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EUROPEAN NUCLEAR SCIENCE AND APPLICATION RESEARCH 2

GRANT AGREEMENT NUMBER: 654002

D6.2 GDS TOPICAL MEETING: GDS COUPLING TO AUXILIARY DETECTORS

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Disclaimer

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REFERENCES AND APPLICABLE DOCUMENTS

[1] <http://igfae.usc.es/gds/>

[2] <http://www.ensarfp7.eu/activities>

LIST OF ACRONYMS AND ABBREVIATIONS

CEA	Commissariat à l’Energie Atomique et aux Energies Alternatives (France)
CNRS	Centre National de Recherche Scientifique (France)
GANIL	Grand Accélérateur National d’Ions Lourds (France)
GDS	Gas-filled Detectors and Systems
IGFAE/USC	Instituto Gallego de Fisica de Altas Energias / Universidad De Santiago De Compostela (Spain)
INFN	Istituto Nazionale Di Fisica Nucleare (Italy)
KULeuven	Katholieke Universiteit Leuven (Belgium)
RUG	Rijksuniversiteit Groningen (Netherlands)

EXECUTIVE SUMMARY

This document describes the first topical meeting of the GDS (Gas-filled Detectors and Systems) [1] Networking Activity of the ENSAR2 project [2]. Deliverable D6.2 was to organize a topical meeting on the coupling of GDS to auxiliary detector systems (Month 12). In this report we describe the on time and successful completion of this deliverable.

INTRODUCTION

The aim of the GDS Networking Activity is to assemble and coordinate a large group of research collaborations that are in the process of developing new capabilities with gas-filled detection and active-target systems in the field of nuclear physics. The GDS network will exchange information through various media and scientific events between physicists and engineers already working on these projects across Europe. It will assist and promote collaborations and personnel working on similar projects and will encourage the support and training of highly qualified personnel in this rapidly evolving field.

As part of the GDS networking activity, we have organized the first of four annual topical meetings. The first meeting was held from January 25 to January 27 at Legnaro National Laboratory in Italy. The website for the meeting is available at <https://agenda.infn.it/conferenceDisplay.py?confId=12079>.

The meeting was attended by a total of 52 participants from 9 different countries. The meeting program (provided in annexe) consisted of short presentations from experts on gaseous detectors, particle, neutron and gamma-ray detectors, magnetic spectrometers, electronics and data acquisition systems. Slides from the speakers are available on the meeting website.

Two invited keynote presentations opened the event. One focused on nuclear physics perspectives using gas detectors and the other reviewed the technological challenges in the field of amplification for gas detectors.

The other contributed and invited talks can be summarized as follows:

- 1) Talks about projects involving gas detectors or possible coupling of detector arrays with gas detectors.
- 2) Specific developments for coupling particle, neutron and gamma-ray detectors with gas-filled systems.
- 3) Electronics, acquisition and technical developments needed for coupling different devices together.
- 4) Simulations and data analysis of complex systems.

All of these presentations triggered several discussions about the overlap and complementarity in Europe of many projects, in particular, particle detectors and front-end electronics. The need to coordinate such developments and to share the efforts emerged. Possible future actions within the GDS network activity, like the creation of a European particle detector pool were introduced and discussed.

In addition to the GDS-related topics, an introduction to the SPES facility at LNL and a tour of the Laboratory was provided to all participants.

CONCLUSION

The first of four annual meetings of the GDS collaboration was held at Legnaro National Laboratory (Italy) from January 25 to January 27, 2017. This topical meeting constitutes deliverable D6.2 of the ENSAR2 project and is the second deliverable of the GDS networking activity. The next GDS topical meeting (D6.3) is presently being organized and will be held at the University of the Santiago de Compostela in Spain.

