




Università degli Studi di Ferrara

PERSONAL INFORMATION

Petra Martini

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Sex female | Nationality Italian

ACTUAL POSITION

PhD Student

EDUCATION AND TRAINING

From November 2014
Up to October 31st, 2017

PhD in Physics

University of Ferrara, Italy

Student in the third year of the Research Doctorate course (PhD course) in Physics in collaboration with Legnaro National Laboratories of the Italian Institute of Nuclear Physics (INFN) and the Nuclear Medicine Laboratory of the University of Ferrara.

I awarded a grant for Doctorates to attend the PhD course (2014-2017).

Research project:

- Extraction Techniques of ^{99m}Tc from ^{100}Mo metal target
- Extraction and purification methods for cyclotron produced radiometals

Supervisors: Prof. Vincenzo Palmieri and Prof. Adriano Duatti

The purpose of my PhD work is to develop extraction and purification procedures of cyclotron produced radionuclide for Nuclear Medicine applications. In the last two years I took part in different projects on the cyclotron production of radionuclides such as ^{99m}Tc , ^{67}Cu , ^{68}Ga . I developed two automated modules for the extraction of high-purity ^{99m}Tc from a ^{100}Mo enriched metal target irradiated by a proton beam, a semi-automatic module for ^{68}Ga purification from Zn liquid target and optimized a high yield separation and purification process for nuclear cross section studies for ^{67}Cu cyclotron production from Zn metal target at high energy.

From July to December 2016

Abroad Scientific Collaboration Experience

TRIUMF, Vancouver, Canada

Research projects:

- A trans-regional initiative to achieve large scale production, distribution, supply and commercialization of Tc-99m
- Radiometals produced by liquid targets for molecular imaging of cancer

In the second year of my PhD I spent six months at TRIUMF as visiting scholar collaborating with the Life Science group, headed by Paul Schaffer, pioneer in the radiometals for nuclear medicine cyclotron production research. My contribution to these projects was mainly the development of semi-automated purification methods for Ga-68 and installing, programming and testing a new module for Tc-99m extraction-purification.

Supervisors: Dir. Paul Schaffer and Dr. Comelia Höhr

From March to July 2014

Research collaboration

Consorzio Ferrara Ricerche, Ferrara, Italy

“Preliminary study on metal separation for the development of new techniques of ^{99m}Tc production from metal target” in collaboration with the nuclear medicine laboratory of the University of Ferrara and the INFN Legnaro Laboratories.

2014 Master’s degree in Materials Science

University of Padova, Italy
in collaboration with INFN-LNL and University of Ferrara

LM-53 – Material engineering (ex DM 270/04)
Experimental thesis: Extraction Techniques of Technetium-99m from Molybdenum Metal Target
Supervisor: Prof. Vincenzo Palmieri
Final grade: 107/110

2011 Bachelor’s Degree In Materials Science

University of Padova, Italy
in collaboration with INFN-LNL

L-27 – Chemistry (ex DM 270/04)
Thesis: Production of ^{99m}Tc with Cyclotron: Possible Approach to the Medical Isotopes Crisis
Supervisor: Prof. Vincenzo Palmieri
Final grade 95/110

PERSONAL SKILLS

Communication skills

- Good scientific communication skills acquired through periodic exposure of the work to the research group, the preparation of reports and research publications;
- active participation in national and international congresses, conferences and training schools programs as invited relator and collaboration with overseas research groups.

Organizational skills

- Self-Organizing the work in advance, if necessary compare myself with colleagues;
- Working in teams, planning and organizing interdisciplinary work, always looking to improve relations and to create harmony in the working group;
- Enthusiastic approach facing with new challenges, prone to learn new things;
- Contemporary collaboration with different research groups and projects keeping punctuality, reliability and professionalism;
- During the PhD I followed graduating students in the realization of experimental thesis helping them in the organization of their work for achieve the results.
- I am part of the organising committee of the 3° Corso Nazionale di aggiornamento del GICR “La radioprotezione nella preparazione e nel controllo di qualità dei radiofarmaci” (Ferrara).

Job-related skills

- Treatment of solid and liquid targets after irradiation, development of radiometals extraction separation and purification methods and subsequent automation, installation and programming of the procedure with synthesis-modules;
- To address the key issues of my work I learned about manipulation of radioactive materials, radiometals separation and purification techniques, radiochemistry, production methods of relevant medical radioisotopes, quality control (gamma spectroscopy, radio-chromatography, HPLC), radiopharmaceuticals synthesis, labeling techniques, radio-analytical characterization methods, PET and SPECT, small-animal tomography, biodistribution studies in animal models, radioprotection and basic nuclear and radiation physics.
- Interdisciplinary attitude acquired through the entire study plan, the experimental thesis work and the work experience as PhD student in national and international research groups of Radiopharmaceutical chemistry and Nuclear Medicine (LENA, ARRONAX, TRIUMF, ENEA).

