

# JENNIFER3 proposal preparation

Status 15 Feb 2024

# Tentative Project Structure

1 Belle2 work package, 1 LBL near detectors WP, one LBL far detector (WC) wp,  
2 work packages technology oriented with mixed and synergic work from different communities.

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

WP2: Near detectors: ND280, IWCD. X-section and oscillation analysis

WP3: Far detector and CPV analysis

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	Near Detectors for LBL neutrino physics	Research, Training, Dissemination	70		1	48
3	Far Water Cerenkov for LBL neutrino physics	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

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
IFIC	C.Marinas	1,4	NO	

## Consortium Composition

Added IFIC Valencia (Belel2 group) because no acceptable link was present with IFAE or with another beneficiary.


## 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.....*


Call: **HORIZON-MSCA-2023-SE-01**  
Topic: **HORIZON-MSCA-2023-SE-01-01**  
Type of action: **HORIZON-TMA-MSCA-SE**  
Type of MGA: **HORIZON-AG-UN**

 Topic and type of action can only be changed by creating a new proposal.


## Proposal data

Acronym: **JENNIFER3**  
Draft ID: **SEP-211024629**

## Download Part B templates

 [Download part B templates](#)


[Support & Helpdesk](#)



 Your proposal contains changes that have not yet been submitted.



## Administrative forms (Part A)

[Edit forms](#)  [View history](#) [Print preview](#) 

## Part B and Annexes

In this section you may upload the technical annex of the proposal (in PDF format only) and any other requested attachments. 

**Part B1 \***   [Upload](#) 

**Part B2 \***   [Upload](#) 

[← BACK TO PARTICIPANTS LIST](#)

[VALIDATE](#)

[SUBMIT](#)

## Table of contents

Section	Title	Action
1	General information	<a href="#">Show</a>
2	Participants	<a href="#">Show</a>
3	Budget	<a href="#">Show</a>
4	Ethics and security	<a href="#">Show</a>

## Unclear situation for associated partners linked to a beneficiary

Example: Sevilla and IFAE. Ticket opened with support.

### Links with other participants



Type of link	Participant	Add
Same Group <input type="checkbox"/>	INSTITUTO DE FISICA DE ALTAS ENERGIAS <input type="checkbox"/>	Remove

14	IFAE-CERCA	Partner	ES	Yes	No	0	0
15	UNIVERSIDAD DE SEVILLA	Partner	ES	Yes	No	0	0

# General budget form

## Application forms

Proposal ID **SEP-211024629**

Acronym **JENNIFER3**

### 3 - Budget

Participant number	Organisation short name	Role	Country	Academic sector	IO	No of seconded researchers	Number of person months	Contributions for seconded researchers		Institutional contributions		Total
								Staff Member Unit Costs	Research, training and networking costs	Management and indirect costs		
1	INFN	Coordinator	IT	Yes	No	0	0	0	0	0	0.00	
2	DESY	Partner	DE	Yes	No	0	0	0	0	0	0.00	
3	CNRS	Partner	FR	Yes	No	0	0	0	0	0	0.00	
4	OEAW	Partner	AT	Yes	No	0	0	0	0	0	0.00	
5	JSI	Partner	SI	Yes	No	0	0	0	0	0	0.00	
6	CEA	Partner	FR	Yes	No	0	0	0	0	0	0.00	
7	CU	Partner	CZ	Yes	No	0	0	0	0	0	0.00	
8	UNIGE	Partner	CH	Yes	No	0	0	0	0	0	0.00	
9	KING'S COLLEGE LONDON	Partner	UK	Yes	No	0	0	0	0	0	0.00	
10	IFJ PAN	Partner	PL	Yes	No	0	0	0	0	0	0.00	
11	NCBJ	Partner	PL	Yes	No	0	0	0	0	0	0.00	
12	IAU	Partner	IL	Yes	No	0	0	0	0	0	0.00	
13	CAEN	Partner	IT	No	No	0	0	0	0	0	0.00	
14	IFAE-CERCA	Partner	ES	Yes	No	0	0	0	0	0	0.00	
15	UNIVERSIDAD DE SEVILLA	Partner	ES	Yes	No	0	0	0	0	0	0.00	
16	UNIOVI	Partner	ES	Yes	No	0	0	0	0	0	0.00	
17	KEK	Partner	JP	Yes	No	0	0	0	0	0	0.00	
18	NATIONAL UNIVERSITY	Partner	JP	Yes	No	0	0	0	0	0	0.00	
19	CSIC	Partner	ES	Yes	No	0	0	0	0	0	0.00	
20	ETH Zurich	Partner	CH	Yes	No	0	0	0	0	0	0.00	
Total						0	0	0	0	0	0.00	



## WP1: Belle II

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

WP coordinator C. Schwanda

- detector performance
- Precision tests of the CKM matrix and search for non-SM CP violation
- Search for rare decays and tests of lepton flavour non-universality
- Direct searches for light particles not described in the SM
- Studies of quantum chromodynamics

Status:

draft exist

deliverables/ milestones to be defined

task reference people to be found

## WP2: Near Detectors neutrino physics at T2K and HK

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

WP coordinators: C.Giganti, A.Longhin

Status: draft exist  
deliverables/milestones ~ OK  
task reference people to be  
found

