CURRICULUM VITAE

Andrea Pola
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October 2014- Associate professor of "Nuclear Measurements and Instrumentation" (Italian scientific disciplinary sector ING-IND/20). Since October 2014 on duty at the Department of Energy – Nuclear Engineering Division, Politecnico di Milano.

July 2006 - Assistant professor of "Nuclear Measurements and Instrumentation" (Italian scientific disciplinary sector ING-IND/20). Confirmed in the assistant professor position in 2009.

May 2006 - Philosophy Doctor with honours in Radiation Science and Technology at Politecnico di Milano in 2006 with a thesis entitled "Semiconductor detectors for Neutron Spectrometry and Microdosimetry". The PhD thesis concerned the study and the development of detection systems based on monolithic silicon telescopes, semiconductor detector designed and developed in collaboration with ST-Microelectronics.

May 2003 - Winner of a three year research grant published by the Department of Nuclear Engineering of Politecnico di Milano for the collaboration to the research program "Study and development of semiconductor detectors for microdosimetry and neutron spectrometry" ("Studio e realizzazione di rivelatori a semiconduttore per microdosimetria e spettrometria neutronica").

December 2002 - Graduated with honours in Nuclear Engineering at the Politecnico di Milano in 2002 with a Master Thesis entitled "Spettrometria Neutronica con diodi PIN" ("Neutron spectrometry with PIN diodes"), mainly related to the study and the development of a neutron spectrometer based on a silicon diode in reverse-mode injection configuration coupled with a plastic converter.

RESEARCH ACTIVITIES

Andrea Pola carries out research activity since 2002.
Since 2002 he is being associated to the Italian Institute of Nuclear Physics (INFN).
The research activities are mainly related to three different fields:
- microdosimetry of neutron fields and hadrontherapy beams;
- radiaition spectrometry and dosimetry;
- radiation risk assessment in radiodiagnostics.

Research activities and scientific responsibilities concerning silicon microdosimetry of neutron fields and hadrontherapy beams.

The research activities related to the application of silicon devices for solid state microdosimetry of neutron fields started in 2003, while those concerning hadrontherapy beams started in 2007. These activities were carried in collaboration with the research groups of Microdosimetry of the Legnaro National Laboratories

(INFN) and of the Centre for Medical Radiation Physics of the Wollongong University (Australia) and in the framework of the following research projects approved and funded by National and European institutions:

1) *Project Name:* SISP – Single Event Spectrometry with Silicon Detectors
Framework: National
Funding Institution: Italian Institute of Nuclear Physics – INFN
Period: January 2004 – December 2007, 48 months
Results:
The main achievement of the SISP project was the development of a new solid state microdosimeter based on a silicon device able to neglect field funnelling effects and to measure microdosimetric spectra of neutron fields at lineal energies higher than 20 keV μm^{-1}. The proposed device structure offered the possibility of performing an optimized event-by-event tissue-equivalent correction (suitably studied and developed).
Roles and achievements:
As participant Andrea Pola was in charge of the study, the design and the development of the whole detection system based on the new silicon microdosimeter, i.e. of the detector, the electronics and the acquisition system. Moreover Andrea Pola studied and developed the analytical models through which the minimization of the field funnelling effect was demonstrated and the associated correction procedures were applied.

2) *Project Name:* MICRO-SI - Development of a Transportable Low-noise Silicon Microdosimeter
Framework: National
Funding Institution: Italian Institute of Nuclear Physics – INFN
Period: January 2008 – December 2010, 36 months
Results:
The MICRO-SI experiment allowed to study and characterize new silicon devices and new systems which allowed reducing the detection threshold down to 7 keV μm^{-1}. The systems were thoroughly studied for microdosimetry for hadrontherapy. Moreover, a prototype version constituted by a single cylindrical pixel and a custom ultra-low noise electronics were designed and developed to measure microdosimetric spectra with a lower detection thresholds of about 0.6 keV μm^{-1} (presented at NEUDOS11 conference in 2009).
In the framework of the MICRO-SI experiment the ΔE-E telescope coupled to a plastic converter was also studied for spectrometry of low-energy neutron fields with the development of a new, simple and compact recoil-proton spectrometer able to measure spectra similar to that derive through Time-of-Flight techniques at energies up to 8 MeV. An optimized neutron-gamma discrimination based on a real-time analysis of the ΔE-E scatter-plot was also developed to allow the measurement of neutron spectra down to 0.2 MeV. The spectrometer was employed in 2011 and 2013 for the characterization of neutron spectra generated by beryllium targets at study for the accelerator-driven BNCT facility at INFN Legnaro National Laboratories.
Roles and achievements:
As participant Andrea Pola was in charge of the analytical study and the development of the whole silicon-based systems for microdosimetry and neutron spectrometry. Moreover, Andrea Pola developed the iterative unfolding code based on the calculated analytical response matrix used to derive neutron spectra.

