# Short-Term Scientific Mission Grant
## - APPLICATION FORM[1] -

**Action number: CA20111**

**Applicant name: Abdelghani Alidra**

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**Details of the STSM**

Title: Indexing and web search for cross libraries Proofs

Start and end date: 14/04/2025 to 24/04/2025

Estimation of costs :

- Airplane ticket : 431 Euros

- Accomodation : 1170 Euros

- Food : 40 Euros * 10.5 = 420 Euros

- Total : 2021 Euros

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**Goals of the STSM**

Purpose and summary of the STSM.

*The aim of the STSM is to enhance existing tools to allow a smooth and user-friendly search of proofs developed in different libraries and/or different proovers. Specifically, we want to finish to set up a web server to answer online requests on the HOL-Light library and its translation in Lambdapi and Coq.*

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**Working Plan**

Description of the work to be carried out by the applicant.

*To reach the STSM aims, the applicant, together with the host, will collaborate on several tasks:*

*1. The applicant will specify how to integrate the tools with the existing indexing schema, following up on the previous work of the host on implementing indexing/retrieval in LambdaPi. In particular, the applicant and the host will study how to automatize re-indexing when a new library version is released without interrupting the service.*

*2. The applicant will modify LambdaPi to integrate remote searches passed to the centralized repository with indexing and search on libraries locally installed or under development. For instance, links in the results must be adapted to local/remote searches.*

*3. At the moment, in case of ambiguous queries, a partial answer is given by the search tool. The applicant will work with the host on "disambiguating" the queries and resubmitting them to obtain better*

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*results.*

*4. Currently, the search service is mainly offered through a web interface. The applicant will work on a better integration with existing IDEs (Integrated Development Environments) supported by Lambdapi (especially VS Code).*

*5. Currently, the web search tool uses a rudimentary interface to present the search results. The applicant will work together with the host to enhance the interface in terms of filtering and ordering results, a user-friendly navigation, ...*

## Expected outputs and contribution to the Action MoU objectives and deliverables.

*The STMS directly contributes to WG4 objectives, more specifically, to the research objective 5 (Provide tools for searching large libraries of formal proofs) which in turns impacts also on the capacity building objective 4 (Ease access to formal verification techniques in education and Gather proofs translated in Dedukti into a FAIR database). Additionaly, it contributes to reaserch objective 1 (Express new proof systems in the Dedukti logical framework) and research objective 3 (Make techniques for program verification more effective and more accessible to all stakeholders)*