A partnership of the Hellenic Federation of Enterprises (SEV)
the federation of Industries of Modern Greece (FING)
and the Foundation for Research & Technology – Hellas (FORTH)

PARTNER SEARCH FORM

GENERAL DESCRIPTION

Ref:	09-OKT-904
Deadline:	10.11.2009
Title:	Carbon Nanotube Yarn Production Adaptation to Industrial Levels
Abstract:	The proposed research project focuses on the adaptation of carbon nanotube (CNT) yarn spinning techniques, currently under development in laboratory facilities, to mass production industrial level. CNT production methods, based on chemical vapor deposition (CVD), are to be evaluated and CVD reactors optimized, so that production output may reach industrial levels. CNT yarn spinning techniques are to be modified so that vertical integration into the process chains of carbon fiber production facilities is straight forward and with a minimum cost and risk. Based on the unique properties of the CNT yarns, their industrialization will open new markets for carbon fiber yarn and textile industries, with positive economic impact and new job openings.
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	Due to CNTs' unique properties, industrialization of CNT yarn production will open new markets for carbon fiber yarn and textile industries, with positive economic impact and new job openings. There is a multitude of foreseen consumer products like lighter, multi-functional, highly customized and personalized, more durable and far more efficient clothing and apparel with anti-ballistic, anti-radiation, anti-odour, antimicrobial, heat, fire and wrinkle resistant properties, textiles acting as electronic components capable of storing energy, emitting radiation, transmitting signals, sensing biometrics and even moving as artificial muscles, sensors in construction materials capable of sensing cracks or temperature changes in a structure, light-

	weight wiring in aerospace applications, leading to lower CO_2 emissions, more efficient power-transmission lines, resulting in significantly reduced power losses.
Keywords	yarn, fiber, spinning, carbon nanotube, CNT bundle, CVD reactor, mass production, molecular mechanics, FEM, CFD, textile

EUROPEAN FUNDING SOURCE

EC Programme(s)	NMP.2010.3.4-1 Manufacturing systems for 3D-shaped, multi-layered products based on flexible materials
Type(s) of Project	Large scale
Development Stage	Proposal under development

ORGANISATION/COMPANY

Organisation Type	University
Description of activities/other details	Research & Development

TARGET PARTNER

Target Partner Organisation Type(s)	SME, Large Company
Target Partner Expertise Sought	Textile/Yarn Manufacturing using carbon nanotubes
Application Domain(s):	Companies in the textile industry to assist with the development of textiles/yarns using carbon nanotubes and to produce final products.

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