GDS Topical Meeting Program

GDS Topical Meeting: GDS coupling to auxiliary detection systems

chaired by Fabiana Gramegna (LNL), Riccardo Raabe (Instituut voor Kern- en Stralingsfysica, KU Leuven), Tommaso Marchi (KU Leuven)

from Wednesday, 25 January 2017 at **08:00** to Friday, 27 January 2017 at **18:00** (Europe/Rome)

at **INFN Laboratori Nazionali di Legnaro (Villi Meeting Room)**

Viale dell'Università 2 - 35020 LEGNARO PD - Italy

Description ENSAR2 is the integrating activity for European nuclear scientists who are performing research in three of the major subfields defined by NuPECC: Nuclear Structure and Dynamics, Nuclear Astrophysics and Nuclear Physics Tools and Applications. Within ENSAR2, GDS, the Gas-Filled Detectors and Systems Network Activity, gathers experts of gas-filled detectors and systems to develop new techniques to overcome constraints such as high-intensity beams and strong non-uniform magnetic fields.







GDS announces the first of its four Topical Meetings: GDS coupling to auxiliary detection systems.

This meeting is devoted to Ancillary detectors to be used in combination with GDS. Topics like particle, gamma-ray and neutron detectors will be covered, together with the associated electronics readout systems, complex simulation environments and integration issues.

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[Go to day](#)









Wednesday, 25 January 2017

- 10:00 - 10:30 **Bus from Padua to LNL**
Bus pickup point is Via Falloppio, crossroad Via Ospedale, near the newsagent's
- 10:00 - 11:00 **Registration**
- 11:00 - 11:20 **Welcome**
- 11:00 **Welcome 5'**
Speaker: Fabiana Gramegna (LNL)
- 11:05 **The GDS Network: who, why, what. 15'**
Speaker: Dr. Geoffrey-Fathom Grinyer (GANIL)
Material: [Slides](#) 
- 11:20 - 13:00 **Gas Detectors and Systems**
Convener: Prof. Riccardo Raabe (Instituut voor Kern- en Stralingsfysica, KU Leuven)
- 11:20 **Gaseous detectors for radioactive beam experiments 35'**
Speaker: Dr. Daisuke Suzuki (Riken Nishina Center)
Material: [Slides](#) 
- 11:55 **Trend and new developments in gas amplifiers 35'**
Speaker: Dr. Marco Cortesi (National Superconducting Cyclotron Laboratory (Michigan State University))
Material: [Slides](#) 
- 13:00 - 14:15 **Lunch**
- 14:15 - 16:15 **Particle Detectors**
Convener: Fabiana Gramegna (LNL)
- 14:15 **The heavy-ion magnetic spectrometer PRISMA: present status and ongoing upgrades 30'**
Speaker: Enrico Fioretto (LNL)
- 14:45 **FARCOS: a new telescope array for correlations and spectroscopy 30'**
Speaker: Paolo Russotto (CT)
Material: [Slides](#) 
- 15:15 **The FAZIA modules: recent results and possible couplings with gas detectors 30'**
Speaker: Sandro Barlini (FI)
Material: [Slides](#) 
- 15:45 **OSCAR: a modular low-threshold hodoscope for low energy nuclear reactions 30'**
Speaker: Dr. Ivano Lombardo (Università di Napoli Federico II and INFN - Sez. Napoli)
Material: [Slides](#) 
- 16:15 - 16:30 **Coffee break**
- 16:30 - 18:00 **Gamma-ray and neutron detectors**
Convener: Dr. Beatriz Fernandez-Dominguez (USC)

- 16:30 **NEDA - The New High Performance Neutron Multiplicity Filter** 30'
Speaker: Grzegorz Jaworski (LNL)
- 17:00 **CLYC: a new scintillator detector for nuclear physics** 30'
Speakers: Prof. Franco Camera (Università di Milano and INFN sect. of Milano), Dr. Agnese Giaz (MI)
Material: [Slides](#) 
- 17:30 **Scintillation array development for the SpecMAT Active Target - Time Projection Chamber** 30'
Speaker: Mr. Oleksii Poleshchuk (KU Leuven, Institute for Nuclear and Radiation Physics)
Material: [Slides](#) 


