

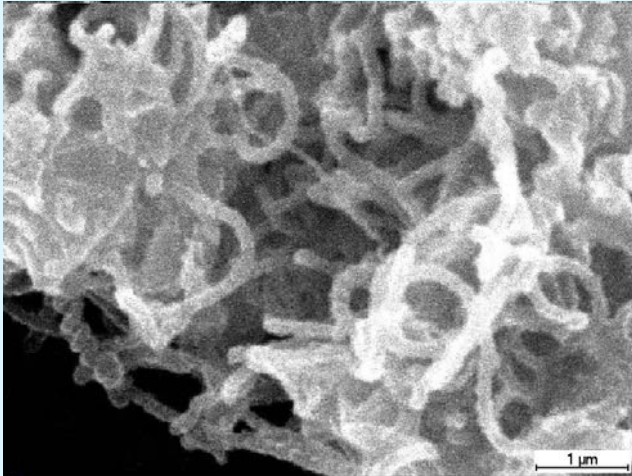


# DEVELOPMENT OF TECHNOLOGIES FOR CARBON NANOPOWDER, NANO-TUBES, AL-BASED NANO-COMPOSITES AND AL-BASED NANO-EMULSIONS

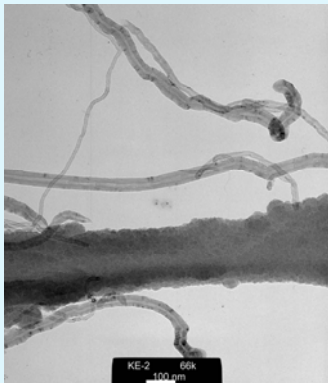
Bay Zoltan Foundation for Applied Research  
 Institute for Nanotechnology - Department of Nanocomposites  
 Prof. Dr. George Kaptay, Dr. Jaroslav Sytchev, István Budai

## Step 1

Electrochemical synthesis of carbon nanotubes from molten salts



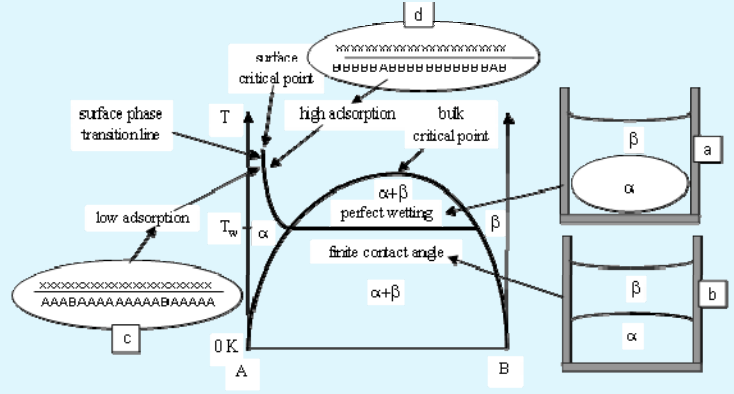
SEM image of a bunch of carbon nano-tubes formed in the LiCl melt (average diameter of tubes is  $\approx 150$  nm).



TEM image of carbon nano-tubes formed in the LiCl melt (diameter of tubes is  $\approx 40-50$  nm).

## Step 2

Transfer of carbon nanotubes from molten salts into liquid Al



Without additions

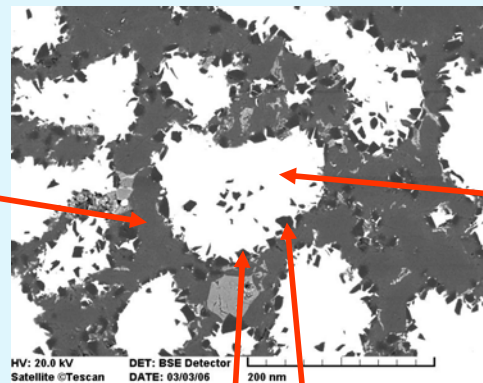
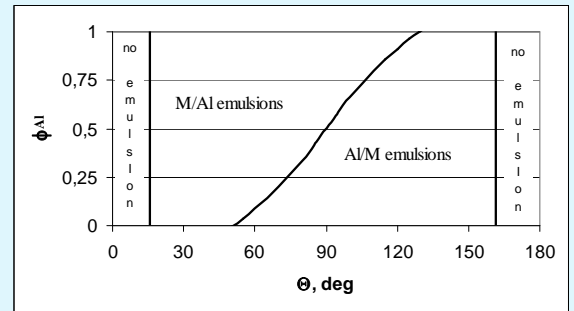


With additions

Liquid aluminium on carbon substrate in a molten salt

## Step 3

Emulsification by adding an immiscible liquid metal



Aluminium

Lead or other immiscible metal

Stabilizing solid particles at the interface