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(54) Title: DEVICES, MATERIALS AND METHODS TO DEPOSIT, ALIGN AND/OR POSITION VERY SMALL PARTICLES

(57) Abstract: A device for controlling the spatial position, in either one, two or three dimensions, and/or the deposition rate onto a substrate, and/or the rotational alignment of very small particles is disclosed and claimed. 40 The device comprises a chamber within which particle dynamics can be controlled; a particle loading device for loading particles into the chamber; and a means to retrieve the ordered particles once the process is completed. As a preferred embodiment the chamber is cryogenic, capable of producing temperatures sufficiently low that liquid helium in either its normal or superfluid state can be maintained indefinitely inside it. Also disclosed and claimed is the use of helium, and more specifically liquid helium either in its superfluid or normal states, with and without admixtures of ³He, as a medium for controlling the dynamics of small particles. Also disclosed and claimed is the process of exerting force on the particle in liquid or superfluid helium for the purposes of controlling its spatial position, alignment etc.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC: C09C 1/56(2006.01)

 USPC: 23/293R
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 23/293R

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)
 EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,063,243 A (ZETTL et al) 16 May 2000 (16.05.2000), abstract, columns 3-4	1-43
X	US 5,753,088 A (OLK) 19 May 1998 (19.05.1998), abstract, description, claims.	1-43
X	US 2004/0084297 A1 (ANAZAWA et al) 06 May 2004 (06.05.2004), abstract, page 4, claims 1 and 32.	1-43

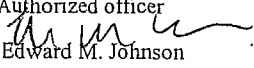
Further documents are listed in the continuation of Box C. See patent family annex.

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