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(54) **PHOTON SOURCE, METROLOGY APPARATUS, LITHOGRAPHIC SYSTEM AND DEVICE MANUFACTURING METHOD**

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(57) **ABSTRACT**

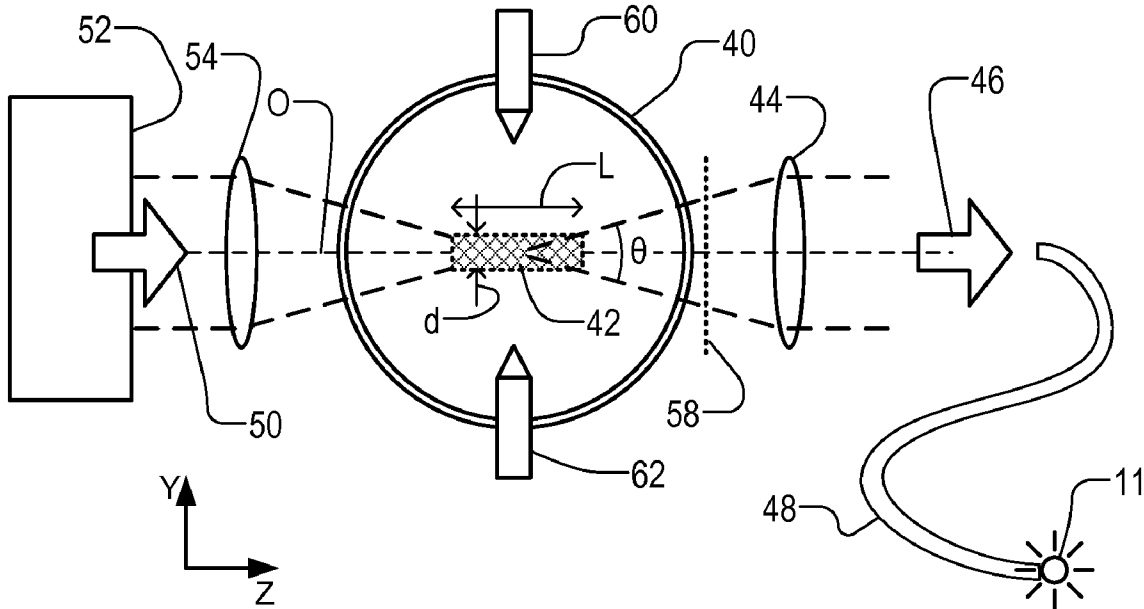
A laser driven light source comprises laser and focusing optics. These produce a beam of radiation focused on a plasma forming zone within a container containing a gas (e.g., Xe). Collection optics collects photons emitted by a plasma maintained by the laser radiation to form a beam of output radiation. Plasma has an elongate form ($L > d$) and collecting optics is configured to collect photons emerging in the longitudinal direction from the plasma. The brightness of the plasma is increased compared with sources which collect radiation emerging transversely from the plasma. A metrology apparatus using the light source can achieve greater accuracy and/or throughput as a result of the increased brightness. Back reflectors may be provided. Microwave radiation may be used instead of laser radiation to form the plasma.

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Related U.S. Application Data

(60) Provisional application No. 61/658,654, filed on Jun. 12, 2012.



