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(54) Title: HEAVILY DOPED SEMICONDUCTOR NANOPARTICLES

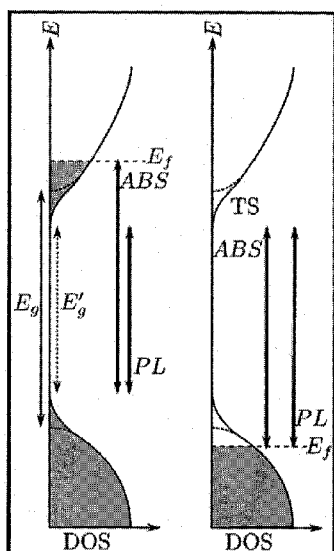


Figure 1A

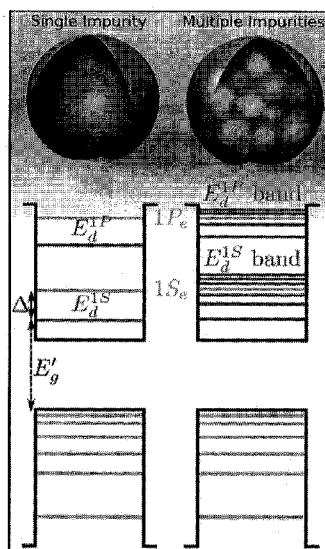


Figure 1B

(57) Abstract: Herein, provided are heavily doped colloidal semiconductor nanocrystals and a process for introducing an impurity to semiconductor nanoparticles, providing control of band gap, Fermi energy and presence of charge carriers. The method is demonstrated using InAs colloidal nanocrystals, which are initially undoped, and are metal-doped (Cu, Ag, Au) by adding a metal salt solution.



GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) H01L B01J C09K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2011/003003 A1 (UNIV ARKANSAS [US]; PENG XIAOGANG [US]; XIE RENGUO [US]) 6 January 2011 (2011-01-06) page 1, line 11 - page 10, line 21; figures 1, 2 page 12, line 10 - page 13, line 24 -----	1-64
X	WO 2008/028054 A1 (UNIV FLORIDA [US]; CAO Y CHARLES [US]) 6 March 2008 (2008-03-06) page 1, line 13 - page 5, line 2; figures 1, 2 ----- -/--	1-11, 15, 16, 23, 24, 27-29, 32-53
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 18 July 2012	Date of mailing of the international search report 30/07/2012	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Dauw, Xavier	

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	WO 02/43159 A2 (ARCH DEV CORP [US]) 30 May 2002 (2002-05-30) page 1, line 7 - page 3, line 5 page 6, line 18 - page 8, line 17 -----	1-64

INTERNATIONAL SEARCH REPORT

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