

Short CV of Maria Giuseppina Bisogni

Female, Born in Viareggio 7 November 1968

Two daughters

(2014- to Date), Associate Professor with tenure, Dept. of Physics, Univ. of Pisa

(2002-2014) Researcher with Tenure, Dept. of Physics, Univ. of Pisa

(2001-2002) Post Doc on Medical Physics, Dept. of Physics, Univ. of Pisa

(1999-2000) Medical Physicist, Medical Physics School, Univ. of Pisa

(1996-1998) PhD in Physics, Dept. of Physics, Univ. of Pisa

(1994) *Laurea* (M.Sc) in Physics, Final grade: "110/110 cum Laude" , Dept. of Physics, Univ. of Pisa,

The research activity of maria giuseppina bisogni has the characteristic trait of the study of solid state detectors and their application in medical imaging.

In the years 1994-2000 her research activity was focused primarily on the development and characterization of semiconductor detectors (pixel and microstrip detectors) for digital radiography. In the years 2001 - 2005 Bisogni participated actively in the project "Integrated Imaging Breast Cancer" (IMI), the research program and training funded by MURST (now Ministry of Education) under the auspices of the Law 46/82 art. 10. The proposed research had as its main objective the creation of innovative systems for the morphological and functional imaging for screening, diagnosis and follow-up of malignant disease of the breast.

Since 2006 Bisogni started a new research consistent development and application of a new medical imaging photodetector, the Silicon Photomultipliers (SiPM). Having taken part in this project from the early stages, the candidate has participated actively in the development and testing of sensors SiPM and coordinated over the years the experimental work of a group of young researchers. The most important result obtained in this research has been the development of innovative detection modules (INFN 4DMPET project of which the candidate was responsible in the years 2011-2013) consisting of scintillating crystals read by matrices of SiPMs and integrated electronics. Suitably adapted versions of these modules will be used in a hybrid PET/MR scanner dedicated to investigations of psychiatric conditions (EU FP7 project TRIMAGE) and a system for verifying the quality of treatment hadrontherapeutic used in the treatment of cancer (MIUR project PRIN INSIDE) now installed and operated at the National Center of Oncology Hadrontherapy (CNAO) in Pavia.

Funded Projects

2016 2017 NEOLITE Nuove tecnologie elettroniche di alimentazione in ambiente ostile (POR FESR 2014 – 2020, 1.88 M€) project leader: CAEN Spa

Uni Pisa group scientific coordinator : Maria Giuseppina Bisogni

2013-2016 INSIDE Innovative solutions for Dosimetry in Hadrontherapy (MIUR PRIN2010-2011, PN 2010P98A75, 1M€)

Collaboration: Uni Pisa, Uni Torino, Politecnico Bari, Uni Roma La Sapienza, INFN
Project leader: Maria Giuseppina Bisogni

2013-2017 TRIMAGE A dedicated trimodality (PET/MR/EEG) Imaging tool for schizophrenia (EU funded project under FP7 Cooperation, grant agreement n° 602621 6 M€)
Project leader: A. Del Guerra

2013-2016 INFIERI Intelligent, Fast, Interconnected and Efficient devices for Frontier Exploitation in Research and Industry (FP7-PEOPLE-2012-ITN, PITN-GA-2012-317446)
Project leader: Aurore Savoy Navarro

2011-2013 4D-MPET Four Dimension Magnetic Compatible PET module (INFN project funded $\cong 150k\text{€}$)
Collaboration: INFN of Pisa, Bari, Perugia, Torino
Project Leader: Maria Giuseppina Bisogni

2013-2015 HadronPhysics3 (EU funded project under FP7)

2009- 2012 HadronPhysics2 (EU funded project under FP7)

