



Mediterranean Thematic Workshops

in Advanced Molecular Imaging

**TRANSLATING TECHNOLOGY FROM NUCLEAR AND
PARTICLE PHYSICS TO THE CLINIC:
ADDRESSING MEDICAL NEEDS BY DETECTOR KNOW-HOW
WITH A FOCUS ON ORGAN-SPECIFIC IMAGING**

3-7 SEPTEMBER 2014
ALGHERO (SARDINIA - ITALY)

COLLABORATION BETWEEN THE PHYSICS-,
MEDICAL- AND INDUSTRIAL COMMUNITIES



OVERVIEW



In order to address the issues of efficient technology transfer and translational research, the meeting in Sardinia will bring together all the major stakeholders, including imaging scientists, practicing physicians from radiology, oncology, neuroimaging, surgery and radiation therapy, representatives of the manufacturers, both big and small, of medical imaging instrumentation and components, radio-pharmaceutical company representatives, and, if possible, officials from funding agencies.

The primary goal of the meeting will be to identify the conditions and requirements (medical, technical and societal) for an expansion of medical diagnostic imaging into dedicated, application and/or organ-specific fields **in order to improve quality of diagnoses, efficacy of treatment and to reduce overall health-care costs.**

Therefore application areas with high societal impact and strong medical need are to be identified and strategies for addressing them both technologically as well as organizationally have to be developed.



Some of the topics that will certainly be discussed are:

- **MR-compatible inserts for surgical and other applications,**
- **therapy monitoring in both radiation and medical oncology**
- **potential and usefulness of screening**

It is the intention to review the complete spectrum of potential applications and, at the end of the meeting, having achieved a better understanding of the role of dedicated, organ-specific instrumentation and the potential translation of such technologies into the clinic.

The meeting shall start with introductory keynote talks by opinion leaders in the field, followed by a series of sessions on organs/diseases (breast, prostate and OB/GYN, endoscopy, surgery, brain, heart, radiotherapy), each one with clinician (and/or surgeon), radiologist, and technologist talks and with a round table (or a panel) at the end of each session to maximize the discussion and interaction between multidisciplinary participants. An important component of this meeting will be the talks given by company representatives, in addition to the physician and surgeon talks describing the uses of a particular technology or instrument.

➔ VENUE

The workshop will be held in the Hotel Porto Conte (Alghero)
www.hotelportoconte.it

Arrival from Alghero Airport :
Minibus will be available.
Taxis are available (15 min.)





Alghero

30 August 1353: in the bay of Porto Conte, 45 Catalan galleys, flanked by 25 Venetian galleys, under the command of Bernardo Cabrera, emerge victorious over the Ligurian fleet led by Antonio Grimaldi. The Aragonese occupation signalled the beginning of the history of L'Alguer – a city marked by the Catalan flavour that has permeated its streets, architecture and civic life. To this day, in what is a unique instance of the conservation of a foreign civilisation in Italy. Indeed, in Alghero, everything “speaks Catalan”: the streets and the shops, the language, the lifestyle, the cuisine and the traditions.

This is the heritage of the long period in which the destiny of Alghero – a city state during the centuries of Aragonese domination – was very firmly intertwined with that of the Iberian countries.

Aragonese tales tell of the criss-crossing of the carrers (the alleys ventilated by the sea breeze), the mullioned windows of the monumental palaces, the great fan-shaped sandstone doors, the bell towers with their spires standing out against the sky and the ancient Occitanian dances.

The “cittadina bonita y bien assentada” – meaning “gracious and well-fortified city”, as it was defined in 1541 by Emperor Carlos V on his visit to Alghero – continues to this day to fascinate and surprise, as it politely invites visitors to stroll around its streets and to discover, in the process, its remarkable natural and historical riches.

Sounds and voices of Catalonia

The centuries of Aragonese domination gave Alghero its own Catalan language, which has remained alive to the present day. This is very much a one-off case in Italy. The Algherese dialect, still widely used, is a linguistic variant of Catalan, which makes Alghero very much a pais català. The dialect is awash with echoes and sounds of Catalonia, and can easily be heard by listening to the tales being reeled off by the old people of the town as they sit at the door of their houses.

While the phonetics may have drifted quite some way from the mother tongue, the lexicon remains that of old Catalan, with a limited number of Castillian, Sardinian and Italian elements thrown into the mix, reflecting the various powers that have asserted themselves here over the centuries.

With a view to keeping the Catalan dialect a vital part of life in Alghero, the City Council has, over recent years, implemented numerous measures geared towards reintroducing the dialect in formal documents and towards using it in various communicative contexts.



Through the alleys of the ciutat vella

In the maze of cobbled streets and alleys within the walls of the ancient fortified town - the beating heart of Alghero - the air is impregnated with a sense of history and a sense of the sea.