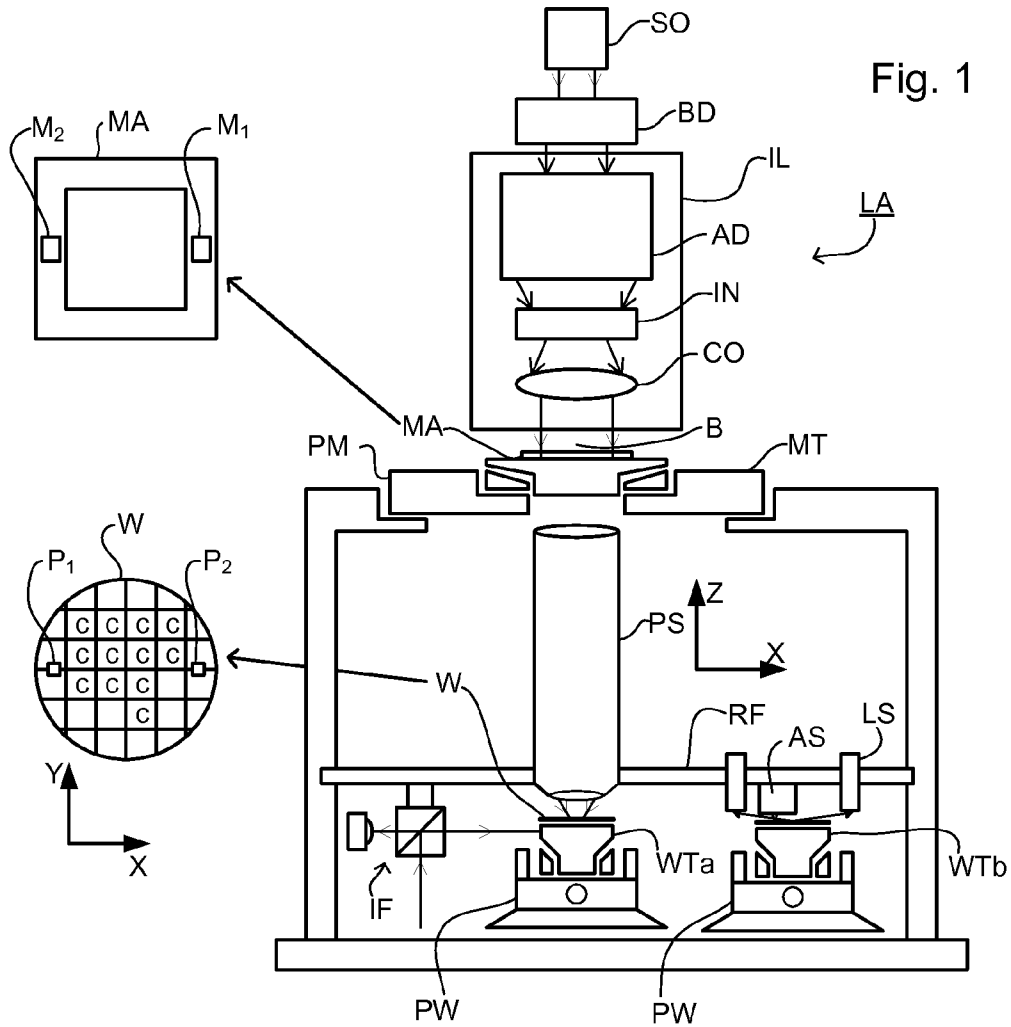


Fig. 1

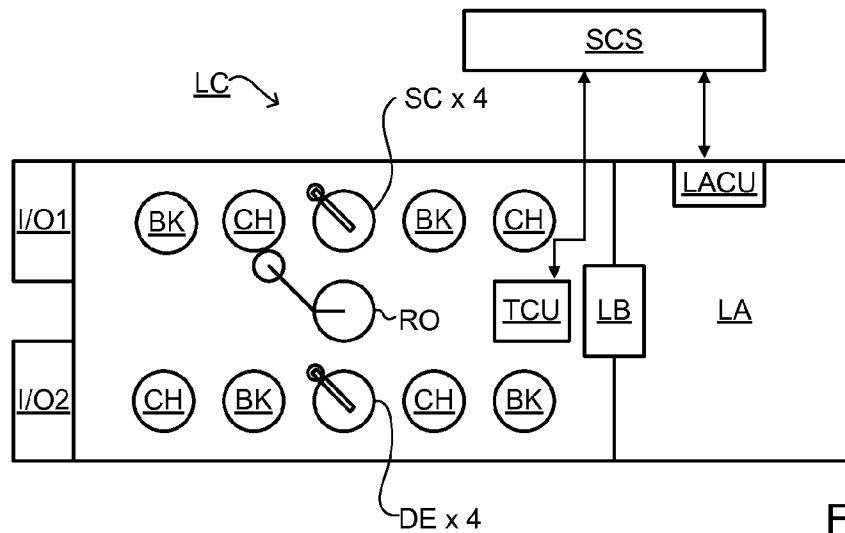


Fig. 2

