



## JRC TECHNICAL REPORTS

# 2017 ELSA Open progress report

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## **Abstract**

This report presents the progress achieved in 2017 in the implementation of the project for opening access to the ELSA Reaction Wall and HopLab facilities. Following the approval of the opening of access to JRC physical research infrastructures, the information regarding access to HopLab was collected, the evaluation criteria and associated weights were finalised, the dedicated pages in the JRC Science Hub were created, the calls for proposals were published and the User Selection Committees were established. Six proposals were submitted for access to ELSA HopLab, exceeding the planned availability of the facility within the project. The deadline for submission of proposals for access to ELSA Reaction Wall is the 31<sup>st</sup> of January 2018.



# 1 Introduction

The JRC Strategy 2030 for 'Infrastructure fit for purpose' includes an action to open up JRC's research infrastructure to external use. This will give European research and business organisations access to equipment that they would not normally have. It will also raise the value and visibility of DG JRC's research infrastructures. ELSA-Open is a pilot project of this action that will make available to researchers and industry the ELSA Reaction Wall and the HopLab facilities. Access will be granted through open calls and proposals will be evaluated by a selection panel, considering a set of priority topics and other criteria.

This report presents the progress achieved in 2017 in the implementation of the project for opening access to the ELSA Reaction Wall and HopLab facilities. The most important milestones are summarised in Table 1. Following the approval of the opening of access to JRC physical research infrastructures, the information regarding access to HopLab was collected, the evaluation criteria and associated weights were finalised, the dedicated pages in the JRC Science Hub were created, the calls for proposals were published and the User Selection Committees were established.

**Table 1.** Important milestones achieved in 2017 for access to ELSA Reaction Wall and HopLab facilities

<b>Milestone</b>	<b>Date</b>
Approval of open access to JRC physical research infrastructures by JRC Directoire	31 January 2017
Creation of draft pages in JRC Science Hub	2 June 2017
Publication of pages on 'Open access to JRC Research Infrastructures' in the JRC Science Hub	26 June 2017
Publication of call for proposals for access to ELSA HopLab	26 June 2017
Publication of European Commission press release on opening of JRC laboratories to wider scientific community	13 July 2017
Publication of call for proposals for access to ELSA Reaction Wall	18 September 2017
Closure of call for proposals for access to ELSA HopLab	20 October 2017
Approval of User Selection Committee by JRC Directoire	13 November 2017
Endorsement of User Selection Committee by JRC Board of Governors	21 November 2017
Establishment of expert pool for members of User Selection Committee)	30 November 2017

A press release on the opening of JRC laboratories to the wider scientific community was published in July 2017, citing Tibor Navracsics, Commissioner for Education, Culture, Youth and Sport: *'The JRC hosts several high-value research facilities, some of which are unique in Europe and in the world. We know from past collaborations that many external researchers are keen to use these facilities to advance their work on some of the big challenges facing our societies and economies. By opening up our laboratories, we will realise their full potential in collaboration with European researchers and industry, for the benefit of policy-makers, businesses and, above all, citizens.'*

## 2 Evaluation of proposals

### 2.1 Procedure and criteria for evaluation

According to the 'Framework of Access to Joint Research Centre physical Research Infrastructures', eligible proposals are evaluated by a User Selection Committee for each infrastructure. Each member of the User Selection Committee evaluate independently each proposal according to a set of selection criteria and provides an evaluation form with the grades of all submitted proposals.

Proposals are evaluated by each member of the User Selection Committee with the grades 10 (excellent), 8 (good), 6 (fair), 4 (poor) and 0 (irrelevant), for the selection criteria listed in Table 2. Intermediate grading is also possible. The grades are averaged per criterion across the evaluators, according to the weights in Table 2. Proposals that do not meet a minimum average grade of 6 in the criteria of 'Scientific and technical value', 'Originality and innovation' and 'Quality of proposing team' are rejected. The final grade is calculated as the weighted sum of the average grade for each criterion. Proposals that do not meet a minimum total (considering all criteria) weighted grading of 6 are rejected.

