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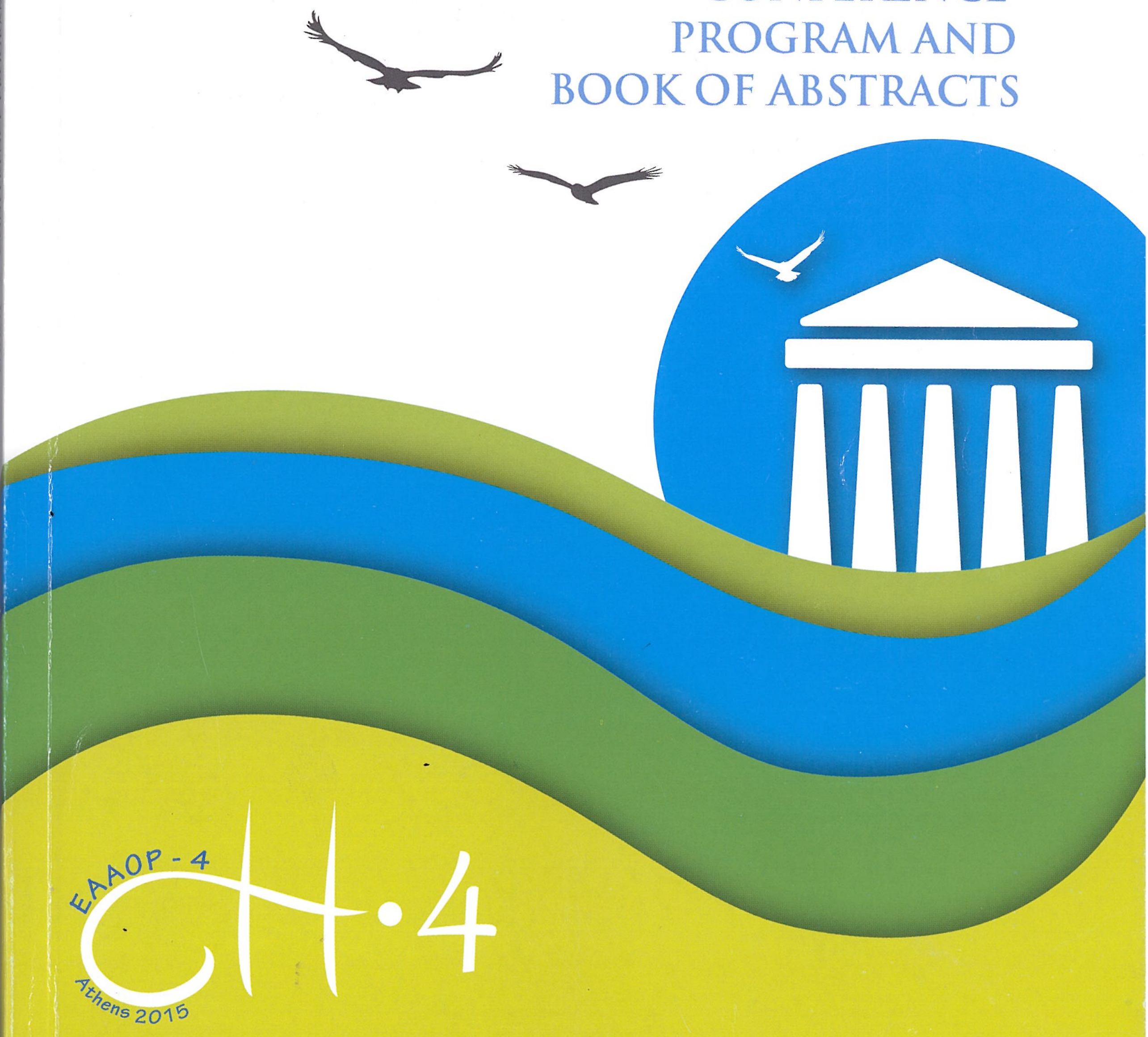
Conference Program and Book of Abstracts



ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ
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SYNTHESIS OF Fe ON CARBON CATALYSTS OBTAINED FROM GRAPE SEEDS FOR CWPO OF BISPHENOL A

PP2-21

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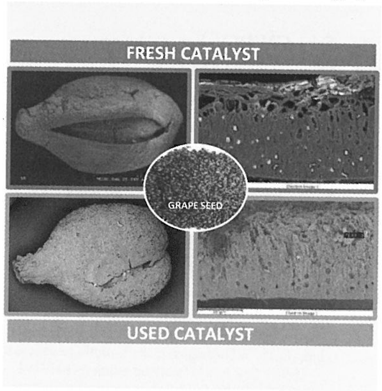

Grape seeds were used as precursor to develop a catalytic support for the synthesis of Fe catalysts to be used in catalytic wet peroxide oxidation reactions. Grape seeds were subjected to pyrolysis and activation with air and HNO_3 oxidation before the Fe incorporation by incipient wetness impregnation. The characterization results indicated that the catalysis presented a significant narrow porosity and a heterogeneous distribution of the Fe, mainly located on the external surface of the catalyst. The catalysts showed a total oxidation of BPA and a relatively high TOC conversion. In spite of the leaching of Fe during the first stages of the reaction, the most active catalyst showed a remarkable stability in a long term run.

CARBON NANOTUBES AS CATALYSTS FOR WET PEROXIDE OXIDATION: STRUCTURE-REACTIVITY RELATIONSHIPS

PP2-22

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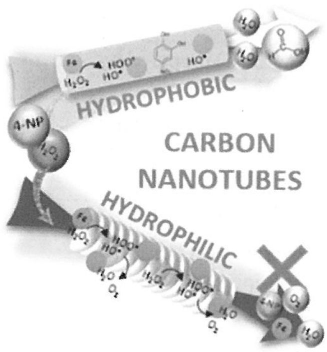

Magnetic neat and N-doped carbon nanotubes with different properties have been synthesized by chemical vapour deposition and tested in the catalytic wet peroxide oxidation of 4-nitrophenol solutions (5 g L^{-1}) at relatively mild operating conditions (atmospheric pressure, T = 50 °C, pH = 3) using a catalyst load = 2.5 g L^{-1} and $[H_2O_2]_0$ = 17.8 g L^{-1}. The results demonstrate that the catalyst hydrophobicity/ hydrophilicity is a determinant property in the CWPO reaction, since it affects the rate of H_2O_2 decomposition. The controlled formation of reactive radicals ($HO^{\bullet}$ and $HOO^{\bullet}$) at hydrophobic surfaces avoids the formation of non-reactive species (O_2 and H_2O), increasing significantly the activity of the catalysts for pollutant removal.