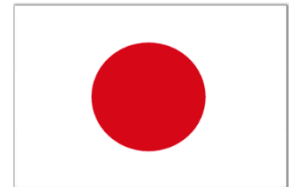




The project



Japan and Europe Network for Neutrino and
Intensity Frontier Experimental Research



EUROPEAN COMMISSION

Horizon 2020 - Research and Innovation Framework Programme

Evaluation Summary Report

Call: H2020-MSCA-RISE-2014
Funding scheme: Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)
Proposal number: 644294
Proposal acronym: JENNIFER
Duration (months): 48
Proposal title: Japan and Europe Network for Neutrino and Intensity Frontier Experimental Research
Activity: PHY

| N. | Proposer name | Country | Total Cost | % | Grant Requested | % |
|--------|--|---------|------------|--------|-----------------|--------|
| 1 | ISTITUTO NAZIONALE DI FISICA NUCLEARE | IT | 774,000 | 33.53% | 774,000 | 33.53% |
| 2 | STIFTUNG DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY | DE | 418,500 | 18.13% | 418,500 | 18.13% |
| 3 | OESTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN | AT | 99,000 | 4.29% | 99,000 | 4.29% |
| 4 | THE HENRYK NIEWODNICZANSKI INSTITUTE OF NUCLEAR PHYSICS, POLISH ACADEMY OF SCIENCES | PL | 40,500 | 1.75% | 40,500 | 1.75% |
| 5 | UNIVERZITA KARLOVA V PRAZE | CZ | 45,000 | 1.95% | 45,000 | 1.95% |
| 6 | INSTITUT JOZEF STEFAN | SI | 121,500 | 5.26% | 121,500 | 5.26% |
| 7 | MIDDLE EAST TECHNICAL UNIVERSITY | TR | 63,000 | 2.73% | 63,000 | 2.73% |
| 8 | CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE | FR | 76,500 | 3.31% | 76,500 | 3.31% |
| 9 | COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES | FR | 126,000 | 5.46% | 126,000 | 5.46% |
| 10 | INSTITUTO DE FISICA DE ALTAS ENERGIAS | ES | 103,500 | 4.48% | 103,500 | 4.48% |
| 11 | NARODOWE CENTRUM BADAN JADROWYCH | PL | 126,000 | 5.46% | 126,000 | 5.46% |
| 12 | QUEEN MARY UNIVERSITY OF LONDON | UK | 126,000 | 5.46% | 126,000 | 5.46% |
| 13 | SCIENCE AND TECHNOLOGY FACILITIES COUNCIL | UK | 171,000 | 7.41% | 171,000 | 7.41% |
| 14 | COSTRUZIONI APPARECCHIATURE ELETTRONICHE NUCLEARI C.A.E.N. SPA | IT | 18,000 | 0.78% | 18,000 | 0.78% |
| 15 | INTER-UNIVERSITY RESEARCH INSTITUTE CORPORATION, HIGH ENERGY ACCELERATOR RESEARCH ORGANISATION | JP | 0 | 0.00% | 0 | 0.00% |
| Total: | | | 2,308,500 | | 2,308,500 | |

+ **Tokyo University - ICRR**

new partner added during Grant agreement preparation.

Moving people (and ideas) between Europe and Japan



HyperK R&D



4 years

5 Work Packages

513 person months

More than 200 persons (researchers + technicians)

Almost 400 secondments

26 deliverables

8 milestones

Timeline of the project

April 1st 2015

March 2019

Project starts

Report due
(in 30 days)

Report due
(in 30 days)

Report due
(in 30 days)

Report due
(in 30 days)

0 (months)

12 ... 14

24

36 ... 38

48

>50

Mid term review

2nd Mid term review

Second financing:

- conditioned to review result
- 45% transferred to coordinator
- Coordinator immediately transfer to beneficiaries their quota

After final audit
(if successfull)
final 10% payment.

