



Fig. 6. Numerical simulation of (a) the MZI-1 structure with a peanut-like section and an abrupt taper; (b) the MZI-2 structure with two collapsed regions rather than a peanut-like section and an abrupt taper.

3. Conclusion

In summary, we have experimentally demonstrated a compact and highly sensitive MZI for curvature sensing, the length of which is less than 3 mm. And it only requires simple fabrication including splicing. The unique MZI based a PCF exhibits a high curvature sensitivity of 50.5 nm/m^{-1} and a temperature sensitivity of $11.7 \text{ pm}/^\circ\text{C}$. The low temperature cross-sensitivity can find lots of application in the field of curvature sensing.

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