ADVANCED OPTICAL MATERIALS

Supporting Information

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On-Chip Metasurface-on-Facets for Ultra-High Transmission through Waveguides in Near-Infrared

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The discrepancy in transmission is because the array is not infinite, and especially in the y direction, where we only have 3 rows. In addition, the analytical calculation was calculated for a plane wave, while in the numerical simulation we have many modes which propagate at different angles. The reflection of the structure for the case of deviated from normal incident is higher, and therefore, the transmission decreased by approximately 6%. However, the broadband behaviour remains. This behaviour was also shown in ref. [1]. It shows that the structure can improve the waveguide transmission via 2 facets, by up to 46% for multimode propagation, as shown in Figure S2b.

Supporting Information
Supporting Information is available from the Wiley Online Library or from the author.

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Conflict of Interest
The authors declare no conflict of interest.

References

[1] A. Karabchevsky, E. Falek, Y. Greenberg, M. Elman, Y. Keren, I. Gurwich, *Nanoscale Advances* **2020**, *2*, 7 2977.

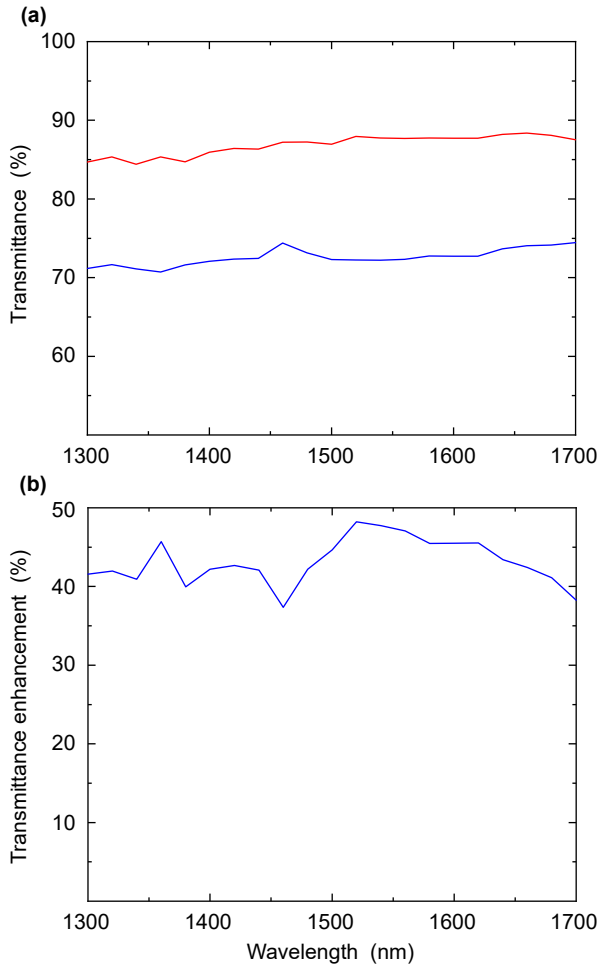

Figure S1: (a) The transmission through a single facet of a rib waveguide with (red curve) and without (blue curve) AR structures. (b) The transmission enhancement on a rib waveguide with AR structure on the two facets.

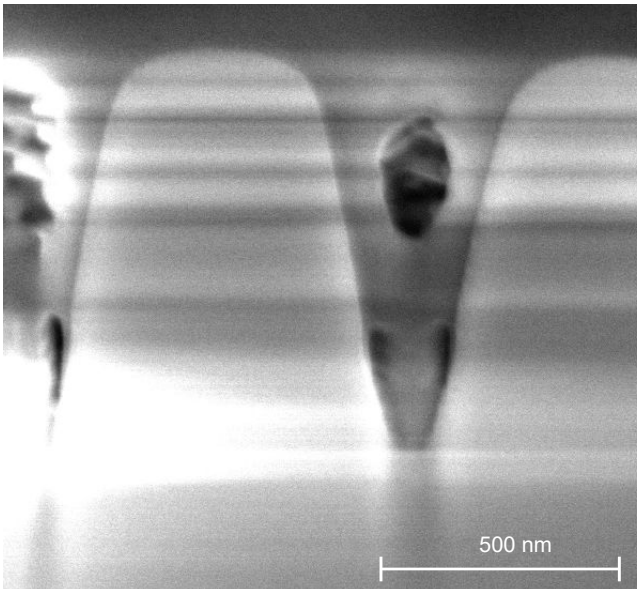

Figure S2: High-resolution scanning electron micrographs (SEM) image around a single inclusion.