3) *Project Name:*
FAR118 - “Nuovo rivelatore di particelle nucleari telescopico monolitico e sue applicazioni”.
(FAR 118 – “New detector of nuclear particles telescopic monolithic and its applications”)
Framework: National
Funding Institution: Ministry of Universities and Research
Period: January 2004 – December 2007, 48 months
Results:

In the framework of the FAR 118 project, the collaboration with ST-Microelectronics allowed to design and fabricate the first silicon detectors based on the segmented monolithic silicon telescope technology. These innovative devices were used and characterized in the MICRO-SI project and are now used in different projects and experiments related to silicon microdosimetry (see in particular the ARDENT and BIOQUART European projects).

Roles and achievements:

Participant as PhD student, Andrea Pola studied, designed and tested the detectors produced in collaboration with ST-Microelectronics.

4) *Project Name:* ARDENT- Advanced Radiation Dosimetry European Network Training
Framework: European
Funding Institution: European Community - 7th Framework Programme – People
Period: 2012-2015, 48 months
Results:

Monte Carlo simulations of microdosimetric distribution of carbon ions at clinical energies were carried out. A first microdosimetric characterization of clinical carbon beams of energy up to 400 MeV/u was also performed at Centro di Adroterapia Oncologica – CNAO (Pavia) with silicon microdosimeters based on the monolithic telescope structure.

Roles and achievements:

Andrea Pola was a member of the ESR selection panel. At present he is tutor at Politecnico di Milano of the ESR training on silicon microdosimetry for hadrontherapy beams.

5) *Project Name:* BIOQUART - Biologically Weighted Quantities in Radiotherapy
Framework: European
Funding Institution: European Metrology Research Programme - EURAMET
Period: June 2012 – June 2015, 36 months
Results:

The project is in progress. Many scientific results have been already obtained by the different JRP working groups. As far as the research unit of Politecnico di Milano is concerned, two prototypes of silicon microdosimeters based on the monolithic telescope were installed as trigger detectors in the nanodosimeter of PTB for performing microdosimetry and nanodosimetry of ion tracks.

Roles and achievements:

Andrea Pola was a JRP-member and leader of the Politecnico di Milano research unit (PoliMi).
He was directly involved in Work Package 1 – Microdosimetry, 2 – Nanodosimetry, 6- Creating Impact, 7- Management and Coordination. He is responsible for i) the characterization of hadron beams through solid state microdosimeters and for ii) the coupling of silicon microdosimeters and nanodosimeters.

6) *Project Name:* MITRA – Microdosimetria di Traccia (Track microdosimetry)
Framework: National
Funding Institution: Italian Institute of Nuclear Physics – INFN
Period: January 2013 – December 2015, 36 months
Results:

As far as the research unit of Politecnico di Milano is concerned, in order to study the link between microdosimetric and nanodosimetric data a new gas microdosimeter able to simulate sites ranging from 1 um down to 25 nm in diameter was designed and developed at Politecnico di Milano. This gas detector allows to perform microdosimetry at nanometric level for the study of the correlation between nanodosimetric cluster size distributions of ion tracks and the associated microdosimetric properties.

Roles and achievements:

Andrea Pola was the Leader of the Politecnico di Milano research unit (PoliMi).
He was responsible for: Work Package 2 – Microdosimetry at nanometric level; 4 – Silicon Microdosimetry of hadrontherapy beams.

