

# JENNIFER3 proposal preparation

KEK 01 Feb 2024

# Tentative Project Structure

Replicate JENNIFER2 organization:

3 detector-specific work packages + 2 work packages technology oriented with mixed and synergic work from different communities.

WP1: Belle II physics analysis, detector performance, data taking.

WP2: T2K physics analysis, ND280 commissioning, new data taking

WP3: HyperK construction

WP4: Advanced detector technologies

WP5: Computing, Networking, Machine Learning

WP6: Outreach

**Table 1 – Work Package (WP) List**

Budget thumb rule: 50% Belle2 + 50% T2K-HK. First tentative person month allocation:

Work Package No.	Work Package title	Activity type	Number of person-months	Lead participant	Start month	End month
1	Search for New Physics with Belle II experiment	Research, Training, Dissemination	140	OAW-HEPHY	1	48
2	Precision neutrino physics with the T2K experiment	Research, Training, Dissemination	70		1	48
3	Construction of Hyper-Kamiokande detector	Research, Training, Dissemination	70		1	48
4	Advanced radiation detector technology	Research, Training, Dissemination	40 (50% share)		1	48
5	Information technology and Machine Learning applications	Research, Training, Dissemination	40 (50% share)		1	48
6	Communication and Outreach	Communication, Training	0		1	48
7	Management of the Project	Management	0	INFN	1	48

## Received Eols

Institution	contact	WPs	J2	
CNRS	Isabelle Ripp Baudot	All.	Y	
DESY	Carsten Niebuhr	1,4,5,6	Y	Include 9 german partners
HEPHY	C.Schwanda	1,4,5,6	Y	
INFN	AP and.....	All	Y	
JSI	R.Pestotnik	1,4,5,6	Y	
NCBJ	A.Zalipska	2,3	Y	
IFJ-PAN	A.Bozek	1,2,3	Y	
TAU	A.Soffer	1,4,6	Y	
CEA	S.Bolognesi	2,3, maybe 4	Y	
Uni Geneve	F.Sanchez	2,3,4,5,6	Y	<i>Possibly same beneficiary</i>
ETHZ	D.Sgalaberna	2,3,4,5	NO	
Prague UKP	Z. Dolezal	1,4,5,6	Y	
CAEN	F.Giordano	2,3,5	Y	
IFAE	Thorsten Lux	2,3,4	Y	<i>Possibly same beneficiary</i>
Sevilla	G. Megias Vazquez	2,3	NO	
Oviedo	ML Sanchez	3,4	NO	
King's College	F. Di Lodovico	2,3,4,6	Y	Include n UK partners

Only missing J2 are METU and FBK

Interest from Uppsala (Belle2 group)

Should find a way to associate some small group to a larger beneficiary

*UK beneficiaries will not be funded by EU, but they concur anyhow to reach the maximum project budget.*

## Form A filling on the EU portal

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

Proposal number: **SEP-211024629**

- Both beneficiaries and partners (both external and linked to a beneficiary) must be included in the project on the portal, have a contact person and fill the A forms. All will appear as «partners» (also beneficiaries), apart the coordinator
- In the form «participants» DO NOT fill the part about publications, previous projects and infrastructures (will go in form B2)
- In «participants» only beneficiary have to list their staff participating in the project
- Link among partners are also indicated in the form «participants»
- In the budget form, only beneficiaries fill 2 numbers: total number of seconded staff, total number of person months.  
*I've been told that number of staff will not be allowed to increase during the project.....*

## WP1: Belle II

INFN, DESY, CNRS, HEPHY, JSI, IFJ-PAN, UKP, TAU

- detector performance
- LFV-LFU, New physics with rare B decays
- CP violation
- Tau physics
- dark sector, long lived particles, QCD axions
- Spectroscopy, fundamental QCD

WP coordinator C. Schwanda

-> See his proposal for task organization and deliverables

## WP2: T2K

INFN, CNRS, CEA, KCL, NCBJ, IFJ-PAN, IFAE, Sevilla, UniGE, ETHZ, CAEN

### List of raised items:

- Near detector ND280: calibration, commissioning
- SK calibration
- Data analysis: neutrino cross sections
- Data analysis: Oscillation

Looks to be a quite natural evolution:

1 task for near detector and one for the far one;

The other 2 items are exactly tasks 2.3 and 2.4 of J2.

However a T2K groups common proposal should be worked out

## WP3: HyperK

INFN, CNRS, CEA, KCL, NCBJ, IFJ-PAN, IFAE, Oviedo, Sevilla, UniGE, ETHZ, CAEN

### List of raised items:

- Water Cerenkov construction and commissioning
- Underwater Electronics, digitizers, LV and HV supply..... (INFN, UniGE...)
- Multi PMT (INFN)
- Time generation and distribution system (CNRS, CEA)
- Simulation and reconstruction (IFJ-PAN, Sevilla)
- Linac for calibration (NCBJ)
- Geomagnetic field compensation system (Oviedo)
- Near detector ND280 (IFAE, CEA)
- Intermediate Water Cerenkov (KCL)

Many different activities, need to cluster them into 4-5 tasks. Example:

near detector, IWC, simulation and reconstruction, electronics + mPMT, main WC build/calib/commission

HK groups common proposal needed.



