Synthesis and Formulation of Nanoparticles for pinning in YBCO coated conductors

Fact Sheet

Project Information

SynFoNY
Grant agreement ID: 722071
Project website
Status
Ongoing project
Start date
End date
1 January 2017
31 December 2020
Funded under
H2020-EU.1.3.1.
Overall budget
€ 499 776,72
EU contribution
€ 499 776,48
Coordinated by
UNIVERSITEIT GENT
Belgium

Objective

The main research objective is the formulation of new types of multimetaloxide nanocrystals for incorporation as artificial pinning centers in nanocomposite thin films processed using chemical solution deposition. Superconducting coated conductors are chosen as the proof of concept. Innovative chemical deposition methods and the incorporation of preformed and inert multimetaloxide nanocrystals as pinning centres into the superconducting nanocomposite thin film are the innovative aspects compared to ongoing research. A successful realisation of the objectives of this EID proposal will need training of ESRs on different aspects ranging from chemical precursor design, stabilisation of nanocrystals in precursor solutions, continuous deposition of superconducting nanocomposite coatings and optimisation of the superconducting properties in alternating magnetic fields.

The main objective of this programme is, in line with the EID scope, to enhance the career perspectives of early stage researchers (ESRs) by providing the unique opportunity to be exposed to research and training in both an academic as well as an
opportunity to be exposed to research and training in both an academic as well as an industrial environment. This will be facilitated through the partnership between Ghent University and the industrial partner Deutsche Nanoschicht GmbH, bringing together two widely respected research partners, active in the field of inorganic nanomaterials synthesis and coating development for improved superconducting wires for energy applications. The involved partner organisations entered the project for specific added value in terms of industrial scaled synthesis of nanocomposite precursors (hte GmbH: high throughput designs; BASF SE: new formulations and flow chemistry) and Univ. of Turku (physical characterisation).

**Field of science**

/ engineering and technology / materials engineering / coating and films  
/ humanities / arts / modern and contemporary art / film  
/ engineering and technology / nanotechnology / nano-materials / nanocrystal  
/ natural sciences / physical sciences / electromagnetism and electronics / electrical conductivity / superconductor  
/ engineering and technology / nanotechnology / nano-materials

**Programme(s)**

**Topic(s)**

**Call for proposal**

H2020-MSCA-ITN-2016

**Funding Scheme**

MSCA-ITN-EID - European Industrial Doctorates

**Coordinator**

**UNIVERSITEIT GENT**

<table>
<thead>
<tr>
<th>Address</th>
<th>Activity type</th>
<th>EU contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sint Pietersnieuwstraat 25 9000 Gent</td>
<td>Higher or Secondary Education Establishments</td>
<td>€ 499 776,48</td>
</tr>
</tbody>
</table>

Belgium

Website Contact the organisation
### Participants (1)

<table>
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<tr>
<th>Organisation</th>
<th>Country</th>
<th>EU contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEUTSCHE NANOSCHICHT GMBH</td>
<td>Germany</td>
<td>€ 0</td>
<td>Heisenbergstrasse 16 53359 Rheinbach</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
</tbody>
</table>

[Website](#) [Contact the organisation](#)

### Partners (3)

<table>
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<th>Organisation</th>
<th>Country</th>
<th>Address</th>
<th>Activity type</th>
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<tbody>
<tr>
<td>BASF SE</td>
<td>Germany</td>
<td>Carl Bosch Strasse 38 67063 Ludwigshafen Am Rhein</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
</tbody>
</table>

[Website](#) [Contact the organisation](#)

| hte GmbH                      | Germany | Kurpfalzring 104 69123 Heidelberg | Private for-profit entities (excluding Higher or Secondary Education Establishments) |

[Website](#) [Contact the organisation](#)

| TURUN YLIOPISTO               | Finland | Yliopistonmaki                  | Higher or Secondary                                                            |

[Website](#) [Contact the organisation](#)
Last update: 17 February 2020
Record number: 207411

Permalink: https://cordis.europa.eu/project/id/722071/

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