Computer skills

- Microsoft Office™, Origin, Gamma Vision® (ORTEC), Rad-Decay, Software optiquant™, Modular-Lab Software 4.3.2.0 (Eckert & Ziegler), Synthera® platform software (IBA).
- Installing and programming automatic synthesis modules for radiopharmaceutical production and radiometals extraction and purification

Mother tongue

Italian

Other language

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

- “Corso di Inglese accademico e professionale” attendance certificate CLA University of Ferrara

- Artistic skills and hobbies
- cooking
 - theater

OTHER SKILLS AND COMPETENCES

Projects

INFN project participation at LNL-INFN:

- L ARAMED (Laboratory for the Production of RAdioisotopes for MEDicine) (since 2014) INFN;
- APOTEMA (2012-2014) CSN5 INFN;
- TECHNOSP (2015-2017) CSN5 INFN;
- COME (2016) CSN3 INFN;
- PASTA (2017-2018) CSN5 INFN.

TRIUMF project participation:

- A trans-regional initiative to achieve large scale production, distribution, supply and commercialization of Tc-99m;
- Radiometals produced by liquid targets for molecular imaging of cancer.

Awards, scholarships and grants

- Best poster prize "A new solvent-extraction module for a local routine production of Technetium-99m by medical cyclotron" A. Boschi et al. XIII AIMN national congress (2-5 March 2017)
- Ministerial grant for doctorates to attend the PhD in Physics (2014-2017) financed by INFN-LNL

Teaching activity

- Summer School "Up-to-date methods for Radiolabelling Of Peptides, Immunoconjugates and Cells, and their (pre)clinical, application and basic Principle of imaging acquisition and interpretation" (TROPI-CALL PLUS 2015). Department of translational research and of new technologies on surgery and medicine, University of Pisa, Italy. Lesson on Technetium-99m: new development and research applications
- Invited Relator at "VI national congress of the interdisciplinary group of radiopharmaceuticals" GICR
- Thesis advisor for bachelor degree course "Tecniche di radiologia medica, per immagini e radioterapia" at the University of Ferrara (C. Zilveti AA 2013-2014, A. Buzzoni AA 2015-2016).

Postgraduate courses

- Auditor at Master (II level) on "Scienza e Tecnologia dei Radiofarmaci" UNIFE (Ferrara);
- "La radioprotezione nella preparazione e nel controllo di qualità dei radiofarmaci" GICR (Ferrara);
- "Il controllo di qualità dei radiofarmaci: strumenti, materiali e metodi" GICR (IRCCS Milano);
- VI national congress of the interdisciplinary group of radiopharmaceuticals GICR (Cuneo);
- "Corso di Inglese accademico e professionale" CLA UNIFE;
- "Criteri e contenuti nella valutazione scientifica: il progetto di ricerca in conformità al Dgl. 26/2014" Animal Welfare UNIFE (Ferrara);
- "Chemical Safety Course" Università della British Columbia (UBC, Vancouver, CA);
- "NEA workshop on Non-Nuclear Radioactive Waste" (LNL INFN, Legnaro, Padova);
- "I metodi alternativi alla sperimentazione animale: miti e realtà" Animal Welfare UNIFE (Ferrara).

Congresses and conferences

- Associazione Italiana di Medicina Nucleare AIMN 2015 (Rimini);
- European Association of Nuclear Medicine EANM 2015 (Amburgo, GE);
- AIMN 2017 (Rimini);
- International Symposium on Radiopharmaceutical Science ISRS 2017 (Dresda, GE);
- II CRP IAEA "Accelerator-based Alternatives to Non-HEU production of Mo-99/Tc-99m" (2013, Legnaro, Padova);
- III CRP IAEA "Accelerator-based Alternatives to Non-HEU production of Mo-99/Tc-99m" (2015, Vienna, AU).

Publications and Scientific contributions

- P. Martini, A. Boschi, G. Cicoria et al. A solvent-extraction module for cyclotron production of high-purity Technetium-99m. *Applied Radiation and Isotopes*. 2016; 118(2916)302-307;
- A. Boschi, P. Martini and L. Uccelli. ¹⁸⁸Re(V) Nitrido Radiopharmaceuticals for Radionuclide Therapy. *Pharmaceuticals* 2017;
- A. Boschi, P. Martini, M. Pasquali and L. Uccelli. Recent achievements in Tc-99m radiopharmaceutical direct production by medical cyclotrons. *Drug Development and Industrial Pharmacy* 2017;
- L. Uccelli, P. Martini, M. Pasquali and A. Boschi. Monoclonal Antibodies Radiolabeling with Rhenium-188 for Radioimmunotherapy. *BioMed Research International* 2017 Article ID 5923609;
- L. Uccelli, P. Martini, M. Pasquali and A. Boschi. Radiochemical purity and stability of ^{99m}Tc-HMPAO in routine preparations. *Journal of Radioanalytical and Nuclear Chemistry* 2017 DOI: 10.1007/s10967-017-5437-1.

