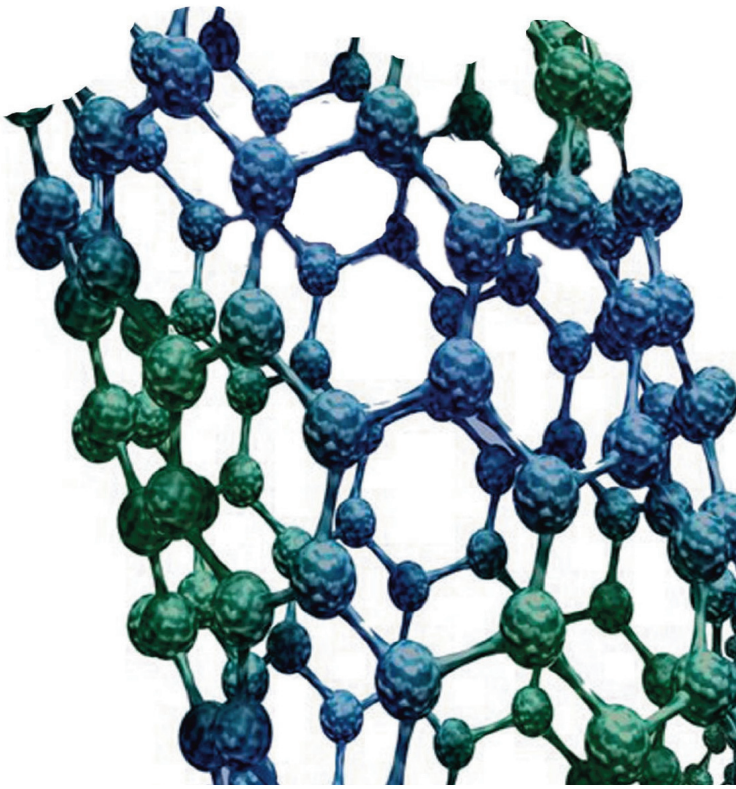
6th IC4N2019



Technical Program

SIXTH
INTERNATIONAL
CONFERENCE

FROM NANOPARTICLES
AND NANOMATERIALS

TO NANODEVICES
AND NANOSYSTEMS

June 30 - July 3, 2019
Corfu Island, Greece

University of Texas at Arlington, University of Patras, Karlsruhe Institute of Technology,
University of Science and Technology Beijing

6th

IC4N PROGRAM SUMMARY

Sunday, June 30, 2019

15:00 - 19:30	**Registration**
20:30	**Welcome Reception**

Monday, July 1, 2019

8:30 - 9:00	**Welcome - Opening Remarks**			
9:00 - 10:00	Plenary Lecture			
10:00 - 10:30	Coffee Break			
10:30 - 13:00	Fundamentals/ Materials Genome Session FMG-1	Nanoscale Photochem. /Charge Transfer/Energy Conv. Session NPCTEC-1	2D Materials Beyond Graphene Session 2DMBG-1	Coatings and Materials for Extreme Environments CMEE-1
13:00 - 15:00	Lunch/Free Time			
15:00 - 17:00	Fundamentals/ Materials Genome Session FMG-2	Nanoscale Photochem. /Charge Transfer/Energy Conv. Session NPCTEC-2	Magnetism at the Nanoscale Session MNS-1	Nannomaterials for Optoelectronics and Photonics Session NMOP-1
17:00 - 17:15	Coffee Break			
17:15 - 18:45	Fundamentals/ Materials Genome Session FMG-3	Nanoscale Photochem. /Charge Transfer/Energy Conv. Session NPCTEC-3	Magnetism at the Nanoscale Session MNS-2	Nanoporous Materials and Membranes Session NPMM-1
19:15	Cultural Event (Kerkyra Ballroom): The Glass of Wine			

Tuesday, July 2, 2019

8:30 - 10:00	Keynote Lectures I & II			
10:00 - 10:30	Coffee Break			
10:30 - 13:00	Fundamentals/ Materials Genome Session FMG-4	Nanoscale Photochem. /Charge Transfer/Energy Conv. Session NPCTEC-4	Magnetism at the Nanoscale Session MNS-3	Energy Conversion Session EC-1
13:00 – 14:30 Lunch/Free Time				
14:30 – 15:30 Poster papers Session P-1 (Conference Area Foyer)				
15:30 - 17:00	Fundamentals/ Materials Genome Session FMG-5	Environmental Applications and Implications Session EAI-1	Magnetism at the Nanoscale Session MNS-4	
17:00 - 17:30	Coffee Break			
17:30 - 19:30	Fundamentals/ Materials Genome Session FMG-6	Functional Electroactive Materials & Nanostructures Session FEMN-1	Magnetism at the Nanoscale Session MNS-5	
19:30	Social Hour (open to all participants)			

