

Inverse Design of a Three-Dimensional Nanophotonic Resonator

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- [Final manuscript](#)

The inverse design of a three-dimensional nanophotonic resonator is presented. The design methodology is computationally fast (10 minutes on a standard desktop workstation) and utilizes a 2.5-dimensional approximation of the full three-dimensional structure. As an example, we employ the proposed method to design a resonator which exhibits a mode volume of $0.32(\lambda/n)^3$ and a quality factor of 7063.