Publications

1. Piliero, M. A., Bisogni, M. G., Cerello, P., Del Guerra, A., Fiorina, E., Liu, B., . . . Wheadon, R (2015). Performance of a fast acquisition system for in-beam PET monitoring tested with clinical proton beams. *Nuclear Instruments and Methods in Physics Research, Section A Accelerators, Spectrometers, Detectors and Associated Equipment*, 804, 163-166 doi:10.1016/j.nima.2015.09.034
2. Morrocchi, M., Bisogni, M. G., Ambrosi, G., Ionica, M., Wheadon, R., Marzocca, C., . . . Guerra A. D. (2014). A detector module composed of pixellated crystals coupled to SiPM strips *Journal of Instrumentation*, 9(8) doi:10.1088/1748-0221/9/08/P08007
3. Morrocchi, M., Ambrosi, G., Bisogni, M., Cerello, P., Corsi, F., Ionica, M., Marino, N., Marzocca, C., Pennazio, F., Pirrone, G., Santoni, C., Wheadon, R., Del Guerra, A. Development of a PET detector module with Depth of Interaction capability (2013) *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 732, pp. 603-606.
4. Marino, N., Ambrosi, G., Baronti, F., Bisogni, M., Cerello, P., Corsi, F., Fanucci, L., Ionica, M., Marzocca, C., Pennazio, F., Roncella, R., Santoni, C., Saponara, S., Tarantino, S., Wheadon, R., Del Guerra, A.
An innovative detection module concept for PET
(2012) *Journal of Instrumentation*, 7 (8), art. no. C08003.
5. Bisogni, M., Collazuol, G.M., Marcatili, S., Melcher, C.L., Del Guerra, A.
Characterization of Ca co-doped LSO:Ce scintillators coupled to SiPM for PET applications
(2011) *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 628 (1), pp. 423-425.
6. Collazuol, G., Bisogni, M., Marcatili, S., Piemonte, C., Del Guerra, A.
Studies of silicon photomultipliers at cryogenic temperatures
(2011) *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 628 (1), pp. 389-392.
7. Del Guerra, A., Belcari, N., Bisogni, M., Corsi, F., Foresta, M., Guerra, P., Marcatili, S., Santos, A., Sportelli, G.

Silicon Photomultipliers (SiPM) as novel photodetectors for PET
(2011) Nuclear Instruments and Methods in Physics Research, Section A: Accelerators,
Spectrometers, Detectors and Associated Equipment, 648 (SUPPL. 1), pp. S232-S235.

Luca Baldini @ UNIPI/INFN-Pisa

- > Home
- > Curriculum vitæ
- > Publications
- > Presentations
- > About me
- > Links
- > Miscellanea
- > Didattica [IT]
- > Private area

CURRICULUM VITÆ

I am an active member of the [Fermi Large Area Telescope](#) collaboration since 2002. As such, I have contributed to several different aspects of the LAT (a space-based, high-energy gamma-ray telescope) development and operation: from the construction of the silicon tracker to the assessment and monitoring of the instrument performance and the scientific data analysis. Within the Fermi LAT collaboration I served as analysis coordinator and coordinator of the *Cosmic-Ray bubble* and the *Calibration and Analysis* and *Dark Matter and New Physics* Science Working Groups.

Since 2001 I have also participated in a successful [R&D activity](#) on gas pixel detectors for x-ray astronomical polarimetry—giving significant contributions to the implementation of the data acquisition system, the event reconstruction software and the Monte Carlo simulation of the detector. I am involved in the [IXPE](#) (Imaging X-ray Polarimetry Explorer) *Small Explorer* mission, recently [selected by NASA](#) for a launch in late 2020. I am part of the instrument team for the [XIPE](#) (X-ray Imaging Polarimetry Explorer) mission, selected by ESA in June 2015 to undergo a two-year assessment phase.

From 2001 to 2012 I have been regularly serving as a teaching assistant (and, more recently, as a docent) at the University of Pisa. I have been also involved in various public outreach activities.

I have presented 48 conference [contributions](#), including 17 invited talks.

I am a referee for [The Astrophysical Journal Letters](#), [Astronomy and Astrophysics](#), [New Journal of Physics](#), [Nuclear Instruments and Methods in Physics Research Section A](#) and [Advances in Space Research](#).

