PHYSICS AND TECHNOLOGY OF ELEMENTAL, ALLOY AND COMPOUND SEMICONDUCTOR NANOCRYSTALS: MATERIALS AND DEVICES

Fact Sheet

Project Information

SEMINANO

Grant agreement ID: 505285

Project website

Start date
1 September 2004

End date
31 August 2007

Funded under
FP6-NMP

Overall budget
€ 2 977 432

EU contribution
€ 2 219 556

Coordinated by
MIDDLE EAST TECHNICAL UNIVERSITY
Turkey

Objective

The primary objective of this project is to develop fundamental knowledge on the production techniques, characterization and methods of applications of semiconductor Nan crystals to light emitting devices and floating gate memories. Three main research directions can be identified in the project: First, physics and chemistry of a number of elemental, alloy and compound semiconductor Nan crystal formation and mechanisms of charge transport and light emission will be studied in a systematic way to acquire fundamental knowledge. Second, methods and technology of obtaining new materials with well-characterized Nan crystals suitable for use in device work will be developed. Finally, devices such as Metal Oxide Semiconductor (MOS) for use in flash memories and light-emitting devices (Leeds) will be designed, fabricated and tested as prototypes of devices incorporating the

unique features of Nan crystals. Full cycle starting from material processing to the demonstration of devices will be covered. Different materials, production techniques, processing conditions and characterization techniques will be employed to reach comprehensive results for the science and technology of semiconductor Nan crystals. As its main objectives are strongly related to the size dependent phenomena in semiconductors and its outcomes will form the basis for the new production techniques in the modern microelectronic and photon industry, this project addresses topics with the following activity codes of NMP Work Program: 3.4.1.1. ,
3.4.3.1.The project has been broken into 3 main work packages: WP1 deals with the Is and Gee Nan crystals prepared in different media and processed by various techniques. WP2 is related to the production and characterization of some alloy and compound semiconductor Nan crystals. WP3 deals with the application of the materials studied in the first two work packages to the devices mentioned above.

Programme(s)

Topic(s)

Call for proposal

FP6-2002-NMP-1

Funding Scheme

STREP - Specific Targeted Research Project

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