Annual Reports LNL INFN

- AR 2013: P. Martini et al. Extraction Techniques of ^{99m}Tc from ^{100}Mo metal target;
- AR 2014:
 - P. Martini et al. Development of an automatic separation/extraction module for the accelerator ^{99m}Tc production from ^{100}Mo -enriched molybdenum metal targets;
 - P. Martini et al. First accelerator-based ^{99m}Tc GBq production levels and in-vivo imaging tests for APOTEMA experiment;
 - N. Uzunov et al. A study on the gamma-ray background of the images obtained using accelerator-produced ^{99m}Tc ;
 - G. Di Domenico et al. Development of a β -spectrometer based on TDCR method for ^{99g}Tc activity estimations;
- AR 2015:
 - P. Martini et al. Improvement of the automatic Extraction/separation module for the high purity accelerator-Tc-99m production by conventional medical cyclotrons;
 - G. Pupillo et al. Imaging tests with accelerator-produced Tc-99m by conventional Medical cyclotron.
- AR 2016:
 - P. Martini et al. Radiochemical Procedure for ^{67}Cu Production from Zinc Target;
 - G. Pupillo et al. COME – COPPER MEasurement project.

Congress Abstract

- AIMN 2015 *Clin Transl Imaging* (2015) 3 (Suppl 1):
 - P. Martini et al. Development of an automatic separation/extraction module for the accelerator ^{99m}Tc production from ^{100}Mo enriched molybdenum metal targets;
 - P. Martini et al. First in vivo imaging studies of cyclotron produced ^{99m}Tc -HMPAO;
 - E. Esposito et al. In vivo evaluation of nanostructures lipid labelled with ^{99m}Tc ;
 - M. Pasquali et al. Molecular imaging for the evaluation of drug-receptor interactions in psychoactive substances of abuse;
- EANM 2015 *Eur J Nucl Med Mol Imaging* (2015) 42 (Suppl 1):
 - G. Pupillo et al. Preclinical SPECT-CT imaging studies with cyclotron produced ^{99m}Tc ;
 - P. Martini et al. Remotely controlled solvent extraction of high purity Tc-99m produced by conventional medical cyclotron;
- SIF 2016: G. Pupillo et al. Optimized ^{67}Cu production by using thick ^{68}Zn targets;
- NTHS 2016: G. Pupillo et al. generator and cyclotron produced ^{99m}Tc : a SPECT-CT imaging study of ^{99m}Tc -pertechnetate, ^{99m}Tc -HMPAO and ^{99m}Tc -MYOVIEW;
- Terzo Incontro Nazionale di Fisica Nucleare INFN 2016: G. Pupillo et al. Cross section measurements of proton-induced nuclear reactions for the production of interesting radionuclides for nuclear medicine: A collaboration between INFN-LNL and ARRONAX facility;
- 9TH national congress of *Physica Medica* 32 (2016): G. Cicoria et al. Preliminary assessment of radionuclidic purity of cyclotron produced ^{99m}Tc .
- AIMN 2017 *Clin Transl Imaging* (2017) 5 (Suppl 1):
 - A Boschi et al. A new solvent-extraction module for a local routine production of ^{99m}Tc by medical cyclotrons;
 - P. Martini et al. Imaging test performed with a clinical gamma camera of cyclotron produced ^{99m}Tc ;
 - P. Martini et al. Radiochemical procedure for Cu-67 production from zinc target;
- ISRS 2017 *J Label Compd Radiopharm* 2017:60 (Suppl 1):
 - C. Hoehr et al. Liquid target system for radiometal production on a small cyclotron;
 - G. Dias et al. Peptide radiolabeling and in vivo imaging using ^{68}Ga directly produced in liquid targets.
- ECPM 2017
 - P. Martini et al. High Quality Technetium-99m by Medical Cyclotrons
- EANM 2017
 - K. Buckley et al. Production and purification of ^{99m}Tc pertechnetate from ^{100}Mo targets irradiated in a Nitra solid target station on an IBA Cyclone® 18 cyclotron
 - P. Martini et al. High yield separation of ^{67}Cu from irradiated zinc targets

Il sottoscritto acconsente, ai sensi del D.Lgs. 30/06/2003 n.196, al trattamento dei propri dati personali.
Il sottoscritto acconsente alla pubblicazione del presente curriculum vitae sul sito dell'Università di Ferrara.

Ferrara, 02/10/2017