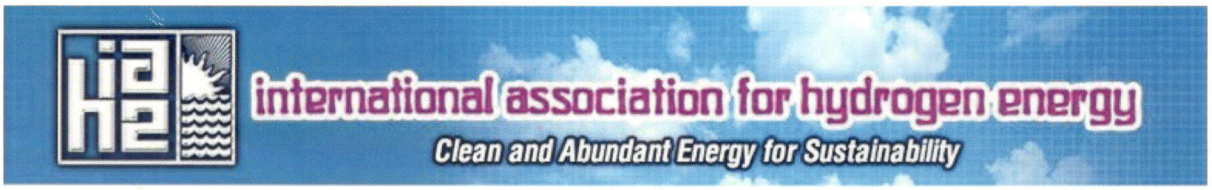
Ερασμι

ANM 2017

9th International conference on Advanced Nano Materials
3rd International conference on Advanced Graphene Materials
2nd International conference on Advanced Magnetic and Spintronics Materials
1st International conference on Advanced Polymer Materials and Nanocomposites
& Special Session Hydrogen Energy and Solar Energy Materials

PROGRAM BOOK

19-21 July 2017, University of Aveiro, Portugal



AMERICAN ELEMENTS
THE ADVANCED MATERIALS MANUFACTURER ®

Energy & Environmental Science | Nanoscale | Molecular Systems Design & Engineering | Sustainable Energy & Fuels | Nanoscale Horizons

ANM-11	V.V. Fetisov	Miniature Radioisotope Thermoelectric Power Supply
ANM-12	Dulat Omirbekov	Obtaining of superhydrophobic surface in RF capacitively coupled discharge in AR/CH4 medium
ANM-13	Dulat Omirbekov	The influence of gas temperature on formation and growth of the dust nanoparticles in Ar/CH4 medium
ANM-14	Jung-Hoon Yu	Porous NiO/TiO2 Nanobowl Composite Hybrid Electrochromic Devices with Enhanced Optical Modulation
ANM-15	Jiri Brus	Enhanced ion dynamic and site-specific interactions in MIL53(Al)@[LiCobisdicarbollide] MOF designed for Li-batteries
ANM-16	Jou-Hyeon Ahn	Sulfurized polyacrylonitrile nanofibers for high performance lithium sulfur batteries
ANM-17	Dimitre Z. Dimitrov	Inverted Pyramids Nanostructured Silicon
ANM-18	Hanna Maltanava	Synthesis of ZnO mesoporous powders and their application in dye photodegradation
ANM-19	Hanna Maltanava	Sol-gel template synthesis of mesoporous titania powder with photocatalytic activity under visible light
ANM-20	Renata Jastrzab	Preparation and stabilization of silver nanocolloids reduced by D-glucose used as active antibacterial materials
ANM-21	Renata Jastrzab	Preparation and characterization of long-term stable SERS active materials as potential supports for medical diagnostic
ANM-22	Marcia Escote	Transport properties of NdNiO3 nanowires
ANM-23	Yerassyl Yerlanuly	Obtaining of Carbon Nanomaterials by PECVD Method
ANM-24	Yerassyl Yerlanuly	Influence of dispersion of catalytic carrier for growth mechanism of carbon nanotubes
ANM-25	Lei Wang	Fabrication-resolution enhancement method based on low-energy multiple exposures
ANM-26	D. W. Kang	Nitric Oxide Post-deposition Annealing of Atomic Layer Deposited SiO2 on 4H-SiC
ANM-27	Martina Urbanova	Structure &dynamics of alginate beads crosslinked by different polyvalent ions as seen by Solid-state NMR spect..
ANM-28	João Paulo de F. Grilo	Sintering of nano Ce0.9Gd0.1O1.95 powders with alkali carbonates
ANM-29	A.I.B. Rondão	Effect of Nanosized Dispersed Phases on the Behavior of Mg-Partially Stabilized Zirconia
ANM-30	Luca Rimoldi	The role played by the catalyst physicochemical features on guaiacol hydrodeoxygenation
ANM-31	Sedigheh Joughehdous	Synthesis of Bio-Active Glass by Sol-gel Method and Using Spark Plasma Sintering (SPS) for Forming Process
ANM-32	Hae Kyung Jeong	Graphite Oxide, CNT, and Activated Carbon Composites for Energy Storage Device
ANM-33	Heeyeon Kim	CVD synthesis of hybrid nano-catalysts for fuel cell electrode
ANM-34	Mónica Cerquido	DC potentiostatic electrodeposition of gold-mushrooms in micro-holes
ANM-35	Soo Hyun Lee	Synthesis and Characterizations of Eu3+-doped SrMoxW1-xO4 red-emitting phosphors
ANM-36	Gregor Meller	Simulation of Injection Currents into Disordered Molecular Conductors