18:00 - 18:30 Bus to Padua

Thursday, 26 January 2017

- 08:20 - 09:00 Bus to LNL
Bus leave from Via Falloppio, crossroad Via Ospedale, near the newsagent's.
- 09:00 - 10:30 **Projects**
Convener: Dr. Héctor Alvarez Pol (University of Santiago de Compostela)
- 09:00 **Auxiliary detectors for direct reactions studies** 30'
Speaker: Dr. Beatriz Fernandez Dominguez (USC)
- 09:30 **An optical chamber for fission** 30'
Speaker: Dr. Manuel Caamano (Universidade de Santiago de Compostela (Spain))
- 10:00 **ELITPC - a TPC detector for photonuclear reaction studies using intense, monochromatic gamma-ray beams at the ELI-NP facility** 30'
Speaker: Dr. Mikolaj Cwiok (University of Warsaw)
Material: [Slides](#)  
- 10:30 - 11:00 Coffee break
- 11:00 - 13:00 **Projects**
Convener: Dr. Alain GILLIBERT (CEA/IRFU/SPhN)
Location:
- 11:00 **Probing the structure of exotic nuclei with protons and antiprotons targets** 30'
Speaker: Dr. Anna Corsi (CEA Saclay)
Material: [Slides](#)  
- 11:30 **Investigation of Ceramic based Resistive Plate Chambers for high rate beam environments** 30'
Speaker: Dr. Lothar Naumann (Helmholtz-Zentrum Dresden-Rossendorf)
Material: [Slides](#) 
- 12:00 **The NUMEN project at INFN-LNS: R&D activity on new detection technologies** 30'
Speaker: Francesco Cappuzzello (LNS)
- 12:30 **The experimental set-up of the RIB in-flight facility EXOTIC** 30'
Speaker: Dimitra Pierroutsakou (NA)
- 13:00 - 14:15 Lunch
- 14:15 - 15:45 **Electronics and Front-end electronics**
Convener: Tommaso Marchi (KU Leuven)
- 14:15 **The low-noise low-power multi-channel ASIC preamplifier of TRACE: design, results and perspectives** 30'
Speaker: Stefano Capra (MI)
- 14:45 **Custom digitizers with on-board pulse shape discrimination.** 30'
Speaker: Mr. Pietro Ottanelli (FI)
Material: [Slides](#) 
- 15:15 **FAZIA electronics: from detectors to acquisition** 30'
Speaker: Dr. Simone Valdré (GANIL)
Material: [Slides](#) 
- 15:45 - 16:15 **The SPES facility**
15:45 **Status of the SPES project** 20'
Speaker: Gianfranco Prete (LNL)
Material: [Slides](#) 
- 16:15 - 16:35 Coffee break

- 16:35 - 18:00 Tour of LNL facilities
18:00 - 18:30 Bus to Padua
20:00 - 22:30 Social dinner
The social dinner will take place at Caffè Pedrocchi (Padua).

Friday, 27 January 2017

- 08:20 - 09:00 Bus to LNL
The bus will leave from Via Falloppio, crossroad Via Ospedale, near the newsagent's.
- 09:00 - 10:30 Electronics, DAS, Simulations
Convener: Dr. Manuel Caamano (Universidade de Santiago de Compostela (Spain))
- 09:00 **Synchronizing GET with GTS systems 30'**
Speaker: Mr. Gilles WITTEWER (GANIL)
- 09:30 **Characterization of the GET electronics for Si detector applications 30'**
Speaker: Dr. Alex Laffoley (GANIL)
- 10:00 **Status and perspectives of the ACTARSim simulation 30'**
Speaker: Dr. Héctor Alvarez Pol (University of Santiago de Compostela)
Material: 
- 10:30 - 11:00 Coffee break
- 11:00 - 12:30 Round Table, final remarks
Convener: Dr. Geoffrey-Fathom Grinyer (GANIL)
- 11:00 **Summary Talk 20'**
Speaker: Prof. Riccardo Raabe (Instituut voor Kern- en Stralingsfysica, KU Leuven)
- 12:00 - 13:00 GDS CC closed meeting
- 13:00 - 14:00 Lunch
- 14:00 - 14:30 Bus to Padua / Train Station