

## Electroless Coating Process of Carbon Nano Fibers by Copper Metal

Jean-Francois SILVAIN<sup>1</sup>, Philippe RICHARD<sup>1</sup>, Jean-Marc HEINTZ<sup>1</sup>

<sup>1</sup>Ceramic and Metal Matrix Composite, Institut de chimie de la matiere condensee de Bordeaux, France

### Abstract

A study of the different stages of the electroless deposition of copper onto carbon nano fibers has been performed from both a chemical and a morphological point of view. The nano fibers are firstly activated by a chemical treatment of the carbon nano fiber and secondly are coated by a two-step method. The combination of XPS measurement and SEM imaging has allowed optimizing the 2 different stage conditions. On a first hand the different concentration and treatment time of the carbon nano fibers have been analyzed and on a second hand the different conditions of the sensibilisation (Sn bath), activation (Pd bath) and coating (Cu bath). Indeed, the thickness and the homogeneity of copper thin film deposited on carbon nano fibers are controlled. Such nano composite powder can then be sintered to obtain fully dense materials.