**Table 2.** Evaluation criteria and weights for the proposals submitted for access to ELSA Reaction Wall and HopLab

<b>Criterion</b>	<b>Weight</b>
<b>Scientific Implementation</b>	
Scientific and technical value	15
Originality and innovation	15
Dissemination and exploitation plan	5
Cost and feasibility according to the RI	10
Quality of proposing team	5
<b>Collaboration and access to new Users</b>	
Uniqueness and availability of similar facilities in any of the Users Institution's countries	5
Previous use of Research Infrastructure by any user	5
Training (involvement of young scientists)	7.5
Synergies and complementarities with existing research projects and the ESFRI <sup>1</sup>	2.5
<b>Strategic relevance to the JRC</b>	
Relevance to priority topics of the RI	15
Relevance to JRC thematic focus areas (Nexus)	2.5
<b>Strategic importance for Europe</b>	
Importance for European standardisation	2.5
Importance for European integration and cohesion	2.5
Importance for Associated Countries to H2020	2.5
Importance for sustainable growth and European competitiveness	2.5
Relevance to the 10 European Commission Priorities	2.5

<sup>1</sup> [http://ec.europa.eu/research/infrastructures/index\\_en.cfm?pg=esfri](http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri)

## 2.2 User Selection Committee

The role of the User Selection Committee is to evaluate the proposals submitted for access to the JRC physical research infrastructures. Each User Selection Committee is composed of a minimum of three, to a maximum of five members: one representative of the JRC acting as chair of the User Selection Committee and two to four independent European experts from academia and research institutions.

Members of the User Selection Committee are considered as experts pursuant to Chapter III of Regulation (EU) 1290/2013 of the European Parliament and of the Council<sup>2</sup>. The appointment of the User Selection Committee is approved by the JRC Directoire and the JRC Board of Governors is consulted for endorsement.

The User Selection Committee may be convened to express a non-binding opinion on issues that may arise between the JRC and the Lead User Institution of a successful proposal when delineating the details of the test program.

The User Selection Committee may be convened by the JRC research infrastructure to discuss issues related to the implementation of a User Access Project, in particular when there are strong deviations from the project plan as contained in the Description of Work of the Research Infrastructure Access Agreement.

Two separate User Selection Committees were proposed for the ELSA Reaction Wall and HopLab research infrastructures. The User Selection Committees were approved by the JRC Directoire on the 13<sup>th</sup> of November 2017 and endorsed by the JRC Board of Governors on the 21<sup>st</sup> of November 2017. The User Selection Committees are composed of four full professors, two emeritus professors and a senior research specialist. The members of the User Selection Committees are from Belgium, Croatia, Czech Republic, France, Greece, Romania and the former Yugoslav Republic of Macedonia. Three out of the seven members are female.

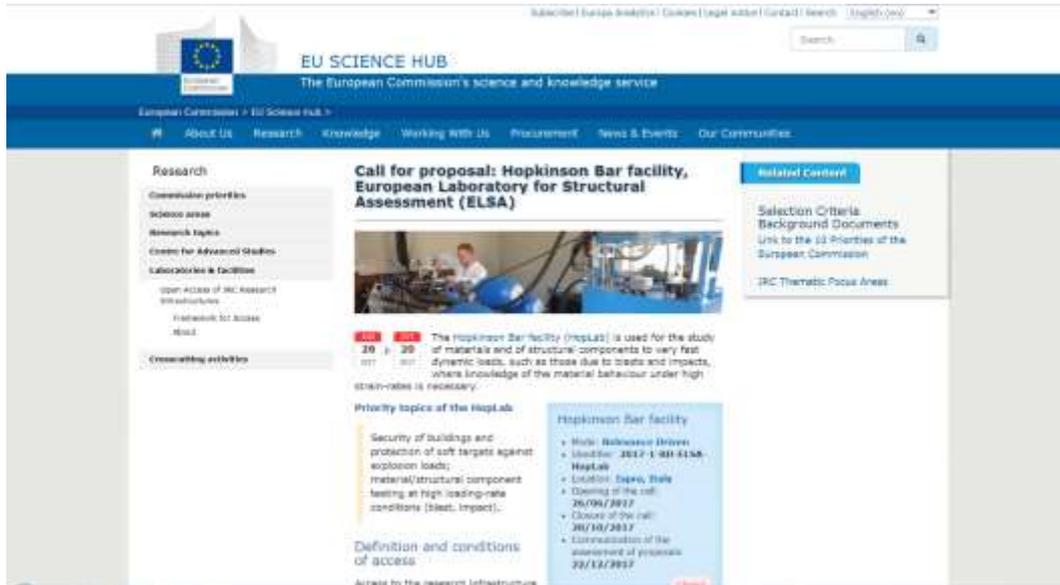
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<sup>2</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1290&from=EN>

