ITER Physics Work Packages

ANNUAL WORK PROGRAMME 2015 & WORK PLAN 2014-2018

CALL RESPONSE FORM for the Work Package

WPPFC: Preparation of efficient PFC operation for ITER and DEMO

– WEST RELATED ACTIVITIES

# IDENTIFICATION

|  |  |
| --- | --- |
| **Work Package ID** | WP15-IPH-PFC |
| **BENEFICIARY** | *Please enter Beneficiary name* |
| **CONTRACTUAL CONTACT PERSON** | *Please enter Name / Email / Phone* |
| **TECHNICAL CONTACT PERSON** | *Please enter Name / Email / Phone* |

# REFERENCED DOCUMENTS

The following documents provide descriptions for the technical content, key deliverables, milestones, foreseen facilities, opportunities for industrial innovation and training/development opportunities for each Work Package. It is essential that the relevant sections are considered before completing this Call for Participation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Document Title** | **Version** | **Section(s)** | **Page(s)** |
|  | GRANT AGREEMENT, ANNEX 1: WORK PLAN FOR THE IMPLEMENTATION OF THE FUSION ROADMAP IN 2014-2018 |  | Headline 2.2, 2.4, 3.1  WPPFC |  |
|  | ANNUAL WORK PLAN 2015 – Issue 3  SECTION ON WEST | 25 Sep 2014 | WPPFC  2.2.7 | 13-14, 56-58 |
|  | WPPFC PROJECT MANAGEMENT PLAN | 2 May 2014 |  |  |
|  | ANNEX to [2]: Proposal for the inclusion of WEST in the EUROfusion Workplan (2015/2017) | 11 Oct 2014 | WPPFC |  |

# INTRODUCTION

The present Call for Participation is focused on the new, additional part of the WPPFC package related to the exploitation of the WEST tokamak as PFC-facility. Details can be found in [4].

The work in 2015 associated to the original WPPFC and indicated in [2,3] is predominantly a continuation of the activities started in 2014. The indicative proposed resource level in professional-person-years per year (ppy/y) in 2015 and their interest and potential contributions to the Work Plan 2015-2018 will be used as base information.

The purpose of this document is:

* To set out the required roles and associated competencies that are foreseen in order to execute the part of the Project related to the WEST exploitation and to help the Project Leader with planning.
* To allow Research Units to indicate where they have appropriate resources and competences.
* To allow Research Units to indicate a proposed resource level in professional-person-years per year (ppy/y) in 2015 and their interest and potential contributions to the Work Plan 2016-2018.
* To provide the required input for ECoM

Finally, please note that no provision for allocation of mission resources is made in the present Call. These will be allocated following the definition of a detailed Project Management Plan (PMP [3]). The indicative budget is ≈5% of the foreseen manpower per project per year. However, each Research Unit may fill the box at the end of this document to include its comments on the envisaged needs concerning missions for participation in this Work Package.

# GUIDANCE NOTES FOR SUBMISSION OF THE RESPONSE TO THE CALL

The following notes describe the procedure for completing this document and the related ECoM submission:

1. Fill in the appropriate information in the Identification table in section 1 above.
2. Read the relevant sections (see section 2) of the Work Plan 2014-2018 and Work Programme 2015.
3. In section 5:
   1. indicate the appropriate human resources, experience and competences available within your Research Unit to participate in particular PFC project of Work Programme 2015 related to WEST activities (section 5.1)
   2. if foreseen give a list of activities to subcontract (section 5.2)
   3. supply names and contact details of potential contributors and their competences from your Research Unit and Third Parties (section 5.3)
   4. indicate proposed support for hardware but also procurements or use of facilities
4. The total proposed human resources (terracotta box from section 5.1) and hardware (blue box from section 5.4) for the 2014 work programme should also be entered into ECoM in the relevant boxes.
5. In section 6, in case of multi-year activity, indicate your contributions for 2016-2017, including the estimates for ppy
6. In section 7, quote up to 5 publications in the field relevant for the Work Package published by your Research Unit or Third Parties
7. In section 8, give any additional comments or describe requirements your Research Unit would like to express and that are necessary to contribute to this Work-Package.
8. In section 9, describe your proposed project(s) following the format indicated

# DESCRIPTION OF INSTITUTION’S PARTICIPATION IN 2015 WORK PROGRAMME

### 5.1 Personnel

Briefly describe the relevant competences of the proposed staff and their experience relevant for the **project deliverables in 2015 Work Programme.** The particular staff members expected to participate in the work package may be indicated. Briefly describe any additional support the institution or the candidate's research group can provide or other related activities that may strengthen the proposal. Refer, when appropriate, to multi Research Unit activities but fill the data only for your Research Unit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Projects required for this Work Package (WEST part only)** | | **Brief description of relevant competences and experience to contribute to this project (max. 200 words)** | **ppy 2015[[1]](#footnote-1)**  (total available 10 ppy­[[2]](#footnote-2)) |
| **Project Name** | **Description** |
| PFC-WEST-8:Development of high resolution IR system for monitoring PFC surface temperature | Development of an IR system with high temporal and spatial resolution in order to determine the power load foot print on the W divertor in WEST.  The system requires a sub-millimeter spatial resolution at the target plates with temporal resolution of less than 16µs. The system needs to be designed and developed for installation in the WEST tokamak (max. 4ppy).  Installation and testing foreseen in WP2016. |  |  |
| PFC-WEST-9: Development of visible spectroscopic diagnostics for monitoring PFC tungsten sources and D recycling | Development of an optical emission spectroscopy system with good temporal resolution and high spatial resolution with wide spatial coverage in order to determine the W sputtering source and the deuterium recycling flux in the W divertor in WEST. The system needs to be designed, developed for installation in the WEST tokamak (max. 3ppy).  Installation and testing foreseen in WP2016. |  |  |
| PFC-WEST-10: Development of actively cooled Langmuir probes embedded in divertor ITER-like targets to measure plasma parameters around the divertor strike points. | Development of an actively cooled Langmuir probe system with high temporal resolution and high spatial resolution with wide spatial coverage over both strike-point areas and in order to determine the ion flux, the electron temperature and density in the W divertor in WEST. The system needs to be designed, developed for installation in the WEST tokamak (max. 3ppy).  Installation and testing foreseen in WP2016. |  |  |
|  |  | **TOTAL**  *(to be entered also in ECOM –row A)* |  |