Research activities and scientific responsibilities concerning spectrometry

The research activities related to the application of silicon devices for neutron spectrometry in 2002. The activities were carried out and are being carried out in the framework of the following research projects approved and funded by national:

1) *Project Name:* SID – Silicon detectors
   Framework: National
   Funding Institution: Italian Institute of Nuclear Physics – INFN
   Period: January 2002 – December 2003, 24 months
   Results:
   A new recoil-proton spectrometer based on a silicon diode was studied, assembled and developed. A pulse shape discrimination technique based on charge collection times, already discussed in literature for heavy ions, was extended to low LET particles, i.e. electrons and protons, to carry out an effective gamma-neutron discrimination and neutron spectrometry at energies higher than 800 keV.
   Roles and achievements:
   Participant as Master Student and PhD student.
   In charge of the study, the design and the experimental characterization of the whole detection system, the discrimination techniques and the associated unfolding code.

2) *Project Name:* NESCOFI @BTF – NEutron Spectrometry in COmplex FIelds
   Framework: National
   Funding Institution: Italian Institute of Nuclear Physics – INFN
   Period: January 2011 – December 2013, 36 months
   Results:
   The NESCOFI@BTF project produced two new detection systems for neutron fields able to perform real-time spectrometry over 12 decades (meV - GeV). These systems are based on the moderation in high density polyethylene and on the thermalized neutron detection via multiple compact thermal neutron sensors, newly developed. The so-called CYSP e SP^2 detectors were conceived for diagnostics, monitoring and dosimetry applications and are able to measure with neutron fields (continuous or pulsed) characterized by mean fluence rates in the range 10^1 - 10^6 cm^{-2} s^{-1}.
   Roles and achievements:
   As participant Andrea Pola was responsible for the design, the development and the characterization of the active thermal neutron sensors to be embedded in CYSP e SP^2 neutron spectrometers and the associated acquisition systems.

3) *Project Name:* NEURAPID – NEUtron RAPId Diagnostics
   Framework: National
   Funding Institution: Italian Institute of Nuclear Physics – INFN
   Period: January 2014 – December 2016, 36 months
   Results:
   Innovative thermal neutron sensors sensitive to very low neutron fields were developed. These detectors were successfully applied, in collaboration with the Helmoltz Zentrum (Munich), for monitoring cosmic neutron fields. On the other hand, an innovative detection system (“Speedy”) for the characterization of ultra fast (pulsed) neutron fields was developed and characterized.

   Roles and achievements:
   Andrea Pola is the Leader of the research unit of Politecnico di Milano.
   He was responsible for the study, the design, the development and the characterization of high sensitive active thermal neutron sensors to be embedded in the neutron spectrometers.

4) *Project Name:* eLiBaNS – e-LINAC based neutron source
Framework: National
Funding Institution: Italian Institute of Nuclear Physics – INFN
Period: January 2016 – December 2018, 36 months
Results:
The research activity is in progress.
Roles and achievements:
Andrea Pola is the Leader of the research unit of Politecnico di Milano.
He is responsible for the study, the design, the development and the characterization of active thermal neutron sensors for intense neutron fields and high neutron fluences.

Since 2015 Andrea Pola is the head of the Neutron Metrology Service of the Department of Energy - Politecnico di Milano. The service provides to external users a thermal and a fast neutron calibration facility.

Research activities and scientific responsibility in the field of radiation risk assessment in radiodiagnostics

The research activity related to patient risks from radiodiagnostic procedures started in 2010 in the framework of the following regional PREP - Procedure Radiodiagnostiche In Età Pediatrica
(Radiodiagnostic procedures in paediatrics), a project approved and funded by the Lombardy Regional Government for the period February 2011 – February 2013, 24 months. The PREP project concerned the analysis and management of the radiation exposure of children in radiodiagnostics. It was devoted to increase the appropriateness and the justification in radiodiagnostics, especially in paediatrics.
Andrea Pola was the leader of Work Package 2 – Data analysis and Work Package 3 – Development of the prototype network.
In 2014 Lombardy Regional Government approved and funded the second phase of the PREP project.
In the framework of the PREP Project – phase 2, Andrea Pola is leader of Work Package 1 devoted to the study of protocols and models for the analysis of risk from radiodiagnostic procedures.