# WP4: Advanced detector technologies

INFN, DESY CNRS, HEPHY, JSI, IFAE, UniGE, ETHZ, CAEN

- Vertex detector and tracking with CMOS sensors (INFN, DESY, CNRS, HEPHY) including trigger and cooling
- photon detection: SiPM in high radiation environment (INFN, JSI)
- Cerenkov detectors: Large area picosecond photo detectors and MCP PMTs for future RICH (JSI). Water Cerenkov upgrade for neutrino detectors (...) → check DRD4 activities overlap (R.Pestotnik)
- Beam detectors: polarimeter, luminosity monitor (CNRS), radiation monitor (INFN)
- Emulsion Analysis R&D for future FASERnu detector: DESY (Bonn)

ND280 upgrade (mentioned by INFN, UniGE, IFAE.....) : which detector? Can fit in the above list? Should go here or in WP3?

4-5 activity areas, but many things to be clarified

# WP5: Computing and ML

INFN, DESY, HEPHY, CNRS, CEA, IFAE, UniGE, ETHZ, UKP, Oviedo, TAU, JSI, KCL, CAEN

5.1 Cloud distributed computing : INFN, King's, CNRS

5.2 Network: INFN, KCL

5.3 ML applications for data reconstruction: CNRS, TAU, CEA, UniGE, Oviedo, UKP, IFAE, JSI, KCL, INFN, DESY, HEPHY

5.4 ML applications for real time filtering, trigger, DAQ. ML on FPGAs : DESY (KIT, Giessen)

Tasks are already reasonably defined.

**Worry about too many groups on task 5.3:** get 1 person month each.... Need some coordination

*We will NOT mention AI in the proposal, for which EU requires ethical declarations, but just applications of existing ML algorithms to data reconstruction and filtering.*

## WP6 : Outreach and Communication

- 6.1 Masterclasses: Belle2, neutrino, possibly @CAEN ?
- 6.2 Virtual Reality (INFN....)
- 6.3 PhD co-supervision (all)
- 6.4 Collaboration with KEK Summer Student Program (INFN, TAU, UniGE....)
- 6.5 Simple detector kit for cosmic muons and natural radioactivity (DESY)

**Task quite defined.** Need to collect interest from groups. Unfortunately no person months from here.

# Next Steps

Project writing starting from J2 proposal. Contact relevant groups for describing specific task activities.

**Group leaders:** Fill your institution forms A on EU portal

please make the exercise of calculating a proto-budget for your group, in terms of secondment. Please start with about 70% of your JENNIFER2 budget. Try also to make a first secondment plan.

**Next meeting:**

February 15, 10:00 CET

**SPARES**

# Staff Exchange 2023 rules summary

<b>Minimum number of participating organisations</b>	3 in 3 different countries <sup>2</sup>
<b>Minimum number of beneficiaries from EU Member States or Horizon Europe Associated Countries<sup>3</sup></b>	2
<b>Max number of participants from Academic sector<sup>4</sup></b>	No restrictions <sup>5</sup>
<b>Max number of participants from Non-academic sector<sup>6</sup></b>	No restrictions <sup>5</sup>
<b>Number of associated partners (*)</b>	No minimum Mandatory Letter of Commitment
<b>Max number of person months</b>	360
<b>Secondment duration<sup>7</sup></b>	1 – 12 months
<b>Same sector interdisciplinary secondments<sup>8</sup></b>	≤ 1/3 of the total pm implemented
<b>Ranking lists<sup>9</sup></b>	8 (scientific) panels <sup>10</sup>
<b>Budget 2023</b>	78,5 Mio €

(\*) Only Third country partners (i.e. KEK and ICRR) have to provide a Letter of Commitment.  
«Associated Partners» refers also to european Institutions linked to a beneficiary.

## Staff Exchange budget 4600,00 € per person month:

- 2300,00 € Salary top-up and/or travel/accomodation expenses
- 1300,00 € Research training and networking
- 1000,00 € Management and indirect costs

**Luckily the MSCA financial guides allows some flexibility between the 3 budget categories:**

*“unused amounts” (of networking and management funds) “may be used for other action-related purposes, such as to increase the salary of a researcher, to cover travel and subsistence costs of a staff member (in MSCA-SE only)”*

## MSCA Staff Exchange call timing

Call 2023: submission deadline **february 28th 2024**

Call 2024: submission deadline **march 5th 2025**

Evaluation Report expected 5 months after submission deadline

Signature of the Grant Agreement process will start 8 months after submission deadline

**i.e. Project will start the year after submission one** (with usual few months flexibility)