

Title (en)  
LPP EUV LIGHT SOURCE

Title (de)  
LPP-EUV-LICHTQUELLE

Title (fr)  
SOURCE DE RAYONNEMENT ULTRAVIOLET EXTREME A PLASMA CREE PAR LASER

Publication  
**EP 1730764 A4 20100818 (EN)**

Application  
**EP 05724577 A 20050303**

Priority  
• US 2005007063 W 20050303  
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Abstract (en)  
[origin: WO2005089131A2] An apparatus and method is described for effectively and efficiently providing plasma irradiation laser light pulses in an LPP EUV light source which may comprise a laser initial target irradiation pulse generating mechanism irradiating a plasma initiation target with an initial target irradiation pulse to form an EUV generating plasma having an emission region emitting in-band EUV light; a laser plasma irradiation pulse generating mechanism irradiating the plasma with a plasma irradiation pulse after the initial target irradiation pulse so as to compress emission material in the plasma toward the emission region of the plasma. The plasma irradiation pulse may comprise a laser pulse having a wavelength that is sufficiently longer than a wavelength of the initial target irradiation pulse to have an associated lower critical density resulting in absorption occurring within the plasma in a region of the plasma defined by the wavelength of the plasma irradiation pulse sufficiently separated from an initial target irradiation site to achieve compression of the emission material, and the may compress the emission region. The laser plasma irradiation pulse may produce an aerial mass density in the ablating cloud of the plasma sufficient to confine the favorably emitting plasma for increased conversion efficiency. The deposition region for the plasma irradiation pulse may be removed enough from the initial target surface so as to insure compression of the favorably emitting plasma. A high conversion efficiency laser produced plasma extreme ultraviolet ("EUV") light source may comprise a laser initial target irradiation pulse generating mechanism irradiating a plasma initiation target with a target irradiation pulse to form an EUV generating plasma emitting in-band EUV light; a plasma tamper substantially surrounding the plasma to constrain the expansion of the plasma.

IPC 8 full level  
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Citation (search report)  
• [A] EP 1365635 A1 20031126 - INNOLITE AB [SE]  
• [X] BERGLUND M ET AL: "ULTRAVIOLET PREPULSE FOR ENHANCED X-RAY EMISSION AND BRIGHTNESS FROM DROPLET-TARGET LASER PLASMAS", APPLIED PHYSICS LETTERS, AIP, AMERICAN INSTITUTE OF PHYSICS, MELVILLE, NY, US LNKD- DOI:10.1063/1.117027, vol. 69, no. 12, 16 September 1996 (1996-09-16), pages 1683 - 1685, XP000629166, ISSN: 0003-6951  
• [A] RYMELL L ET AL: "Droplet target for low-debris laser-plasma soft X-ray generation", OPTICS COMMUNICATIONS, NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, NL LNKD- DOI:10.1016/0030-4018(93)90651-K, vol. 103, no. 1-2, 1 November 1993 (1993-11-01), pages 105 - 110, XP024455371, ISSN: 0030-4018, [retrieved on 19931101]  
• See references of WO 2005089131A2

Designated contracting state (EPC)  
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