

541. Title:Multiport photonic crystal circulators created by cascading magneto-optical cavities

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Abstract:Compact multiport circulators are important in eliminating the feedback of unwanted light in all-optical integrated circuits. A compact and highly symmetric three-port circulator with a magneto-optical cavity in a two-dimensional photonic crystal is designed and demonstrated by finite-element method first. Then, compact multiport circulators with port numbers greater than three built by cascading the three-port circulators are shown. Furthermore, an ultracompact six-port circulator is investigated in detail as an example. The results show that the cascaded system is beneficial to improving transmission to the output port and isolation among the other ports. This type of structure provides a guideline for designing high-efficiency and compact multiport magnetophotonic crystal circulators.