Title: GROWTH OF BORON NANOSTRUCTURES WITH CONTROLLED DIAMETER

Abstract: A process for growth of boron-based nanostructures, such as nanotubes and nanowires, with a controlled diameter and with controlled chemical (such as composition, doping) as well as physical (such as electrical and superconducting) properties is described. The boron nanostructures are grown on a metal-substituted MCM-41 template with pores having a uniform pore diameter of less than approximately 4 nm, and can be doped with a Group Ia or Group IIA electron donor element during or after growth of the nanostructure. Preliminary data based on magnetic susceptibility measurements suggest that Mg-doped boron nanotubes have a superconducting transition temperature on the order of 100 K.
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, EL, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, 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:
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Date of publication of the international search report: 6 October 2005

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**INTERNATIONAL SEARCH REPORT**

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 HOI39/24 HOI39/14

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)

IPC 7 HOI

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 practical, search terms used)

EPO-Internal, INSPEC, COMPENDEX, PAA, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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Date of the actual completion of the international search

5 August 2005

Date of mailing of the international search report

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Name and mailing address of the ISA

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Gröger, A
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*Form PCT/ISA/216 (family patent) (January 2004)*