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Lasing Reporting Summary

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Experimental design

Please check: are the following details reported in the manuscript?

1. Threshold

Plots of device output power versus pump power over a wide range of values indicating a clear threshold	☒ Yes ☐ No	Figure 9a

2. Linewidth narrowing

Plots of spectral power density for the emission at pump powers below, around, and above the lasing threshold, indicating a clear linewidth narrowing at threshold	☒ Yes ☐ No	Figure 12
Resolution of the spectrometer used to make spectral measurements	☐ Yes ☒ No	RF spectrum analyzer RBW is 100 KHz and OSA RBW is 10 pm.

3. Coherent emission

Measurements of the coherence and/or polarization of the emission	☒ Yes ☐ No	Pages 6 and 7

4. Beam spatial profile

Image and/or measurement of the spatial shape and profile of the emission, showing a well-defined beam above threshold	☐ Yes ☒ No	Not necessary for fabrication and testing the laser.

5. Operating conditions

Description of the laser and pumping conditions *Continuous-wave, pulsed, temperature of operation*	☒ Yes ☐ No	Figures 8 and 10, page 5 last paragraph
Threshold values provided as density values (e.g. W cm^{-2} or J cm^{-2}) taking into account the area of the device	☐ Yes ☒ No	The fiber core diameter, numerical aperture and power threshold in watt are given in the text, so one can calculate the beam diameter and threshold density.

6. Alternative explanations

Reasoning as to why alternative explanations have been ruled out as responsible for the emission characteristics *e.g. amplified spontaneous, directional scattering; modification of fluorescence spectrum by the cavity*	☒ Yes ☐ No	L-I curve figure 9a

7. Theoretical analysis

Theoretical analysis that ensures that the experimental values measured are realistic and reasonable *e.g. laser threshold, linewidth, cavity gain-loss, efficiency*	☒ Yes ☐ No	Different measurements are compared with equations 1-4.

8. Statistics

Number of devices fabricated and tested	☒ Yes ☐ No	page 4
Statistical analysis of the device performance and lifetime (time to failure)	☐ Yes ☒ No	There was no statistical analysis on this device.