TUESDAY Poster Papers Session P-1

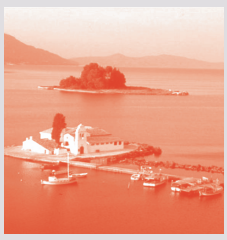
JULY 2, 2019

13:00 - 14:30 **Lunch/Free Time - Participant Interaction**

14:30 - 15:30 **Poster Papers Session P-1** (Conference Area Foyer)

Poster No.	Participant	Country	Paper Title
Magnetism at the Nanoscale			
1-1	**Nikos Kanistras**	Hellas	Influence of Thermal Annealing and Nickel Addition on the Magnetic Properties of Co/CoO Multilayers
1-2	**Ioannis Pitsakis**	Hellas	Preparation, Characterization and Magnetic Properties of Fe-Ni Alloys
1-3	**Alkeos Stamatelatos**	Hellas	Determination of Magnetic Moment Profile of Eus/Co/Ni/Co Multilayers for Spintronics
Fundamentals/Materials Genome			
1-4	**Aristeidis Baloglou**	Austria	Gas-Phase investigations of Nanoclusters [Mo3S13]2- and [Mo2S12]2- as Model Catalysts for the Hydrogen Evolution Reaction
Coatings and Materials for Extreme Environments			
1-5	**Valentin Craciun**	Romania	Investigations of fs-laser Irradiation Induced Defects in Oxide Thin Films
1-6	**Jiechao Jiang**	USA	$BaCO_3$ and $BaTiO_3$ Coatings on Ti Fabricated by Plasma Electrolytic Oxidation
Nanoscale Materials for Optoelectronics and Photonics			
1-7	**Dimitrios Anyfantis**	Hellas	Preparation and Characterization of Nanostructured AgNiO Thin Films
1-8	**Vissarion Mikhelashvili**	Israel	Highly Sensitive Planar Photo-Detectors for the Ultra-Violet to the Near Infrared Wavelength Range Based on a Silicon-on-Insulator Substrate
Nanoporous Materials and Membranes			
1-9	**Dionysios Karousos**	Hellas	Nano-scaled Activated Carbon as Potential Filler for CO_2 Selective Mixed Matrix Membranes
Energy Conversion			
1-10	**Ramonna Kosheleva**	Hellas	Effect of Rotation on the Adsorption Process
Environmental Applications and Implications			
1-11	**Alexandros Barnasas**	Hellas	Synthesis, Properties and Environmental Applications of Nanostructured Ag-ZnO
1-12	**George Kyzas**	Hellas	Carbon Microspheres from Agricultural Wastes
1-13	**Elesavet Michailidi**	Hellas	A Novel Method of Bulk NBs Production: Evaluation of the Physicochemical Properties
1-14	**Kelly Velonia**	Hellas	Biodegradable Popymers from Food Waste
Functional Electroactive Materials and Nanostructures			
1-15	**Athanasia Pylostomou**	Hellas	Development of Graphene-based μ-electrodes for Bioelectronic Devices
1-16	**Serge Nakhmanson**	USA	MOOSE, Ferret and other Furry Animals: Simulating Complex Behavior of Electroactive Materials at Mesoscale



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Carbon Microspheres from Agricultural Wastes

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In this study, the synthesis of carbon microspheres were investigated via direct pyrolysis of agrofood wastes from restaurants. Potato peels (PP) were used as precursors and mineral oil as reagent for the preparation of carbon spheres. Briefly, the PP were washed with distilled water in order to remove dust and impurities and thereafter carbonized at 500℃. Then, the yielded amorphous carbon from PP was impregnated with H_3PO_4 under stirring for 24 h. In addition, the obtained activated carbon was dried in an oven furnace in order to evaporate the larger amount of H_3PO_4 and then oven carbonized in a porcelain crucible for the second activation process at high temperature. Thereafter, the obtained activated carbon was grounded in a mortar and sieved with a 400 mesh screen (37 μm) to obtain the powder form of activated carbon from PP. In addition, the process contains the closure of powder form activated carbon in a 316 stainless steel tube with 3% mineral oil. The closure process of powder form activated carbon and mineral oil was achieved by welding the top and bottom of 316 stainless steel tube. Finally, the process contains the pyrolysis of 316 stainless steel tube in an oven where only at 1100℃ was achieved the decomposition of activated carbon in carbon microspheres as it is clearly confirmed with SEM microscopy (Fig. 1). The initial sample characterization was achieved with SEM-EDX, XRD, BET and FTIR.

