non-coloop extensions of a realizable oriented matroid of rank d has the homotopy type of a sphere of dimension $d-1$. We disprove this conjecture by showing the existence of a realizable uniform oriented matroid of high rank and corank 3 with disconnected extension space. The proof is non-explicit and uses probabilistic methods. (Received July 16, 2016)