These narrow streets, pulsating with life, are lined with fascinating historic palazzos and ancient residences, along with sky-scraping bell towers and multi-coloured cupolas belonging to numerous churches, which stand as testaments to the lengthy religious history of the city. It all adds up to a delightful mix of Gothic, Renaissance, Baroque and Neo-classical architecture.

These streets play host to numerous craft workshops - where you can find original jewellery made from red coral, filigree and precious stones - and to quaint stores, housed in old sandstone storerooms with barrel-vaulted ceilings, which sell everything from clothing to books and traditional sweets.

The flavours of Alghero

Few ingredients but a great deal of creativity. Traditional Algherese cuisine is based, above all, on seafood and vegetables, and is distinguished by a refined simplicity that is intended to maximise the impact of the flavours. It is a cuisine in which vegetables, artichokes and tomatoes predominate, along - of course - with the fish that are so plentiful along the coast.

Copaza de peix, or fish soup, is the most typical dish in Alghero's marine tradition, whereas Algherese or Catalan lobster is perhaps the most renowned dish.

During winter, the sea-urchin is the king of Algherese cuisine.

It is best savoured on its own with a glass of fine wine along the quayside or within delicious spaghetti dishes. The Catalan essence of the city emerges clearly in its flavoursome, colourful recasting of the famous Spanish paella, which is served up by Alghero's numerous restaurants with rice, saffron, vegetables, molluscs and shellfish.

PROGRAM

WEDNESDAY SEPT. 3

Key note session 1 / Chair: Franco Garibaldi

8.30	Welcome addresses
8.45	Lost in translation: from nuclear science to clinical reality David Townsend, CIRC, University of Singapore, Singapore
9.20	PET technology across different scales: designs driven by applications Simon Cherry, UC Davis, USA
9.55	TOF-PET: from the idea to clinics Joel Karp, University of Pennsylvania, USA
10.30	Coffee break
11.00	PET-MR: from the idea to the working detector Bernd Pichler, University of Tuebingen, Germany
11.35	Clinical rationale for PET/MRI George El Fakhri, Harvard University, School of Medicine, USA
12.10	The role of dedicated imagers in radiology and Nuclear Medicine Annibale Versari, Arcispedale Santa Maria Nuova, Italy
12.45	Lunch break
Key note session 2 / Chair: York Haemisch	
14.30	PET radiotracer discovery and development for neuroimaging applications Roger Gunn, Imperial College London, England
15.00	PET neuroimaging in early phase drug development Roger Gunn, Imperial College London, England
15.30	The role of medical imaging in pharmaceutical industry Nicholas Seneca, Roche, Switzerland
16.00	The role of equipment industry in the translation from research to medical imaging devices York Haemisch, Idstein, Germany
16.30	Coffee break
17.00	Cardiac session , Chair: Marie-Alix Duval The role of molecular imaging in cardiology. Limits of cardiac imagers available. Is there a need for new devices? Markus Schwaiger, Technical University Munich, Germany
17.35	Round table discussion , Chairs: David Townsend, Markus Schwaiger Imaging: from detector development to clinics: key elements, hurdles and opportunities Funding Institutions, Industries, Physicists, MD's
18.35	End

THURSDAY SEPT. 4

Radiotherapy session / Chairs: Giacomo Cuttone, Roberto Orecchia

8.30	The role of the radiotherapy in cancer therapy Roberto Orecchia, IEO, Milano and CNAO, Italy
9.00	Particle radiation therapy: the promise, the current status, the perspectives Giacomo Cuttone, INFN LNS, Italy
9.30	A Linac for hadrotherapy Luigi Picardi, ENEA Frascati, Italy
10.00	Coffee break/poster session
10.30	PET imaging in radiation therapy George El Fakhri, Harvard University, School of Medicine, USA
11.00	External/internal correlation models for motion management in radiotherapy Guido Baroni, Politecnico di Milano, Italy
11.30	Novel techniques for dose monitoring in particle therapy Vincenzo Patera, University of Rome La Sapienza, Italy
12.00	Round table discussion, Chairs: Giacomo Cuttone, Roberto Orecchia The role of imaging in radiotherapy
12.30	Lunch break
Combined prostate/OB/GYN and endoscopic session Chairs: Stan Majewski, Markus Schwaiger	
15.30	Gastrointestinal endoscopy I Ivo Bostowski, Univ. Cattolica Roma, Italy
15.55	Gastrointestinal endoscopy II Rene Laugier, AP-HM Marseille, France
16.20	Present status of prostate cancer treatment and the role of imaging César David Vera Donoso. La Fe University Hospital. Valencia (Spain)
16.45	Present status of OB/GYN cancer treatment and the role of imaging Alessia Di Legge, Università Cattolica, Italy
17.10	Coffee break/poster session
18.05	Prospects for imaging prostate cancer with PET/CT and PET/MR Maurizio Conti, Siemens, USA
18.30	18F-Choline: Is shine-effect an issue for prostate SUV quantification? An evaluation based on Monte Carlo simulations of the XCAT phantom Jesus Silva, Health Research Institute (IDIS), Spain
18.55	TRUS_Tof_PET Stan Majewski, University of Virginia, USA
19.15	End