Other research activities

Andrea Pola was the leader of the project "Study of the relation between ionization and energy deposition process at the micro scale: comparison of the response of microdosimeters", approved and funded in 2013 by the SPIRIT project - Support of Public and Industrial Research using Ion beam Technology (7th European Framework Programme – Capacities). The aim of this project was to investigate the relation of ionization and energy absorption at the micro scale. This was carried out by comparing microdosimetric distributions measured with a silicon micro-telescope developed by the Politecnico di Milano (main applicant) with those derived by micro-calorimeters based on an Inductive Superconductive Transition Edge Detector, developed by the National Physical Laboratory in collaboration with the University of Surrey and the Royal Surrey County Hospital. The former detector derives information about the energy deposition indirectly by measuring the ionization, while the latter provides a direct measurement of energy deposition at the micrometer scale. The two different detection systems were irradiated with micro-beams of protons and carbon ions at different energies at the Surrey Ion Beam Centre by adopting a common suitable set-up. A dedicated numerical study based on Monte Carlo simulations was also carried out in order to analyze in-depth the experimental results and the correlation between the response of the two different detectors.

Andrea Pola conceived and proposed a new recoil-proton spectrometer based on a monolithic silicon telescope for direct neutron spectrometry. This system, developed in the framework of a PhD thesis, is characterized by a three-stage system: an active converter constituted by a plastic scintillator coupled to a monolithic silicon telescope. By positioning the two detectors at a proper distance in vacuum and by exploiting the neutron-gamma discrimination capability of the telescope a direct measurement of impinging neutron spectra can be performed with an overall resolution of about 200 keV FWHM. The system is under study for high resolution direct spectrometry of intense neutron fields.

In 2011 Andrea Pola participated to the project PAC 1/8 - Characterization of a novel neutron spectrometer based on a single moderating sphere using mono-energetic neutron beams below 20 MeV. The project aimed at characterizing the novel neutron spectrometer based on a single moderating sphere using mono-energetic neutron beams of energies up to 200 MeV developed in the NESCOFI@BTF experiment.

He participated to the LILIA project (LILIA- Laser-Induced Ion Acceleration), an experiment approved and funded by INFN related to light ions acceleration through laser interaction with thin metal targets. The main aim of LILIA was to study, design and verify a scheme which foresees the production, the characterization and the transport of a proton beam toward a stage of post acceleration (high frequency compact Linac). To do this, a comprehensive study was carried out about the radiation fields produced by bombarding different targets with lasers characterized by ultra-high powers (10^{20}-10^{21} W cm^{-2}), ultra-short pulses (20-30 fs) and ultra-high contrasts (>10^{10}). In the framework of the LILIA project, Andrea Pola was involved in the feasibility study of active detection techniques able to characterize the ion beams, mainly protons, generated by lasers pulses over ultra-short times and energies of tens of MeV.

Engagements in the international scientific community

Chairman of the session "Radiation Detection and Measurement" at 12th International Conference on Radiation Shielding – 17th Topical Meeting of the Radiation Protection and Shielding, Nara, Japan Sep. 2012.

Reviewer of several ISI journals, such as "Radiation Measurements", "Nuclear Instruments and Methods in Physics Research A", "Applied Radiation and Isotopes" and "Acta Astronautica".
Awarded as "one of the most valued reviewers of 2011 by the editors of Radiation Measurements".

Proposing author, together with S. Agosteo, of an intercomparison problem in the CONRAD-A Coordinated Action for Radiation Dosimetry, funded by the European Union's 7h Framework Program.

Presentations at International Conferences

Andrea Pola was lecturer at the following International conferences and workshops:

- MICROS05, 14th International Symposium on Microdosimetry, Venezia, Nov 2005;
- Discussion Seminar on Radiation Quality Assessment, Legnaro (Pd), Oct 2006;
- SSD10, 15th Solid State Dosimetry Conference, Delft, (NL) Jun 2007;
- ICRS11, 11th International Conference on Radiation Shielding, Pine Mountain (GE, USA) Apr 2008;
- "International Workshop on Current Challenges to the Metrology of Ionizing Radiation in Sub-Micrometer Dimensions", PTB, Braunschweig (D), Jun 2009;
- NEUDOS11, 11th Symposium on Neutron and Ion Dosimetry, Cape Town (SA), Oct 2009.
- SSD11, 16th Solid State Dosimetry Conference, Sydney, (AU) Sep 2010;
- ICRS12, 12th International Conference on Radiation Shielding, Nara, Japan, Sep 2012.
- NEUDOS13, 13th Symposium on Neutron and Ion Dosimetry, Krakow (Poland), May 2017.