POSITIONS HELD

[MAR. 15, 2015–MAR. 15, 2016]: visiting scientist, SLAC National Accelerator Laboratory.

[DEC. 23, 2011–PRESENT]: assistant professor (ricercatore universitario), Università di Pisa.

[NOV. 3, 2010–DEC. 22, 2011]: post-doc (ricercatore art. 23 DPR 12/2/1991-171), INFN–Pisa.

[OCT. 2, 2008–OCT. 1, 2010]: post-doc (assegnista di ricerca INFN), INFN–Pisa.

[JUL. 2, 2007–SEP. 30, 2008]: post-doc (ricercatore art. 23 DPR 12/2/1991-171), INFN–Pisa.

[JUN. 17, 2005–JUN. 16, 2007]: post-doc (assegnista di ricerca INFN), INFN–Pisa.

EDUCATION

[JUL. 18, 2005]: Ph.D., Applied Physics, Università di Pisa.

[SEP. 24, 2001]: M.S., Physics, Università di Pisa (110/110 cum laude).

[JUL., 1995]: High-school diploma, Liceo Ginnasio A. da Pontedera (60/60).

RESPONSIBILITIES

[MAR., 2015–MAR. 2016]: analysis coordinator for the Fermi-LAT collaboration (on leave at SLAC).

[MAR., 2014–MAR. 2015]: deputy analysis coordinator for the Fermi-LAT collaboration.

[MAR., 2014–PRESENT]: member of the Fermi-LAT publication board.

[MAR., 2014–PRESENT]: member of the Fermi-LAT speakers bureau.

[2013–2017]: responsible for WP-1200 (*Data quality monitoring, data processing and rapid science monitoring*) within the ASI-INFN contract 2013-022-R.0.

[SEP., 2013–MAR. 2014]: coordinator of the Fermi-LAT *Dark Matter and New Physics* science working group.

[JAN., 2011–MAR., 2012]: coordinator of the Fermi-LAT *Calibration and Analysis* science working group.

[MAR., 2009–MAR., 2011]: coordinator of the Fermi-LAT *Cosmic-ray* group.

[2010–2013]: responsible for WP-1340 (*Background Rejection Methods*) and WP-1500 (*Cosmic Rays and Diffuse Gamma-Ray emission*) within the ASI-INFN contract I/034/10/0.

[2007–2010]: responsible for WP-1006 (*DAQ and online software*) within the ASI-INFN contract I/017/07/0GLAST.

[2004–2007]: responsible for WP-1006 (*DAQ and online software*) within the ASI-INFN contract I/R/058/04/0.

CONFERENCES

Member of the [Science Organizing Committee](#) for [SciNeGHE 2016: High-energy Gamma-ray Experiments at the Dawn of Gravitational-Wave Astronomy](#) (Pisa, October 18–21, 2016).

Member of the [Science Organizing Committee](#) for the [Sixth International Fermi Symposium](#) (Washington, November 9–13, 2015).

SCIENTIFIC ACTIVITY

[2016–PRESENT] I am deeply involved in the development of the [IXPE](#) (Imaging X-ray Polarimetry Explorer) mission, to be launched in 2020, and the phase study for the [XIPE](#) (X-ray Imaging Polarimetry Explorer) proposal. Among other things, I am one of the main developers of the [ximpol](#) X-ray polarimetry simulation framework.

[2014–2016] I have been deputy analysis coordinator (from March 2014 to March 2015) and analysis coordinator (from March 2015 to March 2016) for the Fermi-LAT collaboration. Since March 2014 I am member of the Fermi-LAT publication board and speakers bureau.

[2014–PRESENT] I am a member of the [Extreme Energy Events](#) (EEE) collaboration. I have given a prominent contribution to the implementation of the data-processing pipeline for the experiment and the associated data quality monitoring infrastructure.

[2010–2014] I have been heavily involved in a long term project (*Pass 8*) for a comprehensive revision of the Fermi LAT event level analysis, based on the experience gained while operating the instrument on orbit through the prime phase of the mission. Released on June 24, 2015, *Pass 8* will be used for the archival form of the Fermi LAT data and constitutes a major step toward the full realization of the LAT scientific potential.