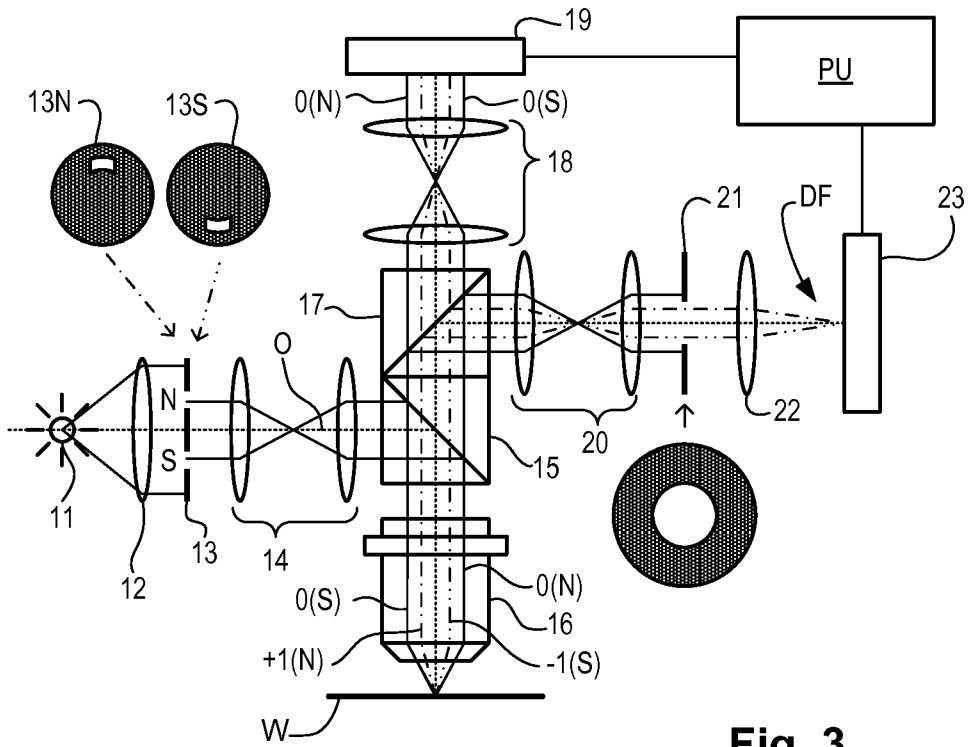


Fig. 3

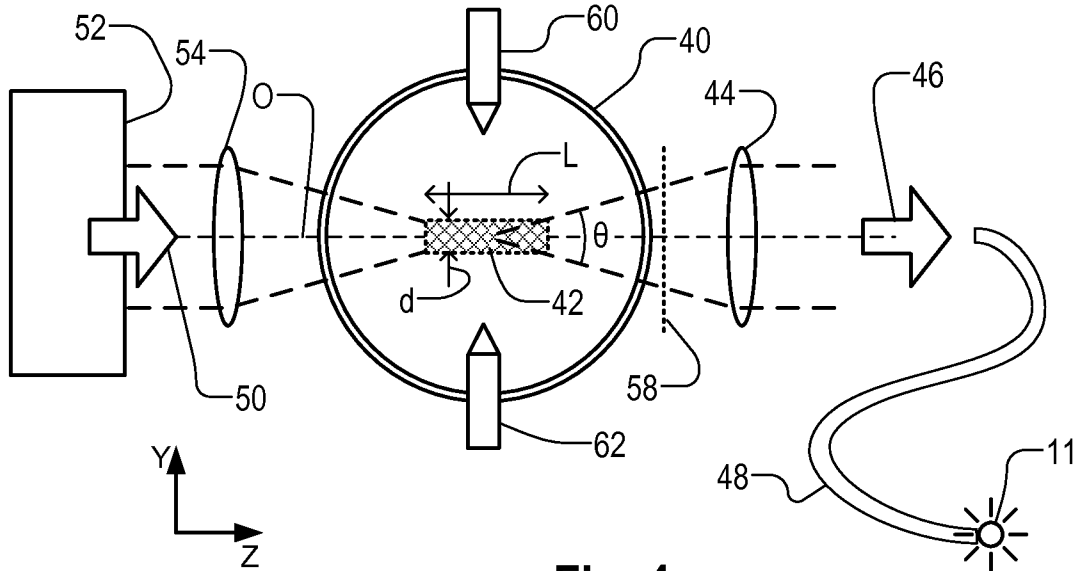


Fig. 4

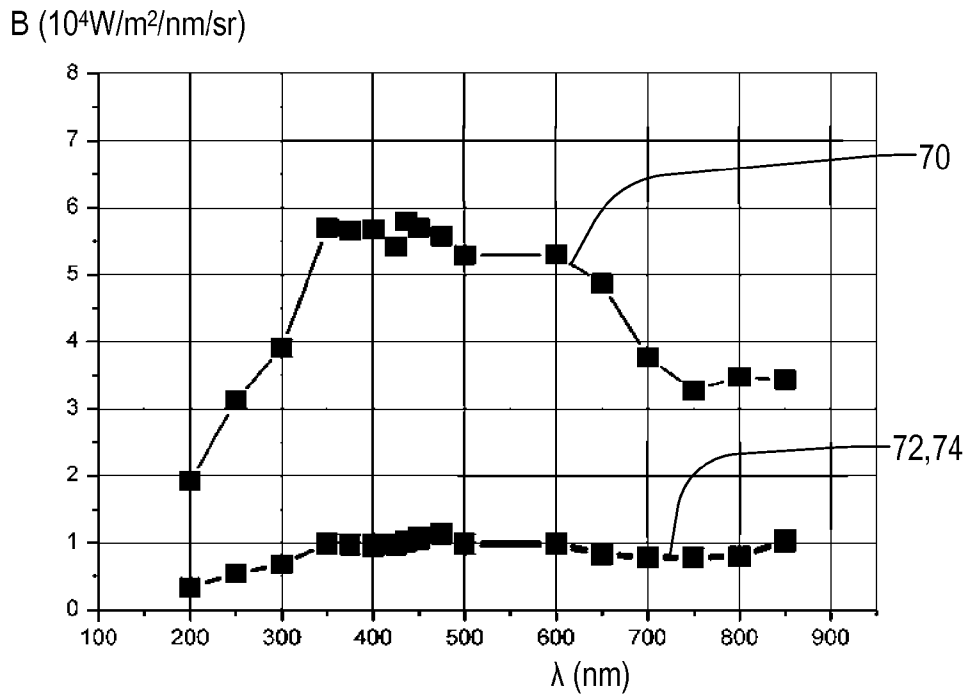