### 3 Call for access to ELSA HopLab

The call for proposals for relevance-driven access to the ELSA HopLab facility was opened on the 26<sup>th</sup> of June 2017 (see Figure 1). The priority topics were i) security of buildings and protection of soft targets against explosion loads and ii) material/structural component testing at high loading-rate conditions (blast, impact).

**Figure 1.** Screenshot of the call for proposals for access to ELSA HopLab



A total of 15 days of access was allocated to the call, with an average of 10 days per project. The estimated costs excluding consumables and expenses is 319 € / day (the research infrastructure is operated exclusively by JRC staff).

The call for proposals closed on the 20<sup>th</sup> of October 2017 and six proposals were submitted. The six proposing teams comprised in total 22 researchers from 14 organisations in eight countries across Europe (see Figure 2). The total requested number of access days is above 50, which over-exceeds the planned availability of the facility.

**Figure 2.** Location of institutions that applied for access to ELSA HopLab



The proposals cover the following topics:

- retrofit of large-panel concrete systems,
- steel under severe high impact,
- dynamic performance of adobe components,
- dynamic strength of additive manufactured concrete,
- bonded anchors subjected to high strain rates,
- concrete under dynamic compression and tension.

All proposals were eligible, according to the following criteria:

- the Lead User Institution and User Institutions must be from an EU Member State, candidate country or country associated to the EU Research Programme Horizon 2020,
- the Lead User Institution must be from a university, research or public institution, or from a Small-Medium-Enterprise (SME),
- ethical considerations in accordance with EU Law, in particular Art. 19 of Regulation (EU) 1291/2013, and applicable laws and regulations in the EU Member States,
- the proposal submission form is complete and complies with the instructions.

## 4 Call for access to ELSA Reaction Wall

The call for proposals for relevance-driven access to the ELSA Reaction Wall facility was opened on the 18<sup>th</sup> of September 2017 (Figure 3). The priority topics were i) design and retrofit for resilience (modular construction, damage-free structures, influence of non-structural elements, cumulative damage, ageing construction), ii) safety of building infrastructure against multiple hazards, iii) multi-functional building envelopes and iv) structural glass.

**Figure 3.** Screenshot of the call for proposals for access to ELSA Reaction Wall



A total of 16 days of access was allocated to the call, with an average of 8 days per project. The estimated costs excluding consumables and expenses is 2776 € / day (the research infrastructure is operated exclusively by JRC staff).

The call for proposals has been extended to the 31<sup>st</sup> of January 2018. Following the closing of the call, the submitted proposals will be checked for eligibility according to the criteria listed in Section 3 and the eligible proposals will be sent to the User Selection Committee for evaluation.

## **5 Concluding remarks**

The pilot project for opening access to ELSA Reaction Wall and HopLab facilities implements the JRC Strategy 2030 for 'Infrastructure fit for purpose'. The first calls for proposals for access to ELSA Reaction Wall and HopLab facilities were launched in 2017.

The call for proposals for access to ELSA HopLab closed on the 20<sup>th</sup> of October 2017. Six proposing teams comprising 22 researchers from 14 organisations in eight countries across Europe applied for access. It is noted that the total requested number of access days is above 50, which over-exceeds the planned availability of the facility.

The call for proposals for access to ELSA Reaction Wall will close on the 31<sup>st</sup> of January 2018.

The future steps include: evaluation of the proposals by the User Selection Committees (by the end of January 2018 for ELSA HopLab and by the end of March 2018 for ELSA Reaction Wall), discussions with Lead User of shortlisted proposals to define the details of the projects, signing of the Research Infrastructure Access Agreement and launching of the selected projects.

It is foreseen that the experience in the preparation of the calls, evaluation of proposals, negotiations with successful users, implementation of the selected projects, etc. will be reviewed together with other JRC research infrastructures that participate in the pilot project and with all involved services. Where necessary, amendments of the framework and procedures will be proposed.