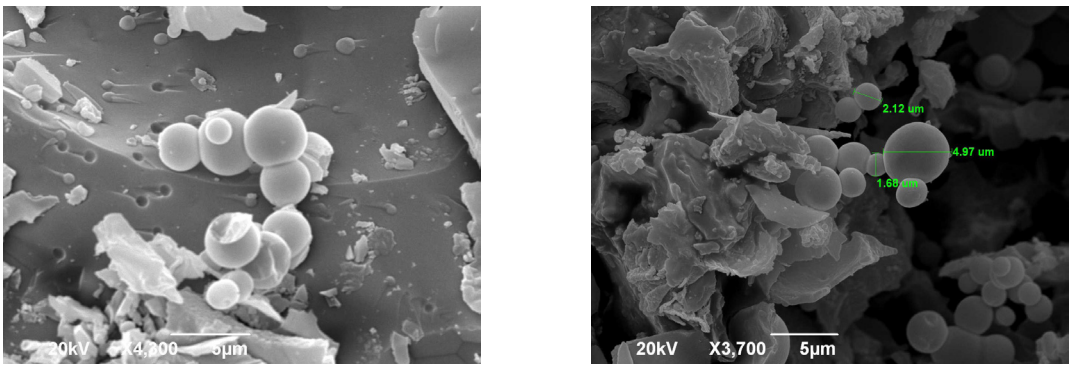

Figure 1. SEM images after decomposition of activated carbon and transformation in carbon microspheres at 1100℃

Acknowledgements:

This research was co-financed by the project "Development of NAnotechnology-enabled "next-generation" MEmbranes and their applications in Low-Energy, zero liquid discharge Desalination membrane systems"/NAMED, T2ΔΓΕ-0597.

CARBON MICROSPHERES FROM AGRICULTURAL WASTES

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Abstract

In this study the synthesis of carbon microspheres were investigated via direct pyrolysis of agrofood wastes from restaurants. Potato peels (PP) were used as precursors and mineral oil as reagent for the preparation of carbon spheres.

Methodology

Briefly, the PP were washed with distilled water in order to remove dust and impurities and thereafter carbonized at 500 °C. Then, the yielded amorphous carbon from PP was impregnated with H_3PO_4 under stirring for 24h. In addition, the obtained activated carbon was dried in an oven furnace in order to evaporate the larger amount of H_3PO_4 and then oven carbonized in a porcelain crucible for the second activation process at high temperature. Thereafter, the obtained activated carbon was grounded in a mortar and sieved with a 400 mesh screen (37μm) to obtain the powder form of activated carbon from PP. In addition, the process contains the closure of powder form activated carbon in a 316 stainless steel tube with 3% mineral oil.