Fig. 5

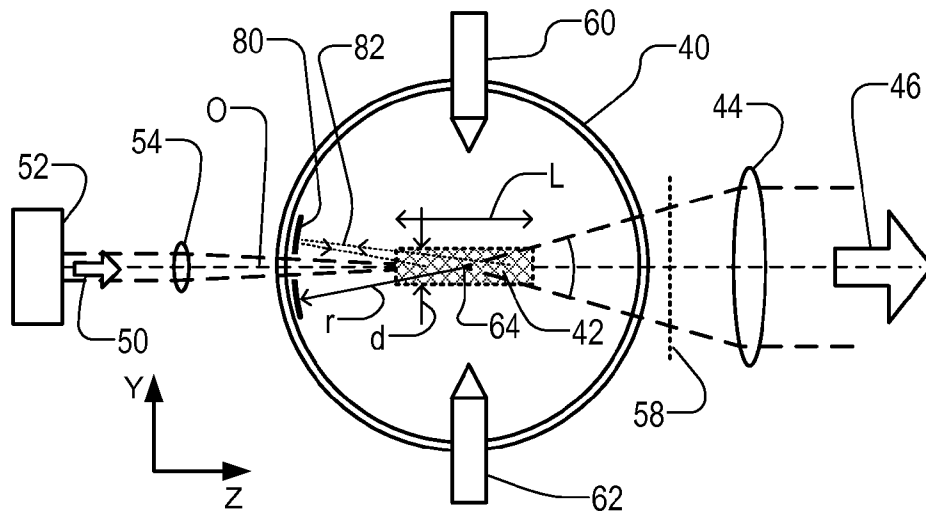


Fig. 6

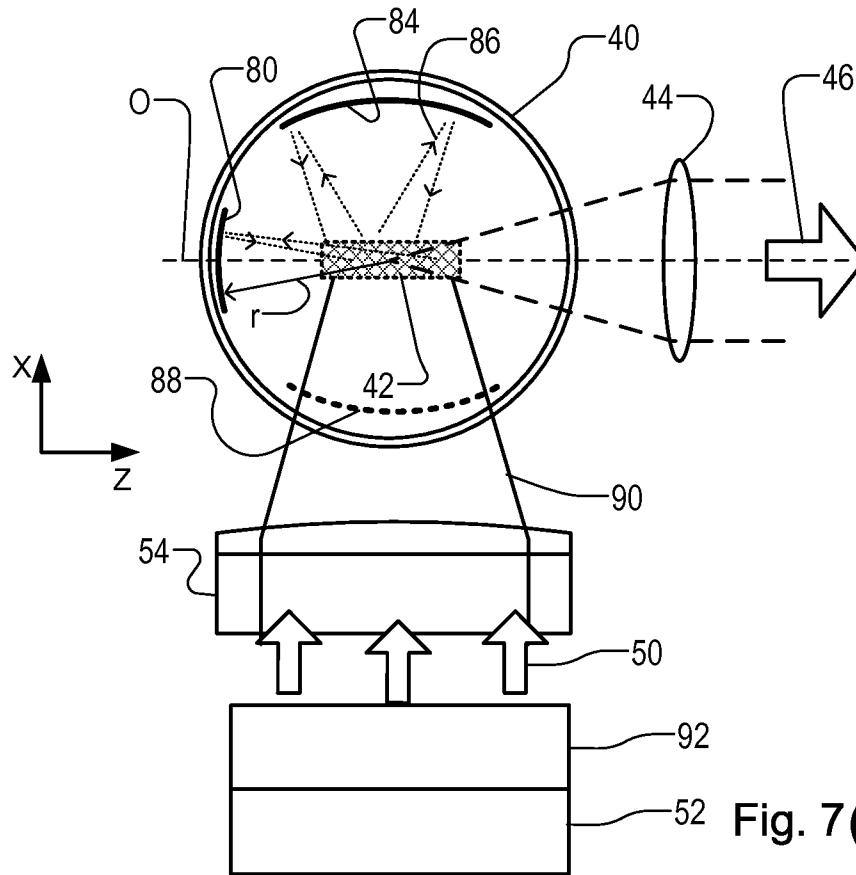


