(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 November 2004 (25.11.2004)

PCT

(10) International Publication Number
WO 2004/102958 A1

(51) International Patent Classification[7]: H04N 5/335

(21) International Application Number:
PCT/IL2004/000410

(22) International Filing Date: 13 May 2004 (13.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/469,816 13 May 2003 (13.05.2003) US

(71) Applicant *(for all designated States except US)*: **XCEED IMAGING LTD.** [IL/IL]; P.O.B. 4201, 1 Hermon Street, 48560 Rosh Haayin (IL).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ZALEVSKY, Zeev** [IL/IL]; 1 HaChermon Street, 48560 Rosh HaAyin (IL). **SOLOMON, Jonathan** [IL/IL]; 120 Hanasy Street, 46399 Herzelia (IL).

(74) Agent: **REINHOLD COHN AND PARTNERS**; P.O.B. 4060, 61040 Tel-Aviv (IL).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

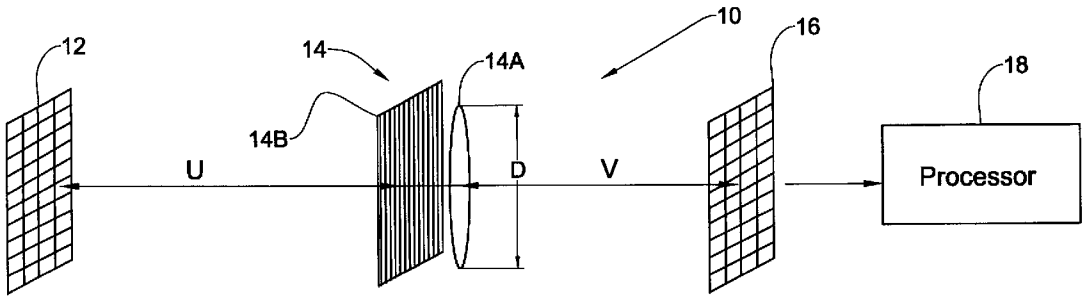
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *with amended claims*

Date of publication of the amended claims: 6 January 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** OPTICAL METHOD AND SYSTEM FOR ENHANCING IMAGE RESOLUTION



(57) **Abstract:** A method and system are presented for imaging an object with image resolution for at least a part of the object exceeding by a predetermined factor a geometrical resolution defined by a detector pixel array. A predetermined aperture coding is applied to the wavefront of a light signal indicative of at least a part of the object to be imaged with the enhanced resolution, while propagating towards the detector pixel array. The aperture coding is predetermined in accordance with aliasing occurring in the detector plane and such as to provide orthogonality of spectral data indicative of a sampled output of the detector, to thereby enable using the aperture code to reconstruct the image of said at least part of the object with the resolution enhanced by said factor.

WO 2004/102958 A1