PROGRAM

FRIDAY SEPT. 5

Endoscopic session / Chairs: Stan Majewski, Markus Schwaiger

8.30	EndoTOFPET-US, A dedicated detector for pancreas and prostate biomarkers developments Paul Lecoq, CERN and CERIMED, Switzerland
9.00	Dedicated detectors for OB/GYN Franco Garibaldi, INFN, Italy
9.25	The role of optical techniques in diagnosis and surgery Joackim Klode, Essen University, Germany
9.50	Round table discussion, Chair: Maurizio Conti The role of imaging in endoscopy: crucial parameters for detectors. Do we need multimodality?
10.20	Coffee break
Breast session / Chairs: Joel Karp, Iraj Khalkhali	
10.50	The role of dedicated single photon detectors in breast diagnosis Iraj Khalkhali, UCLA, USA
11.20	Review of surgical imagers Marie-Alix Duval, IMNC, Orsay, France
11.50	Dedicated detectors for breast Stan Majewski, University of Virginia, USA
12.20	Industrial talk, Metaltronica
12.35	Round table discussion, Chairs: Joel Karp, Iraj KhalKhali The role of Nuclear Medicine techniques in the management of breast cancer
13.05	Lunch break
16.00	Guided tour (visit of Alghero)
20.30	Conference dinner

SATURDAY SEPT. 6

Brain session (degenerative diseases and mental disorders) and Head and Neck session / Chair: Vesna Sossi	
8.15	Molecular brain imaging: recent advances in relation to pathology and treatment Andrea Varrone, Karolinska Institute Stockholm, Sweden
8.55	Dedicated detector systems for brain imaging Antonio Gonzales, I3M, Valencia, Italy
9.20	Coffee break
9.35	Head and neck cancers, what the surgeon expect from imaging Iacopo Galli, Universita Cattolica Roma, Italy
10.00	Round table discussion, Chair: Vesna Sossi Do we need dedicated detectors for brain, head and neck?
10.30	Lunch break / Visit of "grotta di Nettuno"
Technology session 1 / Chairs: Paul Lecoq, Stan Majewski	
15.30	TOF PET: 100 ps and DOI? Dennis Schaart, University of Delft, Netherlands
15.50	Electronics for medical imaging César David Vera Donoso, La Fe University Hospital, Valencia (Spain)
16.10	TOFPET ASICs - status and perspectives Manuel Rolo, INFN Torino, Italy
16.30	PET signal optimization for different tasks: from lesion detection to pattern definition Vesna Sossi, University of British Columbia, Canada
16.50	Coffee break
17.10	SiPM introduction Gianmaria Collazuol, University of Padova, Italy
17.30	Analog SiPM TBD, Hamamatsu
17.50	Digital Photon Counter: A scalable technology for flexible application in medical imaging York Haemisch, Idstein, Germany
18.10	Reconstruction software talk / C. Tsoumpas, University of Leeds, UK
18.30	Round table discussion, Chair: Gianmaria Collazuol SiPM: analog vs digital, benefits and drawbacks
19.00	Discussion session, Chairs: Paul Lecoq, Stan Majewski
19.30	End

PROGRAM

SUNDAY SEPT. 7

Intraoperative Guidance / Chair: Nathan Hall

8.30	Differentiation between cancer and inflammation, the role of the imagers Chumy Nwogu, Rosswell Park Cancer Institute, Buffalo, USA
8.55	Lymphoseek: Clinical validation of a design model for a receptor-targeted SLN imaging agent David R. Vera, Univeristy of California S. Diego, USA
9.20	A new liver imaging agent David R. Vera, Univeristy of California S. Diego, USA
9.45	Review of non-imaging surgical probes Riccardo Faccini, Univeristy of La Sapienza, Rome, Italy
10.15	Coffee break/poster session
10.40	Perioperative and intraoperative molecular imaging for tumor localization in surgical oncology Nathan Hall, Ohio State University, Columbus, USA
11.05	Round table discussion, Chair: Chumy Nwogu Multimodality detectors for surgery?
11.35	Summary and Conclusions, Chairs: Nathan Hall, David Townsend
12:30	Lunch
	Bus(es) for the airport (15 – 20 minutes)

INTERNATIONAL ORGANIZING COMMITTEE

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