[2011–2012] While serving as a coordinator of the *Calibration and Analysis* LAT science working group I have been working on the study and characterization of the systematic uncertainties connected with the LAT response functions. I am one of the three corresponding authors of the reference [paper](#) on the analysis of publicly-released LAT data.

[2008–2010] I played a key role in the measurement of the inclusive Cosmic-ray electron spectrum. I gave significant personal contributions to several aspects of the analysis, including the event selection, the evaluation of the background contamination and the study of the systematic uncertainties. The first paper published on this subject by the collaboration in 2009 is still one of the most cited LAT papers. I am one of the three co-authors of a solicited review [paper](#) about cosmic-ray studies with the Large Area Telescope, published in a special issue of *Astroparticle Physics*.

[2007–PRESENT] I have been regularly working on the implementation and fine tuning of the LAT data monitoring infrastructure. I am one of the developers of the software used by the *Instrument Science Operation Center* for monitoring the data integrity and detector performance. I am the main developer and maintainer of the automated alarm system running on the LAT data processing pipeline.

[2006–2007] I participated in the preparation and execution of the beam test campaign, at CERN and GSI, of the LAT *Calibration Unit*. During the assembly of the unit and the actual test I coordinated the activities related to the electronics, data acquisition system and online monitoring.

[2002–2005] During the construction of the LAT silicon tracker I played a major role in the production and testing of the flight hardware, contributing to the definition and implementation of the test strategy and the characterization of the instrument performance. I took part to the environmental tests of the tracker modules, during which I was responsible for the electronics and DAQ.

[2000–2010] Since my master thesis I participated in a [R&D activity](#) on gas pixel detectors aimed at exploiting the photoelectric effect for the measurement of linear polarization in x-ray astronomical sources. We designed, produced and successfully tested three generations of dedicated ASICs where the charge collecting anode and the readout electronics are fully integrated. In its current implementation, the sensor is essentially ready to be flown at the focus of an x-ray optic.

TEACHING ACTIVITY

[2016–PRESENT] I am teaching the lab course (*Laboratorio di Fisica I*) for the first-year of the undergraduate Physics curriculum at the University of Pisa. I am one of the main developers of [plasduino](#), a project for an inexpensive, general purpose data acquisition system for didactic experiments based on the [arduino](#) board. The work has been awarded a honorable mention at the [XCIX Congresso Nazionale della Società Italiana di Fisica](#) and the corresponding paper is publicly available [here](#).

[2012–2016] Responsible for part of the lab course (*Laboratorio di Fisica III*) of the first-year undergraduate Physics curriculum at the University of Pisa.

[2007] I was the technical coordinator of a project aimed at transferring some didactic experiments developed at the University of Pisa to local high schools.

[2002–2011] I regularly served as a teaching assistant for the lab course for the first-year undergraduate Physics students (*Laboratorio di Fisica III*, Proff. L. Martinelli, M. M. Massai, F. Angelini) at the University of Pisa. I am co-author of the corresponding [introductory book](#) in statistics and data analysis (in Italian). I'm the original developer and maintainer of [PLAS](#), the data acquisition system used from 2002 to 2012 in the first-year physics lab at the University of Pisa.

PUBLIC OUTREACH

I have participated in the organization of various public outreach activities and I have been giving public seminars in many different venues.

[2012]: participating in [Piano Nazionale Lauree Scientifiche](#).

[2011]: series of public presentations for high-school students in the context of [Pianeta Galileo](#).

[SEP. 25, 2010]: organization and introductory talk for *La notte dei ricercatori* at INFN-Pisa.

[MAR. 22–24, 2004]: instructor for *La Fisica su ruote*, organized by INFN.

[MAY 5–31, 2003]: instructor for *Sperimentando sotto la Torre in Fisica e dintorni*, organized by CNR.

[MAR. 9–29, 2002]: instructor for *Frammenti di Imparagiocando*, organized by INFN.

