

WP6, Objectives and outcomes of WP6 in the third year of RADNEXT: Methodologies for Radiation Test of Systems

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Outline

- Structure and members
- Work Program overview
- Third year achievements and ongoing activity
- Conclusions

Structure and Members



Luigi Dilillo

(University of Montpellier)

WP leader



Luis Entrena Arrontes

(University Carlos III of Madrid)

Deputy WP leader

Participants and associates

- Université de Montpellier (UM/IES)
- Universidad Carlos III de Madrid (UC3M)
- Katholieke Universiteit Leuven (KUL)
- European Organization for Nuclear Research (CERN)
- German Space Agency (DLR)
- National Centre for Nuclear Research (NCBJ)



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Work Programme Overview

Work package overview:

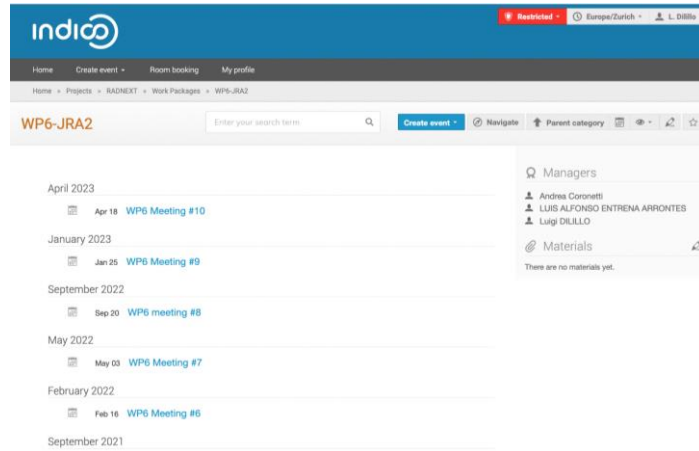
Standardization of system level radiation qualification methodology

- Three operative tasks to which WP6 partners mainly focused
 - Setup preparation and stimuli definition
 - Pass/fail test
 - Test with enhanced observability
- The main goal has been the exploration of valid qualification procedures to be effective at system level. Its main added value is a reduced qualification cost and time, without significantly affecting the radiation hardness assurance level.

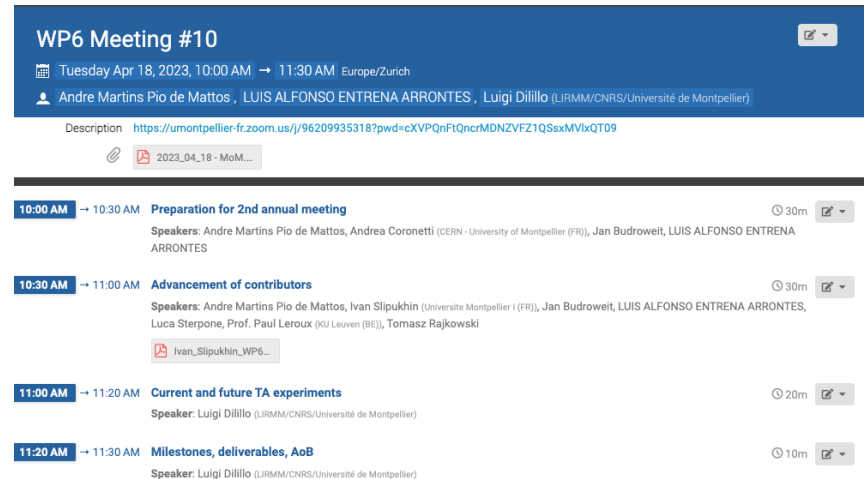


Third year achievements and ongoing activity

- Regular meetings (14 in total) with all WP partners
 - Established connections/collaboration among partners
 - Action of new partner (NCBJ, Tomasz Rajkowski)
 - Activity status
 - Activity plans



The screenshot shows the Indico website interface. At the top, there is a navigation bar with the Indico logo and user information (Restricted, Europe/Zurich, L. Dilillo). Below the navigation bar, there are tabs for Home, Create event, Room booking, and My profile. The main content area displays a calendar for WP6-JRA2. The calendar shows a list of meetings from April 2023 to September 2021. The most recent meeting is 'WP6 Meeting #10' on April 18, 2023. To the right of the calendar, there is a sidebar with sections for Managers (listing Andrea Coronetti, LUIS ALFONSO ENTRENA ARRONTES, and Luigi DILILLO) and Materials (stating 'There are no materials yet.').



The screenshot shows the event page for 'WP6 Meeting #10'. The event is scheduled for Tuesday, April 18, 2023, from 10:00 AM to 11:30 AM in Europe/Zurich. The organizers are Andre Martins Pio de Mattos, LUIS ALFONSO ENTRENA ARRONTES, and Luigi Dilillo (LIRMM/CNRS/Université de Montpellier). The description is a Zoom link: <https://umontpellier-fr.zoom.us/j/96209935318?pwd=cXVPQnFtQncrMDNZVFZ1QScxMlVxQT09>. There is a file attachment named '2023_04_18 - MoM...'. The agenda includes the following items:

- 10:00 AM → 10:30 AM Preparation for 2nd annual meeting** (30m)
Speakers: Andre Martins Pio de Mattos, Andrea Coronetti (CERN - University of Montpellier (FR)), Jan Budroweit, LUIS ALFONSO ENTRENA ARRONTES
- 10:30 AM → 11:00 AM Advancement of contributors** (30m)
Speakers: Andre Martins Pio de Mattos, Ivan Slipukhin (Université Montpellier I (FR)), Jan Budroweit, LUIS ALFONSO ENTRENA ARRONTES, Luca Sterpone, Prof. Paul Leroux (KU Leuven (BE)), Tomasz Rajkowski
Attachment: Ivan_Slipukhin_WP6...
- 11:00 AM → 11:20 AM Current and future TA experiments** (20m)
Speaker: Luigi Dilillo (LIRMM/CNRS/Université de Montpellier)
- 11:20 AM → 11:30 AM Milestones, deliverables, AoB** (10m)
Speaker: Luigi Dilillo (LIRMM/CNRS/Université de Montpellier)



Third year achievements and ongoing activity

- **Application to RADNEXT TA for probing irradiation test campaigns (PSI, ChipIR, GSI)**
 - With more than one partner: direct exchanges and collaborations
 - Checking and applying on the field methodologies and practices
- **Dissemination**
 - Several papers in international conferences (RADECS'24, DFTS'24, REDW'23)
 - Several papers in international journals (Electronics, TNS)
- **Collaboration with other WPs**
 - WP7 collaborative researches: dose effects on Systems
- **Collaborative activities**
 - UM/IES ↔ UC3M: Andre M. P. Mattos, Pablo M. A. Delgado



Third year achievements and ongoing activity

- Experiments planned at **Chiplr, GSI, PSI**.
 - Development of test setups targeting pass fail tests
 - Development of test setups targeting enhanced observability
- Investigation of a SELs in a SRAM
- Characterization of a fault-tolerant RISC-V SoC hosted on flash- and SRAM- based FPGAs
- Characterization of GPUs
- Characterization of FPGA SoCs, in which hard-core and soft-core are used
- Characterization of a testing platform for targeting system-level testing at CERN

Ongoing activities

- Formalize the methodologies/experiences from test campaigns
- Participations to test campaigns in new types of facilities
- Elaboration of the next deliverables
- Cross WPs activity



Conclusions

- Good partner interaction (UM/UC3M; UM/CERN, UM/NCBJ)
- Good ongoing scientific activity and dissemination
- Milestone/deliverables elaboration

Thanks for your attention!



Image Source: IES/UM