### 5.2 List of proposed activities to subcontract

|  |  |
| --- | --- |
| **Project** | **Activity** |
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### 5.3 Indicative list of potential contributors

List potential contributors (members of your Research Unit or Third Party) to be involved in this Work Package. Give details of at least one person who can act as a contact person for the Project Leader.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project** | **Name** | **Email** | **Phone Number** |
| PFC-WEST-8  *(ID and name of first project)* | Contact Person: |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| PFC-WEST-9  *(ID and name of second project)* | Contact Person: |  |  |
|  |  |  |
|  |  |  |
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| PFC-WEST-10  *(ID and name of second project)* | Contact Person: |  |  |
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### 5.4 Hardware description

If support for hardware but also procurements or use of facilities is requested, please give a brief description and the associated costs.

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicative list of hardware, procurements and use of facilities** | | **Brief description of the relevant expertise, facilities & approximate breakdown of costs** | **Costs 2015 (k€)**  (total available 1.4 M€ [[3]](#footnote-3)) |
| **Project** | **Description** |
| PFC-WEST-8:  *(ID and name of first project)* |  |  |  |
| PFC-WEST-9:  *(ID and name of first project)* |  |  |  |
| PFC-WEST-10:  *(ID and name of first project)* |  |  |  |
|  |  | **TOTAL**  (to be entered in ECOM) |  |

# EXPRESSION OF INTEREST IN FUTURE WORK PLAN 2016-2017

### 6.1 Personnel

In case of a multi-year activity, indicate your interest and potential contributions to the proposed activity in the future (2016-2017), including the indicative ppy envisaged. Note: calls may be placed for WEST-related PFC projects in later years, but these potential projects should ­not­ be considered here.

|  |
| --- |
| **Project** |
| 2016 | 2017 | **2015-2017 TOTAL[[4]](#footnote-4)** |
| PFC-WEST-8:  *(ID and name of first project)* |  |  |  |
| PFC-WEST-9:  *(ID and name of first project)* |  |  |  |
| PFC-WEST-2ß:  *(ID and name of first project)* |  |  |  |
| **Total** |  |  |  |

### 6.2 Hardware description

In case of multi-year activity, please indicate the expected hardware support requests and associated costs to achieve WEST-related PFC projects deliverables in the Work Plan 2016-2017.

|  |  |
| --- | --- |
| **Project** | **Indicative list of hardware, procurements and use of facilities** |
| **2016** | **2017** | **2016-2017 TOTAL[[5]](#footnote-5)** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Brief outline of available facilities and justification of spending profile (max. 200 words):**

# Summary of relevant publications

Please indicate the publications most relevant for this Work Package, up to a maximum of 5, published by your Research Unit in the last 5 years.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project** | **Title** | **Author(s)** | **Year of Publication** |
|  |  |  |  |
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# ADDITIONAL COMMENTS AND REQUIREMENTS

Please add, if necessary, additional comments or describe requirements your Research Unit would like to express and that are necessary to contribute to this Work Package.

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| --- |
|  |

# DESCRIPTION OF THE PROPOSED PROJECTS.

Please find below a template structure in order to describe further you project proposal(s). **Each project proposal** shall be a maximum of two pages in length. For proposals for projects involving two or more Research Units, each Research Unit should answer to this call using the same name and description clearly stating responsibility of each Research Unit.

### 9.1 Description of the proposal for project PFC-WEST-x

#### a. Title

Give a one line title

#### b. Research Units involved

List all of the Research Units participating

#### c. Work description and deliverables (per year if multiyear project is foreseen)

For each year if multiyear projects are foreseen give:

- A work description (give details of activities involved, hardware, breakdown of work between Research Units. Note two page limit)

- Deliverables (in line with the Annual Work Plan 2015)

#### d. Foreseen Travel involved

1. To also include resources made available by Linked Third Parties or Third Parties providing in-kind contribution [↑](#footnote-ref-1)
2. Total available ppy is the foreseen total ppy for all Research Units participating in the WEST Activities in this Work Package in 2015 [↑](#footnote-ref-2)
3. Total proposed resources available are the foreseen total resources for all research units participating in the WEST-related part of this Work Package in 2015. The numbers [↑](#footnote-ref-3)
4. Total proposed resources comprising the years 2015 to 2017 [↑](#footnote-ref-4)
5. Total proposed resources comprising the years 2016 to 2017 [↑](#footnote-ref-5)