Fig. 7(a)

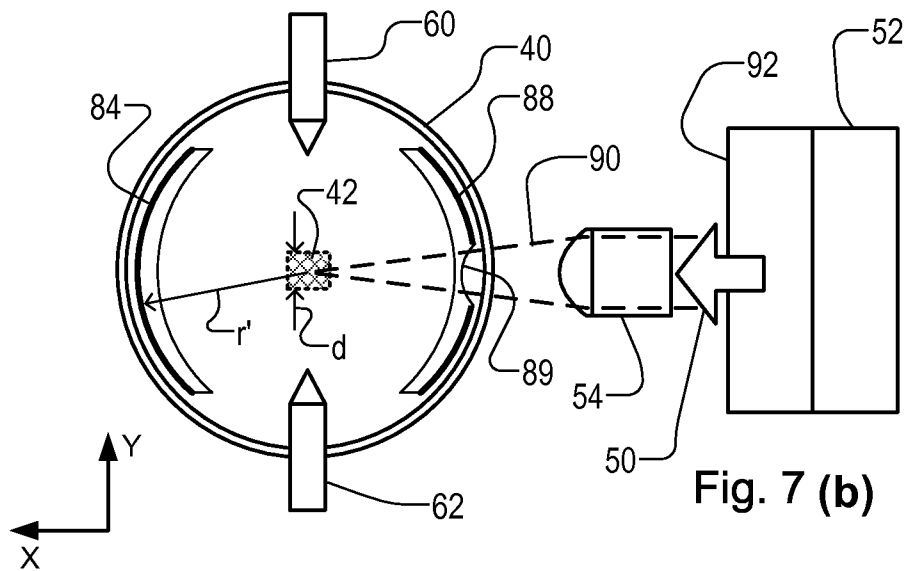


Fig. 7 (b)

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