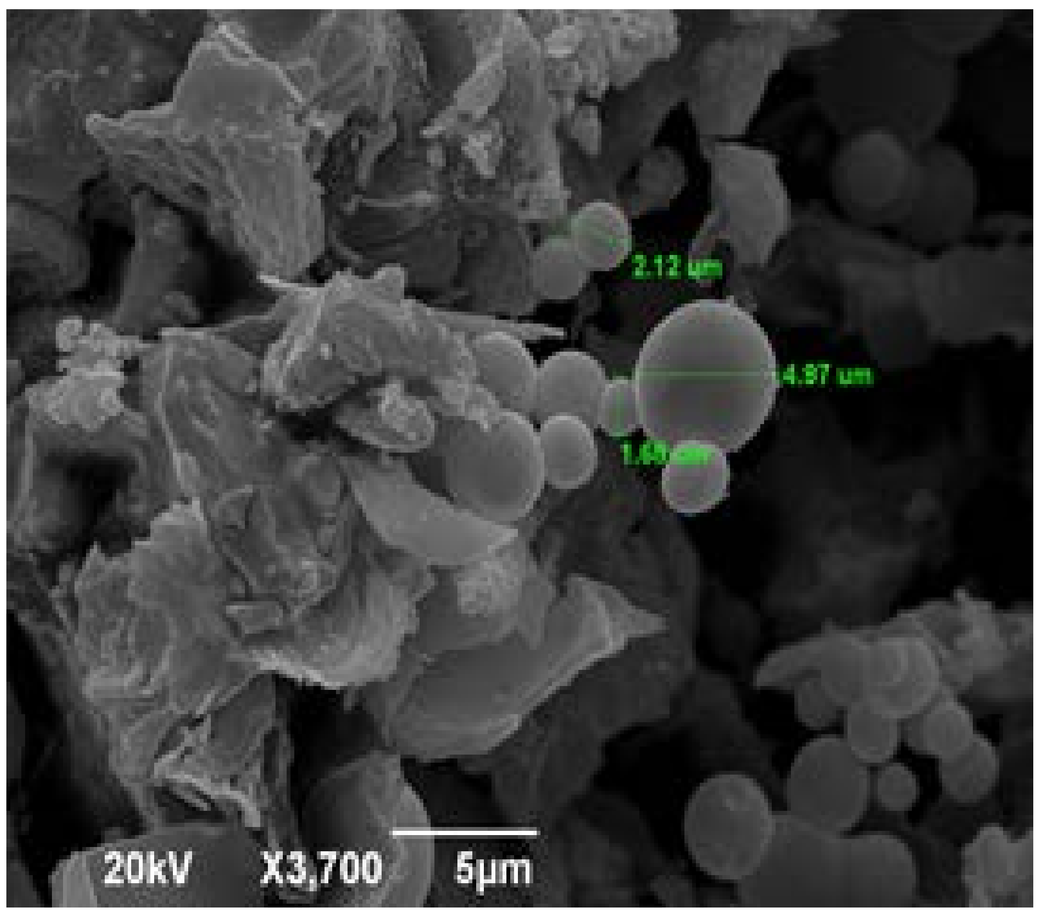

Fig.2: SEM images showing the measured diameter of the formed microspheres.

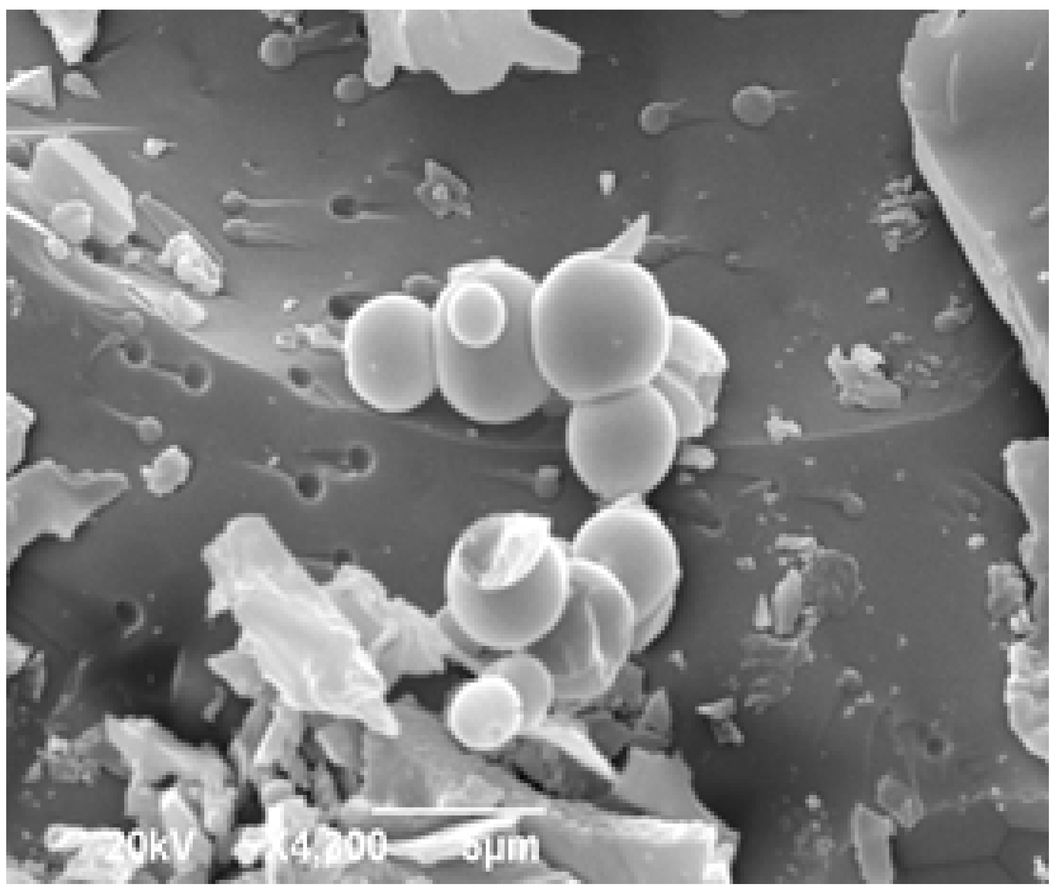

Fig. 1: SEM images after decomposition of activated carbon and transformation in carbon microspheres at 1100 °C

The closure process of powder form activated carbon and mineral oil was achieved by welding the top and bottom of 316 stainless steel tube.
Finally, the process contains the pyrolysis of 316 stainless steel tube in an oven where only at temperature 1100 °C was achieved the decomposition of activated carbon in carbon microspheres as it is clearly confirmed with SEM microscopy (Fig.1 & Fig. 2).

Remarks

- **Two step carbon microspheres production from agricultural wastes.**
- **Low temperature pyrolysis process.**
- **Carbon microsphere of size <5μm.**

AKNOWLEDGEMENT

This research has been co-financed by the project entitled “Development of NAnotechnology-enabled “next-generation” MEmbranes and their applications in Low-Energy, zero liquid discharge Desalination membrane systems”/NAMED, Τ2ΔΓΕ-0597 which is gratefully acknowledged.