Towards Long-lived and Efficient Organic Light-emitting Electrochemical Cells

Fact Sheet

<table>
<thead>
<tr>
<th>Project Information</th>
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<tr>
<td>LEOLEC</td>
<td>Funded under</td>
<td>Overall budget</td>
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<tr>
<td>Grant agreement ID: 330055</td>
<td>FP7-PEOPLE</td>
<td>€ 154 763,10</td>
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<tr>
<td>Status</td>
<td></td>
<td>EU contribution</td>
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<td>Closed project</td>
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<td>€ 154 763,10</td>
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<td>Start date</td>
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<td>Coordinated by</td>
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<td>1 April 2013</td>
<td></td>
<td>LINKOPINGS UNIVERSITET</td>
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<td>End date</td>
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<td>Sweden</td>
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<td>12 January 2015</td>
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Objective

"Conventional incandescent lamps are being phased out in Europe due to their low energy efficiency. Organic light-emitting electrochemical cells (OLECs) are potentially..."
a promising alternative to them. This proposal aims to tackle two major challenges currently limiting practical applications of OLECs, i.e. their relatively short lifetime and low efficiency. The short lifetime of OLECs is due to the fact that the illumination zone is positioned close to the cathode. We have designed several experiments to examine possible causes for this close-to-cathode illumination zone. A better understanding of the reason for the close-to-cathode illumination position could help to increase the device lifetime. In terms of efficiency, the host group has recently demonstrated a novel approach to significantly improve the efficiency of white-light organic light-emitting diodes by incorporating biological materials into the device. We propose to extend this promising approach to OLECs. We will also perform photophysical experiments to examine the exact function of the biological materials. A better understanding of physics behind efficiency improvement will help to improve the device efficiency further. In addition to the research objectives, the proposal also aims to train the fellow with new knowledge and skills which are necessary for him to reach his medium- and long-term career goals by means of the personalised project. The fellow will also expect to gain transferable skills (including leadership skills, teaching skills, etc.) through attending workshops and teaching courses for PhD students. The proposed project falls directly under ‘European Organic and Large Area Electronics’ of the 7th Framework Programme, which underlines the relevance of the work. By addressing two challenges currently faced by the OLEC research community, the expected research findings will enhance the European Research Area competitiveness."

Field of science

/social sciences/educational sciences/pedagogy/teaching
/engineering and technology/environmental engineering/waste management/energy efficiency

Programme(s)

Topic(s)

Call for proposal

FP7-PEOPLE-2012-IEF

Funding Scheme

MC-IEF - Intra-European Fellowships (IEF)

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