SYNERGETIC SP-SP2-SP3 CARBON MATERIALS AND DEPOSITION METHODS THEREOF

The present invention generally provides carbon materials and methods for producing the carbon materials that include a polymer-like bonded carbon network, a diamond-like bonded carbon network, a grapheme-like bonded carbon network, and at least one stabilizing network of at least one alloying element. The material may further include hydrogen, silicone, and oxygen. The carbon materials are generally produced using plasma deposition while accounting for both thermal and incident particle impact activation for surface reactions, which beneficially enables the production of the carbon material at relatively low incident flux energy and/or relatively low substrate temperatures.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : H01L 21/42; H05 H 1/24; B01J 3/06; B32B 9/00
   US CL :: 438/795; 423/446; 427/ 577; 428/ 408, 416
   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. : 438/795; 423/446; 427/ 577; 428/ 408, 416

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)
WEST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<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>
</table>

Further documents are listed in the continuation of Box C.

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 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 data claimed

Date of the actual completion of the international search
   06 September 2005 (06.09.2005)

Date of mailing of the international search report
   12 OCT 2005

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Form PCT/ISA/210 (second sheet) (April 2005)