Andrea Pola is author together with S. Agosteo of an invited talk entitled "Silicon Microdosimetry" presented at MICROS2009 – 15th International Symposium on Microdosimetry, held in Verona in 2009.

Andrea Pola is a co-author of an on-line course and of the associated guidelines about the Radiological Risk in Pediatric Radiodiagnostics proposed by Regione Lombardia in the framework of the "Continuous Education in Medicine" (ECM credits).

TEACHING ACTIVITIES

Since 2014: Professor of the course “Laboratory of Physics of the Nucleus” at Politecnico di Milano. The course concerns radioactivity, radiation protection and radiation dosimetry.

Since 2009: Professor of the course “Radioactivity” at Politecnico di Milano. The course concerns fundamentals of Special Relativity, Nuclear Physics and Radioactivity.

OTHER TEACHING ACTIVITIES

April 2014: Expert lecturer at the 7th Framework Programme TRANSNUSAFE “EUROCOURSE 3: Economic Relevance of Safety Culture in Medical Applications”, a course for senior and safety managers of medical radiation facilities.

Sept 2013: Lecturer of the seminar “Silicon Microdosimetry” at the National Physical Laboratories (NPL), Teddington, London.

May 2013: Lecturer of the seminar “Radiation risks in paediatric radiology” at the Niguarda Ca’ Granda Hospital, Milano.

2002 – 2012: Assistant of the course “Medical Application of Radiation” at Politecnico di Milano.

2009: Lecturer at the INFN school “"Rivelatori ed Elettronica per Fisica delle Alte Energie, Astrofisica, Applicazioni Spaziali e Fisica Medica" (“Detectors and Electronics for High Energy Physics, Astrophysics, Space Applications and Medical Physics”) organized at Laboratori Nazionali di Legnaro LNL of the National Institute of Nuclear Physics INFN.

2008: Lecturer of training seminars concerning the radiation protection in paediatrics at the Melegnano Hospital.

Since 2006 Andrea Pola is being supervisor of 12 master thesis in Nuclear Engineering and 4 PhD thesis concerning topics relevant to the Radiation Detection and Measurement field.

Since 2013 Andrea Pola gives lectures in the course “Radiation Protection and Instrumentation in Nuclear System” (Coordinator: S. Agosteo) of the PhD Programme in Energy and Nuclear Science and Technology at Politecnico di Milano.

INSTITUTIONAL RESPONSIBILITIES

Since 2017 is member of the study plan commission of the Master Faculty of MSC Course in Nuclear Engineering.

In 2017 was member of the team in charge of developing the project for the “Department of Excellence” selection, a national competition proposed by the Italian minister of university and research (MIUR). The project was successful.

In 2013 was member of the evaluation commission of the final exam of the “PhD programme in Nuclear Engineering and Industrial Safety” at the University of Pisa.

Since 2013 is member of the commission on didactics of the Department of Energy of the Politecnico di Milano.

Since 2009 Andrea Pola is responsible for the international mobility of students of Master in Nuclear Engineering at Politecnico di Milano.

Andrea Pola was member of the selection commission for the award of 7 research grant at Politecnico di Milano.

TECHNOLOGY TRANSFER

Oct 2017- Andrea Pola is the leader of the proposal "RAYLAB", accepted as a SpinOff company by Politecnico di Milano. The aim of RAYLAB is the development of innovative instrumentation in the radiation detection and measurement field. The main product is the "DIAMON" spectrometer, the first active, portable, direction-aware neutron spectrometer.

LANGUAGE SKILLS

Andrea Pola has a certified level of proficiency in written and spoken English equivalent to the Common European Framework of Reference for Languages (CEF) level C1, i.e. "highly proficient in spoken and written English".

PUBLICATIONS ON INTERNATIONAL JOURNALS

1. Pola, A., Corbella, D., Righini, A., Torresin, A., Colombo, P.E., Vismara, L., Trombetta, L., Maddalo, M., Introini, M.V., Tinelli, D., Strohmenger, L., Garattini,G., Munari, A., Triulzi, F., Computed Tomography Use in a Large Italian Region: Trend Analysis 2004-2014 of Emergency and Outpatient CT Examinations in Children and Adults, European Radiology (2018), doi.org/10.1007/s00330-017-5225-x.