**A European Commission press release of 13 July 2017 on opening of JRC laboratories to wider scientific community**





## European Commission Joint Research Centre opens its laboratories to wider scientific community

Brussels, 13 July 2017

**The European Commission's in-house science and knowledge service, the Joint Research Centre (JRC), is opening its scientific laboratories and facilities to scientists and researchers from the private and public sectors.**

As early as December 2017, researchers will be able to use JRC research facilities located in Ispra (Italy), and thereafter in Geel (Belgium), Karlsruhe (Germany) and Petten (Netherlands), thus helping to maximise the benefits of these world-class infrastructures and laboratories

Past successful cooperation with universities, research institutes and SMEs has shown that there is big interest in using JRC facilities. With this initiative, the JRC aims to spread scientific knowledge, boost competitiveness and help to bridge the gap between research and industry. The results will also feed into JRC's mission to support EU policymaking.

**Tibor Navracsics**, Commissioner for Education, Culture, Youth and Sport, responsible for the Joint Research Centre, said: *"The JRC hosts several high-value research facilities, some of which are unique in Europe and in the world. We know from past collaborations that many external researchers are keen to use these facilities to advance their work on some of the big challenges facing our societies and economies. By opening up our laboratories, we will realise their full potential in collaboration with European researchers and industry, for the benefit of policy-makers, businesses and, above all, citizens."*

During the pilot phase in 2017-2018, three facilities in Ispra will be opened to external users. They are the [Reaction Wall](#) and the [Hopkinson Bar facility](#) of the European Laboratory for Structural Assessment (ELSA), and the [Nanobiotechnology Laboratory](#).

Access to other JRC facilities in Belgium, Germany and the Netherlands will be possible after the pilot phase.

### Testing resistance against earthquakes and explosions

The ELSA laboratory is equipped with the second largest reaction wall in the world and the largest one in Europe. This wall allows researchers to test the earthquake-resistance of buildings that are up to five floors high. The facility is equipped with sensors and high-resolution cameras that register the deformations of the building and a computer system for advanced numerical modelling. Insights gained from tests with the reaction wall have been used for example to help limit the potential damage caused by future earthquakes in seismic-prone regions of Europe.

JRC research and data also contribute to the development of [Eurocodes](#), a set of European standards for the construction sector, fostering innovation and making European buildings safer to live and work in. Eurocodes are used for the design of buildings and structures, such as the Millau Viaduct in France, the roof of the Liège railway station in Belgium and the roof of Hall M at the Charles de Gaulle airport in Paris.

Another facility at the ELSA laboratory – the Hopkinson bar (HopLab) laboratory – is used to test the resistance of materials against blasts or explosions. The JRC HopLab is the world's largest Hopkinson bar, measuring over 200 meters. It allows large material samples or structural components to be tested in dynamic conditions that simulate impacts and blasts.

Scientists at the ELSA laboratory have already collaborated with a large number of European and international institutions through joint competitive projects and collaboration agreements.

### Nanobiotechnology Laboratory

The JRC Nanobiotechnology Laboratory is a state-of-the-art laboratory equipped with a wide range of facilities and cutting-edge instrumentation. The laboratory fosters interdisciplinary studies, with a special emphasis on the characterisation of nanomaterials, nanomedicines, and advanced materials and their interactions with biological systems.

Access to the Nanobiotechnology lab will be provided to external researchers to promote the

development and exploitation of nanotechnology and advanced materials. These [Key Enabling Technologies](#) provide the basis for further innovation and development in various sectors such as health, transport and energy.

### **Background**

The JRC will offer access to its non-nuclear facilities to researchers and scientists from EU Member States, candidate countries and countries associated to the Horizon 2020 Research Programme. The JRC will not make a profit from opening up its facilities to outside users.

A [dedicated public portal](#) has been set up as part of the JRC website with information on all aspects linked to the JRC Research Infrastructure Open Access initiative, including the publication of calls for proposals, information on the conditions and criteria for access as well as the submission process. The calls for access to the first three laboratories are available on the portal: <https://ec.europa.eu/jrc/en/research-facility/open-access>.

### **For More Information**

[Pocket leaflet](#)

IP/17/2002

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