[FEB. 1–23, 2002]; instructor for *Radioattività, una faccia della natura*, organized by INFN.

Copyright © 2012–2017 Luca Baldini ([about this website](#)). The views expressed here are my personal views, not those of the University of Pisa or INFN.
For what it's worth, this page validates as [HTML 4.01 strict](#) and [css level 3](#).
Last update on Tuesday, April 11 2017 at 11:27 (+0200).

Michele Pinchera

Affiliazione:	INFN (Istituto Nazionale di Fisica Nucleare) - Sezione di Pisa
Profilo Professionale:	Tecnologo III livello
Titolo di studio:	Laurea in Ingegneria Aerospaziale, Università degli Studi di Pisa.
Aree di Ricerca:	Gamma-ray Instrumentation, X-ray Instrumentation, Plasma Diagnostics
Ruoli ricoperti:	
Dal 2005:	INFN-Pisa <ul style="list-style-type: none"> - System Engineering e R&D dello strumento XPOL per le missioni POLARIX, NHXM, IXO, XIPE e IXPE - R&D dell'unità di calibrazione e modellizzazione della distribuzione del materiale nel tracker del Large Area Telescope (LAT) per la missione FERMI - R&D dello strumento PIXIE
2000-2004:	Centrosazio –Consorzio Pisa Ricerche <ul style="list-style-type: none"> - R&D del sistema propulsivo FEEP (Field Emission Electric Propulsion) e dei dispositivi di diagnostica associati. - Responsabile per la progettazione dei sottosistemi di controllo, potenza, alimentazione del propellente e diagnostica di un dimostratore in volo di sistemi di propulsione elettrica (STEPS).
Esperienze rilevanti:	
<p>Oltre 15 anni di esperienza nella progettazione e sviluppo di strumentazione per astronomia X e Gamma e nella diagnostica di sistemi di propulsione elettrica. Questa esperienza comprende lo sviluppo di esperimenti su satelliti NASA, ESA ed ASI, inclusi l'esperimento XPOL su POLARIX (ASI), NHXM (ASI), IXO (ESA/NASA), XIPE (ESA), IXPE (NASA) e l'esperimento LAT su FERMI (NASA/ASI) che è attualmente in fase operativa .</p>	

Posizione attuale:

INFN-Pisa:

Giugno/2012 – presente: Tecnologo III livello professionale

Attività svolte:

- Studio e progettazione della Detector Unit per le missioni di polarimetria X XIPE (ESA) ed IXPE (NASA).
- Sviluppo e realizzazione della cella dei prototipi di XPOL
- Modellizzazione e verifica della distribuzione del materiale nel tracker del Large Area Telescope (LAT) e sua applicazione nel Monte Carlo dello strumento, per la missione FERMI.

Posizioni precedenti:

INFN-Pisa:

- *Agosto/2010 – Giugno/2012: Tecnologo III livello professionale*

Attività svolte:

- Progettazione e realizzazione del prototipo XPOL GEM90 e di un sistema di raffreddamento per sensori che devono operare almeno fino a -20°C, nell'ambito del progetto MAP, Multi Asic Pixel imager.
- Progettazione termo-meccanica di un'unità di test per il chip ASIC del polarimetro XPOL sviluppato per la missione IXO.

- *Gennaio/2010 – Luglio/2010: Tecnologo III livello professionale*
Attività svolte:
 - Progettazione e documentazione tecnica e programmatica dello strumento XPOL per la missione IXO
- *Agosto/2008 – Gennaio/2010: Tecnologo III livello professionale*
Attività svolte:
 - Studio, progettazione e documentazione tecnica dello strumento XPOL per la missione POLARIX
- *Luglio/2006 – Agosto/2008: Tecnologo III livello professionale*
Attività svolte:
 - Progettazione e realizzazione del MGSE dell'unità di calibrazione del large area telescope del LAT/GLAST
 - Ingegnerizzazione di PIXI Experiment
- *Giugno/2006 - Luglio/2006: Collaboratore Dipartimento di Fisica E. Fermi (Universita' di Pisa)*
Attività svolte:
 - Progettazione di strumenti di test per il polarimetro (*PIXI Experiment*)
- *Novembre/2005 – Maggio/2006: Collaboratore INFN*
Attività svolte:
 - Sviluppo dell'unità di calibrazione del large area telescope del LAT/GLAST

