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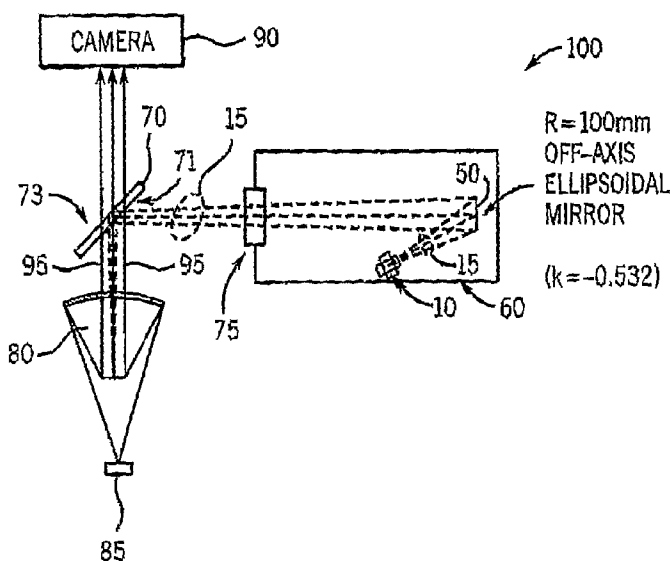
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[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR DEEP ULTRAVIOLET OPTICAL MICROSCOPY



(57) Abstract: An apparatus and method for performing optical microscopy are disclosed. In at least one embodiment, the apparatus includes a deep ultraviolet light source configured to generate light having a wavelength within a window in the deep ultraviolet region of the electromagnetic spectrum within which a local minimum in the absorption coefficient of Oxygen occurs. Further, the apparatus includes a lens device that receives at least a first portion of the generated light, directs at least some of the first portion of the generated light toward a location, receives reflected light from the location, and directs at least some of the reflected light toward a further location. Additionally, the apparatus includes a camera device that is positioned at one of the further location and an additional location, where the camera device receives at least a second portion of the reflected light, whereby an image is generated by the camera device.

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<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G02B 21/00 (2007.10) USPC - 359/368 According to International Patent Classification (IPC) or to both national classification and IPC</p>																										
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) USPC: 359/368</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 359/368, 371, 350, 355; 348/79 (text search - see terms below)</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST(USPT,PGPB,EPAB,JPAB); Google Search Terms: uv, ultraviolet, deep ultraviolet, microscope, microscopy, hydrogen, 21.6 nm, microwave, Gunn</p>																										
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 3,507,987 A (BOSCH) 21 April 1970 (21.04.1970), entire document especially Fig. 2, Abstract</td> <td>1-32</td> </tr> <tr> <td>Y</td> <td>"Prospects for photolithography at 121 nm" (LIEBERMAN et al); J. Vac. Sci. Technol. B, Vol. 20, No. 6, Nov/Dec 2002, pages 2567-2573.</td> <td>1-32</td> </tr> <tr> <td>Y</td> <td>US 2006/0050146 A1 (RICHARDSON) 09 March 2006 (09.03.2006), entire document especially para [0085]-[0095]</td> <td>5-10, 14, and 20</td> </tr> <tr> <td>Y</td> <td>US 2006/0072419 A1 (TUKKER et al) 06 April 2006 (06.04.2006), entire document especially paras [0020] and [0025]</td> <td>13 and 27</td> </tr> <tr> <td>Y</td> <td>US 6,343,089 B1 (MANOS et al) 29 January 2002 (29.01.2002), entire document especially the abstract</td> <td>16-19 and 28-29</td> </tr> <tr> <td>Y</td> <td>"Generation of Radiation by Intense Plasma and Electromagnetic Undulators" by Joshi, October 1981 (10.1981); UNIVERSITY OF CALIFORNIA, LOS ANGELES; SCHOOL OF ENGINEERING AND APPLIED SCIENCE; Chapter 4</td> <td>17</td> </tr> <tr> <td>Y</td> <td>US 5,499,282 A (SILFVAST) 12 March 1986 (12.03.1986), entire document especially col 3, lns 58-66</td> <td>18-19, 28, and 30</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 3,507,987 A (BOSCH) 21 April 1970 (21.04.1970), entire document especially Fig. 2, Abstract	1-32	Y	"Prospects for photolithography at 121 nm" (LIEBERMAN et al); J. Vac. Sci. Technol. B, Vol. 20, No. 6, Nov/Dec 2002, pages 2567-2573.	1-32	Y	US 2006/0050146 A1 (RICHARDSON) 09 March 2006 (09.03.2006), entire document especially para [0085]-[0095]	5-10, 14, and 20	Y	US 2006/0072419 A1 (TUKKER et al) 06 April 2006 (06.04.2006), entire document especially paras [0020] and [0025]	13 and 27	Y	US 6,343,089 B1 (MANOS et al) 29 January 2002 (29.01.2002), entire document especially the abstract	16-19 and 28-29	Y	"Generation of Radiation by Intense Plasma and Electromagnetic Undulators" by Joshi, October 1981 (10.1981); UNIVERSITY OF CALIFORNIA, LOS ANGELES; SCHOOL OF ENGINEERING AND APPLIED SCIENCE; Chapter 4	17	Y	US 5,499,282 A (SILFVAST) 12 March 1986 (12.03.1986), entire document especially col 3, lns 58-66	18-19, 28, and 30
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<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>																								