- ND280 characterization and upgrade
  - Deliverable: Performance papers from the new detectors; EMD: 12
  - Milestone: Readiness of the ND suite for HK; EMD: 36
- Near detectors for HK (including IWCD)
  - Deliverable: Sensitivity studies on reduction of systematic uncertainties from combination of ND280 and IWCD
- neutrino cross sections measurement
  - Milestones: improved selections for cross-section measurements, EMD 24;
  - Deliverables: T2K cross-section measurements exploiting hadron kinematics, EMD 36;
  - Report on the strategy to address main systematic uncertainties for precision measurements with HK, EMD 36
- Near detector inputs to neutrino Oscillation analysis
  - Milestone: inclusion of ND280 Upgrade data in the T2K Oscillation Analysis; EMD: 24
  - Deliverable: Preparation of ND fitters for T2K and HK oscillation analyses; EMD: 24
  - Deliverable: T2K oscillation measurements with full T2K statistics; EMD: 36

## WP3: Far detectors for neutrino physics at T2K and HK

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

WP coordinator F. Di Lodovico

- WC calibration and characterization
- Underwater photodetection system
- Underwater electronics
- neutrino CPV analysis

Status:

draft exist

deliverables/ milestones to be defined

task reference people to be found

# WP4: Advanced detector technologies

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

WP coordinator: to be found

- Vertex detector and tracking with CMOS sensors (INFN, DESY, CNRS, HEPHY) including trigger and cooling.
  - Draft from Belle2 upgrade CDR.
  - Deliverable to be defined
  - Reference persons to be found
- photon detection: SiPM for RICH detectors in high radiation environment (INFN, JSI), SiPM for calorimetric crystals (INFN). SPAD for future near detector (INFN, UniGE) ? ASIC for photodetectors (CEA) ?
  - Synergy with DRD4 and DRD6. Draft possibly from there
  - R.Pestotnik acting as coordinator?
  - Task activity to be defined: real R&D or more networking (workshops, training) ?
- Beam detectors: polarimeter, luminosity monitor (CNRS), radiation monitor (INFN)
  - Main actor is CNRS. Draft exist (P.Bambade), to be completed with radiation monitor part
  - Deliverable: Report on specification for basic luminometer and polarimeter designs at SuperKEKB after LS2 (month 48)
- Imaging detectors for future neutrino experiments: emulsions (Bonn), high pressure TPC (INFN, UniGE)
  - Nice task defined recently. Draft to be written soon.
  - Deliverables and reference people to be defined

# WP5 Information technology and machine learning applications

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

WP coordinator: S.Bolognesi ?

- 5.1 Worldwide distributed computing : INFN, King's, CNRS, DESY. Reference S.King, S.Pardi  
Draft exist Deliverable: workshop on the usage of Cloud Computing technologies in the context of Belle2, T2K and Hyper-K (month 24).
- 5.2 Advanced Network solutions: INFN, KCL, DESY.....? Reference S.King, S.Pardi  
Draft exist Deliverable: joint Network Data Challenge Session testing the network links from Japan to the main EU Data Centres involved in Belle2 and Hyper-K (month 36).
- 5.3 ML applications for big data analysis : CNRS, TAU, CEA, UniGE, Oviedo, UKP, IFAE, JSI, KCL, INFN, DESY, HEPHY  
No draft, no referece people defined, nor deliverables
- 5.4 ML applications for real time environment: DESY (KIT, Giessen), KCL, INFN.... Reference S.Lange  
Draft exist (for DESY activity) Deliverable (month 45): whitepaper with the evaluation of performance parameters for processing speed, data in/out bandwidth, latency.

# WP6 : Outreach and Communication

All beneficiaries involved. WP coordinator: to be found

6.1 Masterclasses: Belle2, neutrino, possibly @CAEN ?

6.2 Tools for particle physics outreach: Virtual Reality + detector kit for cosmic muons and natural radioactivity

6.3 PhD co-supervision (all)

6.4 Collaboration with KEK Summer Student Program (INFN, TAU, UniGE....) being defined now

Draft ok, except for task 6.2 (to be done).  
Deliverables to be defined.

## Rest of the proposal

**Sections 1.2 (soundness of the methodology) and 1.3 (quality of the interactions between participants)**

advanced writing, based on JENNIFER2. Will share asap on drive

### **Section 2: Impact**

about same state of the above. J2 text used as a guide. Will share as well in few days

### **Section 3: Implementation**

to be done, but includes largely the WP summary tables, the deliverable list. For the rest also start from J2 texting and choices.





# Next Steps

Finalize task not fully defined. Complete all scientific drafts, including WP summary tables → by Tuesday feb 20

Finalize Impact and Implementation sections: public draft by Feb 20, close to final version by friday Feb23.

## **Group leaders:**

Fill your «participant» form A on EU portal, save it. ASAP

Calculate a proto-budget for your group, in terms of secondment. Fill the global share table  
→ by Monday Feb 20.

Start preparing B2 part: Tables describing of institutions (I'll send you template and examples)

## **Next meeting:**

Possibly restricted meeting on specific tasks/WP

Possibly a budget definition meeting, only with Pis, in one week from now: Thursday 22, same time