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Fundamentals and Applications of Nano-Carbon Electron Emitters

Fact Sheet

Project Information

FANCEE

Grant agreement ID: 295241

Project closed

Start date
1 April 2012

End date
31 March 2016

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 127 300,00

EU contribution
€ 127 300,00

Coordinated by
ITA-SUOMEN YLIOPISTO
Finland

Objective

Development of efficient electron sources is crucial for a wide range of applications including integrated vacuum microelectronics, MEMS, bright flat panel displays, energy conversion devices, and compact microwave amplifiers. In the search for new cathodes capable to produce a strong electron flux at low energy consumption, carbon materials possessing extraordinary field emission properties have been attracted a lot of attention. Control of the morphology and electron properties of nanocarbon species opens tremendous opportunities in the development of

advanced electron sources..
In the framework of the FANCEE Programme we will combine advanced materials synthesis, state of the art electron microscopy, and a range of characterization techniques to develop fundamentals and applications of the nanocarbon materials for electron emission. The research objectives of the FANCEE are (i) to reveal fundamental mechanisms of the field, thermionic and laser assisted electron emission from the nanostructured carbon materials, (ii) to establish relationship between structural and emission properties and create nanocarbon materials that enable enhanced emission, and (iii) to optimize the material properties and create advanced carbon cathodes for specific applications including cathodoluminescent light sources, X-ray tubes, electron guns for vacuum electronic devices.
We anticipate that theoretical and experimental results of FANCEE will provide new insights in the fundamental properties and application potential of nanocarbon materials in electronics. New functionalities arising from the nanostructuring of carbon cathodes will enable development of compact sources of ultra dense electron bunches of ultrashort duration.
FANCEE will reinforce the existing and create new cooperation links between the Partners through a coordinated joint programme in fabrication, investigation and applications of nanocarbon materials.

Fields of science (EuroSciVoc)

natural sciences > physical sciences > optics > microscopy > **electron microscopy**

natural sciences > physical sciences > electromagnetism and electronics > **microelectronics**

natural sciences > physical sciences > optics > **laser physics**

engineering and technology > environmental engineering > energy and fuels > **energy conversion**

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2011-IRSES - Marie Curie Action "International Research Staff Exchange Scheme"

Call for proposal

FP7-PEOPLE-2011-IRSES
[See other projects for this call]

Funding Scheme

MC-IRSES - International research staff exchange scheme (IRSES)

Coordinator

ITA-SUOMEN YLIOPISTO

EU contribution

€ 70 300,00

Total cost

No data

Address

YLIOPISTONRANTA 8
70211 KUOPIO
Finland

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Participants (2)

UNIVERSITE LYON 1 CLAUDE BERNARD

France

EU contribution

€ 26 600,00

Address

BOULEVARD DU 11 NOVEMBRE 1918 NUM43
69622 Villeurbanne Cedex

Region

Auvergne-Rhône-Alpes > Rhône-Alpes > Rhône

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

No data

ASOCIACION CENTRO DE INVESTIGACION COOPERATIVA EN NANOCIENCIAS CIC NANOGUNE

Spain

EU contribution

€ 30 400,00

Address

TOLOSA HIRIBIDEA 76
20018 San Sebastian

Region

Noreste > País Vasco > Gipuzkoa

Activity type

Research Organisations

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

No data

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