

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

The work in the manuscript does not need such a threshold.

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

The work in the manuscript does not need to plot spectral power density

Resolution of the spectrometer used to make spectral measurements

☒ Yes
☐ No

Please see "Measurement system" in the manuscript

3. Coherent emission

Measurements of the coherence and/or polarization of the emission

☐ Yes
☒ No

The work in the manuscript does not need to measure the coherence and polarization of the emission

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

Single-mode fiber lasers only support Gaussian profile of the emission in spatial domain.

5. Operating conditions

Description of the laser and pumping conditions
Continuous-wave, pulsed, temperature of operation

☒ Yes
☐ No

Please see "Experiment setup and results" in the manuscript

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 work in the manuscript does not need such threshold values.

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

The laser operates at mode-locked state by a saturable absorber, emitting ultrashort pulse

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

Please see "Experiment setup and results" in the manuscript.

8. Statistics

Number of devices fabricated and tested

☒ Yes
☐ No

Please see "Measurement system" in the manuscript

Statistical analysis of the device performance and lifetime (time to failure)

☐ Yes
☒ No

The work in the manuscript does not need the statistical analysis of the device performance and lifetime.