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Obtainingof Carbon Nanomaterials by PECVD Method

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INTRODUCTION

Today, carbonnanomaterials (CNM)haveagreatinterestontheonehandfor fundamental research and on the other hand for practical application. It is caused by unique physical and chemical properties of carbon nanomaterials such as graphene, carbon nanotube (CNT), fullerene and etc. Furthermore,practicalapplicationofcompositematerialsbas edonCNMissodiverse, thattheyarewidely usedinconstruction (for materials reinforcement), inenergy (as fuel cell), in electronics (as display, transistor, supercapacitor) and etc[1,2]. In this work plasma enhanced chemical vapor deposition (PECVD) method is presented for obtaining of carbon nanomaterials such as carbon nanofibers and nanowalls.

EXPERIMENTAL

ThestructureofexperimentalsetupispresentedinFig. 1. Thecarbonnanomaterialsweresynthesizedonsiliconsubstrat ewiththincatalytic nickel nanolayer.BeforegrowthofCNMthe substrate with nickel nanolayerwas heated at 500 ^{0}C in argon plasma at 1 Torr for 10 minutes. Afterthat, a small proportion of methane (CH_4) gas was injected to the reactor for growing of CNM. The experiment was carried out at two different powers of radio-frequency (RF) discharge – 4 and 40 W; at the result two different CNMs were obtained.

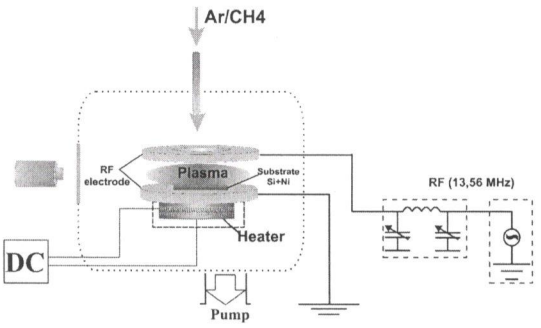

Fig. 1 The experimental setup

RESULTSANDDISCUSSION

Therearetwocarbon nanomaterials were obtained after PECVD method. AtlowerpowerofRF discharge a carbon nanofibers were synthesized on silicon substrate with diameter ~ 200 nm (Fig. 2). WithincreasingtheRFpowerthegrowthofnanofibersisstopp eddue to increasing of self-bias voltage and often ion bombardment of substrate surface. Attheresults, astructureofcarbonnanowallswasgrown (Fig. 3). Obtainedresultsaregoodcorrespondedtotheresultsofotherw ork[4,5].

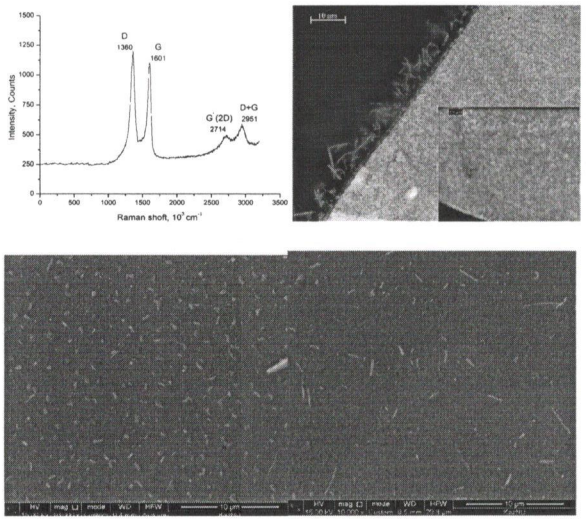

Fig. 2Ramanspectra, opticalandSEMimagesof carbon nanofibers

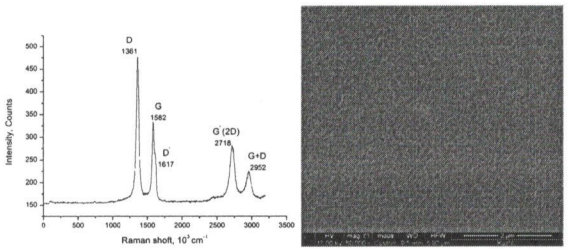

Fig. 3Raman spectra and SEM image of carbon nanowall

CONCLUSION

In this work different CNMs were synthesized by PECVD method depending on RF power. Itwasfound that self-bias voltage plays a main role for growing of CNMs.

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