Objective

Currently, new concepts are being considered for hadron and jet calorimetry in high energy physics experiments, in order to improve the energy resolution of these detectors by a factor of at least two. This is a prerequisite for future studies at the high luminosity, large hadron collider as well as at future electron and proton colliders. Amongst the few concepts being proposed, scintillating and Čerenkov fibres are considered very promising candidates.

The INTELUM project will be a 4 year project funding international, industry-academia exchanges to develop micro-pulling-down crystal growth and other new types of fibre technology. This new fibre production technology has the potential to enable fast, low-cost, manufacture of heavy crystal scintillating fibres.

In order to prove the new fibre technology concept, two key technical issues will be addressed during the project:

- demonstrate feasibility of producing between 20-200km of fibres with consistent quality and well defined production costs
• demonstrate sufficient radiation hardness of the fibres that the degradation of their optical properties is below 10% at 1 MGy level

This ambitious project will be undertaken by a truly international consortium of sixteen institutes and companies, many closely linked to the Crystal Clear Collaboration. The project will also lead to important impacts in other domains such as functional medical imaging and homeland security.

**Field of Science**

/ natural sciences/ physical sciences/ theoretical physics

/ natural sciences/ chemical sciences/ analytical chemistry/ calorimetry

/ medical and health sciences/ clinical medicine/ radiology/ medical imaging

/ natural sciences/ physical sciences/ theoretical physics/ particles/ particle accelerator

**Programme(s)**

H2020-EU.1.3.3. - Stimulating innovation by means of cross-fertilisation of knowledge

**Topic(s)**

MSCA-RISE-2014 - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

**Call for proposal**

H2020-MSCA-RISE-2014

**See other projects for this call**

**Funding Scheme**

MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

**Coordinator**
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<th>EU Contribution</th>
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<td>EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH</td>
<td>€ 252 000</td>
<td>Research Organisations</td>
<td>Esplanade Des Particules 1 Parcellle 11482 De Meyrin Batiment Cadastral 1046 1211 Geneva 23 Switzerland</td>
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<td>CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS</td>
<td>€ 292 500</td>
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<td>Rue Michel Ange 3 75794 Paris France</td>
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<td>Rue Wilson 31 69150 Decines Charpieu France</td>
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<td>Higher or Secondary Education Establishments</td>
<td>Ludwigstrasse 23 35390 Giessen Germany</td>
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<td>€ 99 000</td>
<td>Na Slovance 2 18221 Praha 8</td>
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<td>Italy</td>
<td>€ 148 500</td>
<td>Piazza Dell'Ateneo Nuovo 1 20126 Milano</td>
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<td>Luxembourg</td>
<td>€ 36 000</td>
<td>35 Cite Am Wenkel 8086 Bertrange</td>
</tr>
<tr>
<td>CRYTUR SPOL.S.R.O.</td>
<td>Czechia</td>
<td>€ 27 000</td>
<td>Palackeho 175 51101 Turnov</td>
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THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
United States
Address
Franklin Street 1111, 12 Floor
94607 Oakland Ca
Activity type
Higher or Secondary Education Establishments

POLYMICRO TECHNOLOGIES, LLC
United States
Address
18019 North 25th Avenue
85023 Phoenix Az
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

INSTITUTE FOR PHYSICAL RESEARCH OF NATIONAL ACADEMY OF SCIENCES OF ARMENIA
Armenia
Address
Gitavan 2
0203 Ashtarak
Activity type
Research Organisations

Institute for Scintillation Materials of National Academy of Sciences of Ukraine
Ukraine
Address
Lenina Av. 60
61001 Kharkov
Activity type
Research Organisations

Website
Contact the organisation
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<td>Nezavisimosti Av 4, 220050 Minsk</td>
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<td>1-1 Katahira, 2 Chome, Aoba-Ku, 980 8577 Sendai</td>
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<td>YURIKOGYO CO LTD</td>
<td>Japan</td>
<td>2-659 Nishimemachi, Numata Aza Shinnichishita, 018 0604 Yurihonjo Akita</td>
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TDK CORPORATION
- Japan

Address
3-9-1 Shibaura Minato-Ku
108-0023 Tokyo

Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)

C&A Corporation
- Japan

Address
6-6-40 Aza-Aoba, Aramaki, Aoba-Ku,
9808579 Sendai

Activity type
Private for-profit entities
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Last update: 31 July 2019
Record number: 194176