2. Sperduti, A., Angelone, M., Bedogni, R.. Claps, G., Diociaiuti, E., Domingo, C., Donghia, R., Giovannella, S., Gomez-Ros, J.M., Irazola-Rosales, L., Loreti, S., Monti, V., Miscetti, S., Miscetti, S.. Murtas, F., Pagano, G., Pillon, M., Pilotti, R., Pola, A., Romero-Exposito, M., Sanchez-Doblado, F., Sans-Planell, O., Scherillo, A., Soldani, E., Treccani, M., Pietropaolo, A., Results of the first user program on the HOmogeneous Thermal NEutron Source HOTNES (ENEA/INFN), Journal of Instrumentation, 12 (2017) P12029.

3. Mattera, A., Pomp, S., Lantz, M., Rakopoulos, V., Solders, A., Al-Adili, A., Passoth, E., Prokofiev, A.V., Andersson, P., Hjalmarsson, A., Bedogni, R., Bortot, D., Esposito, A., Gentile, A., Gomez-Ros, J.M., Introini, M.V., Pola, A., Gorelov, D., Penttila, H., Moore, I.D., Rinta-Antila, S., Kolhinen, V.S., Eronen, T., A neutron source for IGISOL-JYFLTRAP: Design and characterization, European Physical Journal A, 53-8 (2017).

4. D. Bortot, A. Pola, S. Agosteo, S. Pasquato, D. Mazzucconi, A. Fazzi, P. Colautti, V. Conte, A novel avalanche-confinement TEPC for microdosimetry at nanometric level, Radiat. Meas. 103 (2017) 1-12.

5. Irazola, L., Terron, JA, Bedogni, R., Pola, A., Lorenzoli, M., Jimenez-Ortega, E., Barbeiro, A.R., Sanchez-Nieto, B., Sanchez-Doblado, F., Appl. Radiat. Isot. (2017) 123: 32-35.

6. Gomez-Ros, J. M., Bedogni, R., Bortot, D., Buonomo, B., Esposito, A., Gentile, A., Lorenzoli, M., Introini, M. V., Mazzitelli, G., Moraleda, M., Pola, A., Sacco, D., Two New Single-Exposure, Multi-Detector Neutron Spectrometers For Radiation Protection Applications In Workplace Monitoring, Radiat. Prot. Dosim., 173 (1-3) (2017) 104-110.

7. Bedogni, R., Sperduti, A., Pietropaolo, A., Pillon, M., Pola, A. Gomez-Ros, JM, Experimental Characterization Of HOTNES: A New Thermal Neutron Facility With Large Homogeneity Area, Nuclear Instruments and Methods in Physics Research, Section A 843 (2017) 18-21.

8. Bedogni, R., Bortot, D., Buonomo, B., Esposito, A., Gomez-Ros, JM., Introini, MV., Mazzitelli, G., Moraleda, M., Pola, A., Romero, AM., A SINGLE-EXPOSURE, MULTIDETECTOR NEUTRON SPECTROMETER FOR WORKPLACE Monitoring, Radiat. Prot. Dosim. 170 (1-4) (2016) 326-330.

9. Irazola, L., Terron, JA., Bedogni, R., Pola, A., Lorenzoli, M., Sanchez-Nieto, B.,Gomez, F., Sanchez-Doblado, F., Improving The Neutron-To-Photon Discrimination Capability Of Detectors Used For Neutron Dosimetry In High Energy Photon Beam Radiotherapy, Appl. Radiat. Isot. (2016) 115: 49-54.

10. Agosteo, S., Fazzi, A., Introini, M.V., Lorenzoli, M., Pola, A., A Telescope Detection System For Direct And High Resolution Spectrometry Of Intense Neutron Fields, Radiat. Meas. 85 (2016) 1-17.

11. Bedogni, R., Sacco, D., Gomez-Ros, J.M., Lorenzoli, M., Gentile, A., Buonomo, B., Pola, A., Introini, M.V., Bortot, D., Domingo, C., Ethernes: A New Design Of Radionuclide Source-Based Thermal Neutron Facility With Large Homogeneity Area, Appl. Radiat. Isot. (2016) 107: 171-176.