Pre-financing:

- **10% kept by EU as guarantee**
- 45% transferred to coordinator
- Coordinator immediately transfer to beneficiaries their quota

5 Work Packages:

1-2 BELLE-II

3-4 T2K

5 Management

Table B3: Work Package List

| Work Package No | Work Package Title | Activity Type | Number of person-months involved | Start Month | End month |
|-----------------|---|--|----------------------------------|-------------|-----------|
| 1 | Flavour physics at an e+e- collider | Research, training, dissemination, communication | 70 65 | 1 | 48 |
| 2 | Belle-II detector construction and test | Research, training | 222 227 | 1 | 48 |
| 3 | Neutrino oscillation physics | Research, training, dissemination, communication | 115 | 1 | 48 |
| 4 | Towards HyperK | Research, training | 96 | 1 | 48 |
| 5 | Management | Management, Networking, Dissemination, Communication | 10 | 1 | 48 |

Flavour physics at an e^+e^- collider

Task 1.1: Detector related software

Deliverables: **annual workshops (first by april 2016)**

Task 1.2 : Physics analysis tools

Deliverables: **tutorials to Belle-II members (first by april 2016)**
written and updated user guide (april 2018)

Task 1.3: Belle-II physics-theory interface platform

Deliverables: **Belle-II yellow report (april 2017)**

BELLE-II detector construction and test

Task 2.1: Forward Electromagnetic Calorimeter

Deliverables: **final TDR (Feb 2016)**
final Commissioning Report (april 2019)

Task 2.2 : Tracking detectors

Deliverables: **full CDC commissioning (june 2016)**
PXD whitebook (december 2016)
full SVD+PXD integration and commissioning inside BELLE-II (october 2017)

Task 2.3: Particle identification

Deliverables: **Barrel PID calibration and commissioning (april 2018)**
Forward PID calibration and commissioning (april 2018)

Task 2.4: Luminosity monitor

Deliverables: **diamond sensors optimization for accelerator feedback (april 2018)**

Neutrino Oscillation Physics

Task 3.1: Neutrino interactions and cross sections

Task 3.2 : External background studies

Task 3.3: Exotic physics

Common Deliverables: **report on anti-neutrino analysis (april 2017)**
report on MEC searches methods (april 2019)
**report on combined electron and muon neutrino
oscillation analysis (april 2019)**

Towards HyperKamiokande

Task 4.1: Water Cherenkov detector

Deliverables: HyperK sensitivity study with a 2 Kton WC detector (april 2017)
Photosensor performance study (april 2018)
1 Kton detector test

Task 4.2 : High Pressure TPC

Deliverables: detailed simulation (april 2017)

Task 4.3: Beam

Deliverables: Beam target design (april 2019)
Beam target proposal (april 2019)

Task 5.1: Management of secondments

Deliverables: appointing project Executive Committee (may 2015)
Secondments DB creation and maintenance (july 2015)

Task 5.2 : Organization of common events

Deliverables: yearly general meeting (with proceedings) (first by april 2016)

Task 5.3: Outreach activities

Deliverables: yearly outreach event (first by april 2016)
yearly school for graduate students (first by april 2016)
BELLE-II inclusion in masterclasses program (april 2017)

Communication and outreach are an essential part of the project !

Milestones

| | |
|---|-----------------|
| Appointment of WP coordinators (EC) | month 1 |
| Belle-II Yellow report | month 24 |
| PXD Whitebook | month 20 |
| MidTerm T2K analysis report | month 24 |
| Report on HyperK sensitivity study | month 24 |
| Masterclasses exercises about Belle-II and T2K physics | month 24 |
| Beam target design for HyperK | month 36 |
| Commissioning of Belle-II new detectors | month 48 |

The specific JENNIFER «mission»

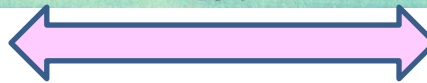
All our research activities had started since long and would have been done anyway!

EC is supporting them but is requiring us to work in a different way:

Bridging and cross-fertilizing different communities and approaches !



Europe



Japan

Academia



Industry

Quark flavour



Neutrino flavour

research



society

Many common topics to develop together

Physics !

