

Lasing Reporting Summary

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ü 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 not relevant No

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 not relevant No

Resolution of the spectrometer used to make spectral measurements Yes not relevant No

3. Coherent emission

Measurements of the coherence and/or polarization of the emission Yes not relevant No

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 not relevant No

5. Operating conditions

Description of the laser and pumping conditions Yes not relevant No
Continuous-wave, pulsed, temperature of operation

Threshold values provided as density values (e.g. W cm⁻² or J cm⁻²) taking into account the area of the device Yes not relevant No

6. Alternative explanations

Reasoning as to why alternative explanations have been ruled out as responsible for the emission characteristics Yes not relevant No
e.g. amplified spontaneous, directional scattering; modification of fluorescence spectrum by the cavity

7. Theoretical analysis

Theoretical analysis that ensures that the experimental values measured are realistic and reasonable Yes not relevant No
e.g. laser threshold, linewidth, cavity gain-loss, efficiency

8. Statistics

Number of devices fabricated and tested Yes not relevant No

Statistical analysis of the device performance and lifetime (time to failure) Yes not relevant No