Alta SpA¹ (Pisa):

2004 – 2005: Ingegnere di ricerca, sviluppo e prova

Attività svolte:

- Responsabile per il controllo di dispositivi di diagnostica e di camere a vuoto per le prove a terra di propulsori elettrici, nell'ambito dei programmi ALTA: *HET Programme, FEEP Programme, Plasma Propulsion Programme*
- Progettazione di dispositivi di diagnostica per sistemi a propulsione elettrica, nell'ambito del gruppo ALTA: *Advanced concepts and new initiatives.*

Centrosazio²-CPR (Pisa):

- 2000 - 2004: Ingegnere di ricerca.

Attività svolte:

- Prova e controllo a terra del sistema propulsivo FEEP (Field Emission Electric Propulsion) e dei dispositivi di diagnostica associati.
- Responsabile per la progettazione dei sottosistemi di controllo, potenza, alimentazione del propellente e diagnostica di un dimostratore in volo di sistemi di propulsione elettrica (STEPS), sotto contratto assegnato dall'Agenzia Spaziale Italiana (ASI). Attività svolta nell'ambito del programma Centrosazio: *Plasma Propulsion Programme*

¹ ALTA Spa è nata nel 2000 come spin-off di Centrosazio, allo scopo di trovare un'applicazione e stabilire un piano industriale per le tecnologie sviluppate presso Centrosazio, in particolare per i sistemi di propulsione elettrica.

² Centrosazio è un laboratorio di tecnologia spaziale fondato nel 1989 nella zona industriale di Pisa. Centrosazio è stato istituito come parte del Consorzio Pisa Ricerche (CPR), formato congiuntamente - nel 1987 - dall'Università di Pisa, dal CNR e dall'IRI. Attraverso il CPR, Centrosazio mantiene uno stretto legame con il Dipartimento di Ingegneria Aerospaziale (DIA) dell'Università di Pisa.

PROGETTI DI RICERCA

Italian Space Agency (ASI)

- POLARIX, Contratto ASI No. I/016/08/0
- NHXM, The New Hard X-ray Imaging and Polarimetric Satellite Mission
- MAP, Multi Asic Pixel imager, Contratto ASI No. I/071/09/0
- “Spaceborne Testbed for Electric Propulsion Systems”, Contratto ASI No. I/005/01/0

National Aeronautic and Space Administration (NASA)

- Gamma-ray Large area Space Telescope (FERMI/GLAST), Contratto ASI No. I/R/058/04/0.
- IXPE, Imaging X-ray Polarimetry Explorer

European Space Agency (ESA)

- XIPE, The X-ray Imaging Polarimetry Explorer.
- “IXO” International X-ray Observatory
- “Development of Integrated FEEP Cluster Systems”, ESA Contract No. 15231/01/NL/PA.
- “Development and Supply of a Field Emission Electric Propulsion (FEEP) System for Microscope”, ESA Contract No. 15347/01/NL/PA.
- “Low Thrust Propulsion System Characterization and Life Testing for LISA and DARWIN”, ESA Contract No. 16010/02/NL/VD.
- “New Electric Propulsion Testing methods & Techniques”, ESA Contract No. 15231/01/NL/PA.

ALTRE ATTIVITA' DI RICERCA

INFN

- PIXI Experiment: Micro-pattern Gas Detectors with Pixel read-out

PIXIRAD (INFN spin-off)

- Progettazione e realizzazione degli strumenti Pixirad-1, Pixirad-2 e Pixirad-8 basati sugli ASICs di read-out PIXIE-II e PIXIE-III

Centrosazio/ALTA

- Micro-Newton Thruster Assembly (MTA) for the GOCE Platform



Pisa 18/09/2012