# ESFR-SMART

**Project ID:** 754501  
**Funded under:** H2020-Euratom-1.1. - Support safe operation of nuclear systems

## European Sodium Fast Reactor Safety Measures Assessment and Research Tools

**From** 2017-09-01 **to** 2021-08-31, ongoing project

### Project details

<table>
<thead>
<tr>
<th><strong>Total cost:</strong></th>
<th><strong>Topic(s):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 9 911 150</td>
<td>NFRP-2 - Research on safety of fast neutron Generation-IV reactors</td>
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<tr>
<td><strong>EU contribution:</strong></td>
<td><strong>Call for proposal:</strong></td>
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<td>EUR 5 000 000</td>
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<td><strong>Coordinated in:</strong></td>
<td><strong>Funding scheme:</strong></td>
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<tr>
<td>Switzerland</td>
<td>RIA - Research and Innovation action</td>
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### Objective

To improve the public acceptance of the future nuclear power in Europe we have to demonstrate that the new reactors have significantly higher safety level compared to traditional reactors. The ESFR-SMART project (European Sodium Fast Reactor Safety Measures Assessment and Research Tools) aims at enhancing further the safety of Generation-IV SFRs and in particular of the commercial-size European Sodium Fast Reactor (ESFR) in accordance with the ESNII roadmap and in close cooperation with the ASTRID program. The project aims at 5 specific objectives:

1. Produce new experimental data in order to support calibration and validation of the computational tools for each defence-in-depth level.
2. Test and qualify new instrumentations in order to support their utilization in the reactor protection system.
3. Perform further calibration and validation of the computational tools for each defence-in-depth level in order to support safety assessments of Generation-IV SFRs, using the data produced in the project as well as selected legacy data.
4. Select, implement and assess new safety measures for the commercial-size ESFR, using the GIF methodologies, the FP7 CP-ESFR project legacy, the calibrated and validated codes and being in accordance with the update of the European and international safety frameworks taking into account the Fukushima accident.
5. Strengthen and link together new networks, in particular, the network of the European sodium facilities and the network of the European students working on the SFR technology.

Close interactions with the main European and international SFR stakeholders (GIF, ARDECo, ESNII and IAEA) via the Advisory Review Panel will enable reviews and recommendations on the project’s progress as well as dissemination of the new knowledge created by the project. By addressing the industry, policy makers and general public, the project is expected to make a meaningful impact on economics, EU policy and society.

### Related information

- **Total cost:** EUR 9 911 150
- **EU contribution:** EUR 5 000 000
- **Coordinated in:** Switzerland
- **Topic(s):** NFRP-2 - Research on safety of fast neutron Generation-IV reactors
- **Call for proposal:** NFRP-2016-2017-1
- **Funding scheme:** RIA - Research and Innovation action
Coordinator

PAUL SCHERRER INSTITUT
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EU contribution: EUR 575 934

See on map

Activity type: Research Organisations
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Participants

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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
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EU contribution: EUR 4 443

Participation ended
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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation

COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES
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EU contribution: EUR 676 641

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Activity type: Research Organisations
Contact the organisation

CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT
Avenida Complutense 40
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Activity type: Research Organisations
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EU contribution: EUR 52 300

Activity type: Higher or Secondary Education Establishments
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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
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AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L’ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE  
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Activity type: Research Organisations
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Activity type: Research Organisations
Contact the organisation
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**Activity type:** Higher or Secondary Education Establishments

Contact the organisation

EU contribution: EUR 52 125

INSTITUT DE RADIPROTECTION ET DE SURETE NUCLEAIRE
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**Activity type:** Research Organisations

Contact the organisation

EU contribution: EUR 242 690

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1049 BRUSSELS
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**Activity type:** Research Organisations

Contact the organisation

EU contribution: EUR 646 625

KARLSRUHER INSTITUT FUER TECHNOLOGIE
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76131 KARLSRUHE
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See on map

**Activity type:** Higher or Secondary Education Establishments

Contact the organisation

EU contribution: EUR 890 781

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France
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**Activity type:** Higher or Secondary Education Establishments

Contact the organisation

EU contribution: EUR 129 770