Analysis and computing techniques

Photodetectors

Data acquisition and control systems

Beam-detector interface

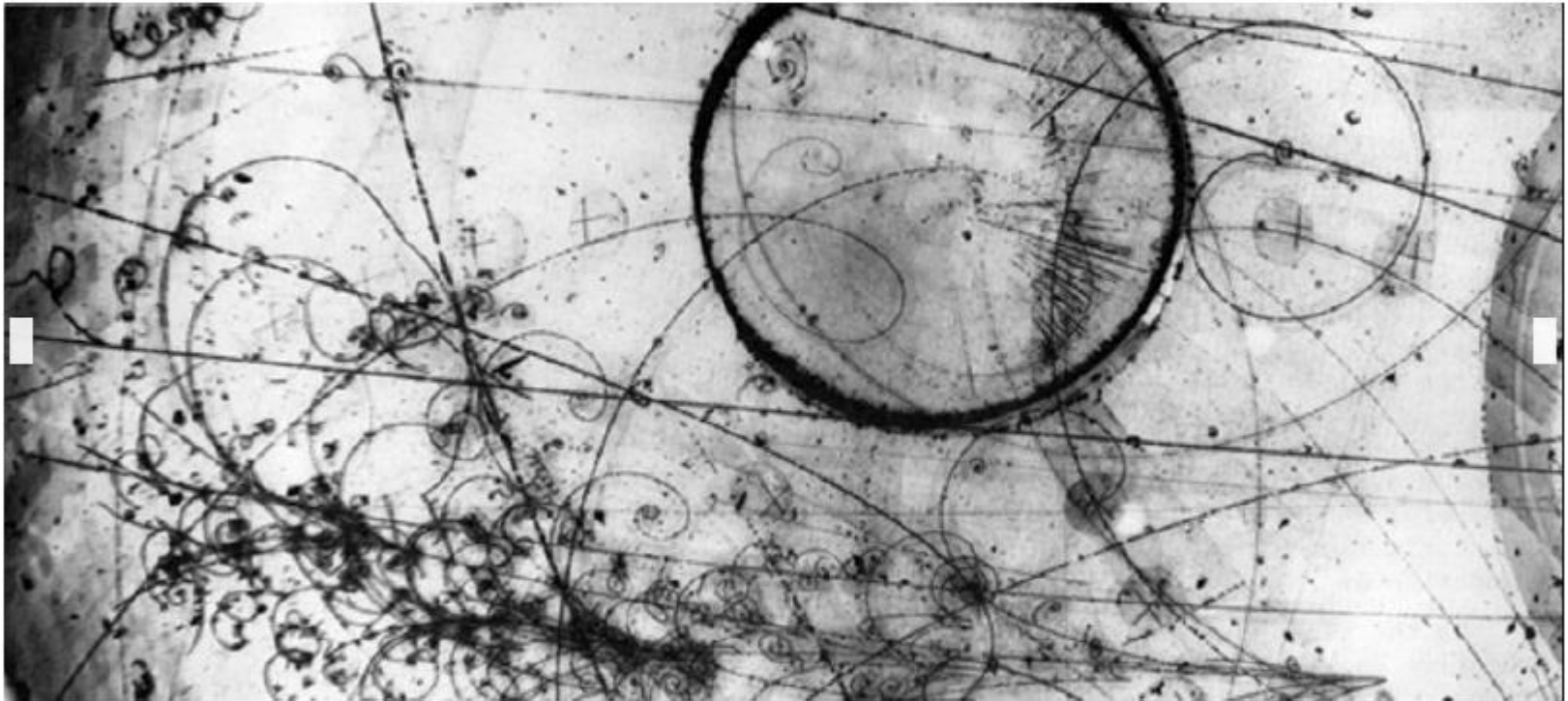
Outreach and Communication

See this afternoon sessions



But also many technologies to be shared:

Silicon detectors, Water Cerenkov, Diamond detectors, Scintillating Crystals, Gas electron multipliers, Radiation hardness...



The JENNIFER consortium is formed by 13 academic and 1 industrial european organizations, and by 2 japanese institutions: the KEK laboratory and the Institute for



JENNIFER Consortium General meeting

Rome 11-12 june 2015

Here we should start really working together.

Explore possible joint developments

Plan future activities

Welcome on board !