

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT:	Smith	CONF. NO.:	8145
APPLICATION NO.:	14/448,258	GROUP NO.:	2881
FILING DATE:	July 31, 2014	EXAMINER:	McCormack, Jason L.
TITLE:	Laser-driven Light Source		

**RESPONSE TO OFFICE ACTION**

Madam:

Applicant submits this paper in response to a non-final Office Action mailed December 15, 2014. Applicant respectfully requests entry of the following amendments, reconsideration and withdrawal of all grounds of objection and rejection, and passage of the case to allowance. Applicant submits with this paper a fee and Petition for Extension of Time, extending the due date for response to Tuesday, June 15, 2015. Applicant also submits herewith a terminal disclaimer and fee, and fees for the new dependent claims. If any additional fees are due, the Commissioner is hereby authorized to charge them to Attorney's Deposit Account No. 50-3081.

**Amendments to the Claims** begin on page 2 of this paper.

Applicant's **Remarks** begin on page 6 of this paper.

### AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous versions and listings of claims in the application.

1. (currently amended) A plasma-based light source, comprising:

a pressurized chamber configured to contain an ionized gas at a pressure greater than 10 atmospheres during operation;

a substantially continuous laser for providing a beam of laser energy within a wavelength range of up to about 2000 nm to the ionized gas within the chamber to maintain a plasma, the beam configured to maintain the plasma in an elongated form having a plasma length that is greater than that of a plasma diameter; and

a tool optically coupled to the chamber for collecting light generated by the plasma, the generated light having wavelengths of at least than 50 nm.

2. (original) The light source of claim 1, wherein the plasma a length is at least 10 times that of the plasma diameter.
3. (original) The light source of claim 1, wherein the plasma length is at least 20 times that of the plasma diameter.
4. (original) The light source of claim 1, wherein the plasma length is at least 40 times that of the plasma diameter.
5. (original) The light source of claim 1, wherein the light generated by the plasma is collected along an axis defined by the laser beam.
6. (original) The light source of claim 1, wherein the laser comprises a continuous wave (CW) laser.

7. (original) The light source of claim 1, wherein the gas is ignited to generate the ionized gas without an ignition electrode and laser energy from a laser source is used to ionize or excite the gas.

8. (currently amended) A plasma-based light source, comprising:

a pressurized chamber configured to contain an ionized gas at a pressure greater than 10 atmospheres during operation;

a substantially continuous laser for generating a beam of laser energy within a wavelength range of up to about 2000 nm;

an optical system coupled to the laser configured to maintain a plasma in an elongated form having a plasma length that is greater than that of a plasma diameter; and

a tool optically coupled to the chamber for collecting light generated by the plasma, the generated light having wavelengths of at least 50 nm.

9. (original) The light source of claim 8, wherein the optical system is configured to sustain the plasma such that the plasma length is at least 10 times that of the plasma diameter.

10. (original) The light source of claim 8, wherein the optical system is configured to sustain the plasma such that the plasma length is at least 20 times that of the plasma diameter.

11. (original) The light source of claim 8, wherein the optical system is configured to sustain the plasma such that the plasma length is at least 40 times that of the plasma diameter.

12. (original) The light source of claim 8, wherein the light generated by the plasma is collected along an axis defined by the laser beam.

13. (original) The light source of claim 8, wherein the laser source comprises a continuous wave (CW) laser.

14. (original) The light source of claim 8, wherein the gas is ignited to generate the ionized gas without an ignition electrode and laser energy from a laser source is used to ionize or excite the gas.

15. (currently amended) A method for producing light, comprising:

ionizing a gas within a pressurized chamber having a pressure greater than 10 atmospheres during operation; and

providing a beam of substantially continuous laser energy within a wavelength range of up to about 2000 nm to the ionized gas within the chamber to maintain a plasma within the chamber,

wherein the laser beam is configured to maintain the plasma in an elongated form having a plasma length that is greater than that of a plasma diameter, the produced light having wavelengths of at least than 50 nm.

16. (original) The method of claim 15, wherein the plasma length is at least 10 times that of the plasma diameter.

17. (original) The method of claim 15, wherein the plasma length is at least 20 times that of the plasma diameter.

18. (original) The method of claim 15, wherein the plasma length is at least 40 times that of the plasma diameter.

19. (original) The method of claim 15, wherein the light generated by the plasma is collected along an axis defined by the laser beam.

20. (original) The method of claim 15, wherein the laser comprises a continuous wave (CW) laser.

21. (original) The method of claim 15, further comprising an optical system configured to maintain the plasma in the elongated form.
22. (new) The plasma-based light source of claim 1 wherein the pressure is greater than 30 atmospheres during operation.
23. (new) The plasma-based light source of claim 8 wherein the pressure is greater than 30 atmospheres during operation.
24. (new) The method of claim 15 wherein the pressure is greater than 30 atmospheres during operation.
25. (new) The method of claim 15 wherein the plasma length is not more than about 2 mm.

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