12. Gambarini, G., Artuso, E., Giove, D., Felisi, M., Volpe, L., Barcaglioni, L., Agosteo, S., Garlati, L., Pola, A., Klupak, V., Viererbl, L., Vins, M., Marek, M., Study of suitability of Fricke-gel-layer dosimeters for in-air measurements to characterise epithermal/thermal neutron beams for NCT, Appl. Radiat. Isot. (2015) 106: 145-150.

13. Gomez-Ros, J. M., Bedogni, R., Bortot, D., Buonomo, B., Esposito, A., Gentile, A., Lorenzoli, M., Introini, M. V., Mazzitelli, G., Moraleda, M., Pola, A., Sacco, D., CYSP: A new cylindrical directional neutron spectrometer. Conceptual design, Radiation Measurements, 82 (2015) 47-51

14. Gambarini, G., Artuso, E., Giove, D., Volpe, L., Agosteo, S., Barcaglioni, L., Campi, F., Garlati, L., Pola, A.,Durisi, E., Borroni, M., Carrara, M., Klupak, V., Marek, M., Viererbl, L., Vins, M., d'Errico, F., Fricke-gel dosimetry in epithermal or thermal neutron beams of a research reactor, Radiation Physics and Chemistry, 116 (2015), 21-27.

15. Sacco, D., Bedogni, R., Bortot, D., Palomba, M., Pola, A., Introini, M. V., Lorenzoli, M., Gentile, A., Strigari, L., Pressello, C. Soriani, A., Gomez-Ros, J. M., Thermal neutron imaging through XRQA2 GAFCHROMIC films coupled with a cadmium radiator, Nuclear Instruments and Methods in Physics Research, Section A 798, (2015) 70-73.

16. Bedogni, R., Gomez-Ros, J. M., Pola, A., Bortot, D., Gentile, A., Introini, M. V., Buonomo, B., Lorenzoli, M., Mazzitelli, M., Sacco, D., Experimental test of a newly developed single-moderator, multi-detector, directional neutron spectrometer in reference monochromatic fields from 144 keV to 16.5 MeV Nuclear Instruments and Methods in Physics Research, Section A 782, (2015) 35-39.

17. Bedogni, R., Bortot, D., Pola, A., Introini, M. V., Lorenzoli, M., Gomez-Ros, J. M (Sacco, D., Esposito, A., Gentile, A., Buonomo, B., Palomba, M., Grossi, A., Experimental characterization of semiconductor-based thermal neutron detectors, Nuclear Instruments and Methods in Physics Research, Section A 780, (2015) 51-54.

18. Agosteo, S Barcellan, Borsato, E., D'Angelo, G., Dal Corso, F., Fazzi, A., Gonella, F., Introini, M.V., Lippi, I., Lorenzoli, M., Pegoraro, M., Pola, A., Varoli, V., Zotto, P. Beam characterization of a monolithic Delta E/E silicon device. Nuclear Instruments and Methods in Physics Research, Section A 779, (2015) 6-12.

19. Bedogni, R., Gomez-Ros, J. M., Bortot, D., Pola, A., Introini, M. V., Esposito, A., Gentile, A., Mazzitelli, G., Buonomo, B., EUROPEAN PHYSICAL JOURNAL PLUS, 130-2 (2015).

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22. Agosteo, S., Introini, M. V., Pola, A., Sagia, E., Response of a silicon telescope microdosimeter to 400 AMeV carbon ions. Rad. Meas. 71, (2014) 524-528.

23. Irazola, L., Lorenzoli, M., Bedogni, R., Pola, A., Terron, J. A., Sanchez-Nieto, B., Exposito, M. R., Lagares, J. I., Sansaloni, F., Sanchez-Doblado, F., MEDICAL PHYSICS, 41 (2014) 11.

24. Bedogni, R., Domingo, C., Amgarou, K., De-San-Pedro, M., Esposito, A., Gentile, A., Pola, A., Spectrometry of 50 and 100 MeV quasi monochromatic neutron fields with extended range Bonner spheres. Nuclear Instruments and Methods in Physics Research, Section A 746, (2014) 59-63.

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