Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)	**D'Alessandro Giuseppe**
Email(s)	giuseppe.dalessandro[at]uniroma1.it
Nationality(-ies)	Italiana

Education and title

Title	PhD in ASTRONOMY
University	University La Sapienza in Rome
Date	12/01/2015
Thesis title	Instrumentation development for spectroscopic observation of the Cosmic Microwave Background
Supervisor	Paolo de Bernardis
Topic	Observational cosmology, spectroscopy, millimetric wavelenghts
Title (2)	Graduation in ASTRONOMY ED ASTROPHYSICS
University	University La Sapienza in Rome
Date	29/10/2011
Votazione	110/110 with honors
Thesis title	Spectroscopy in the millimetric continuums and Cosmology
Supervisor	Paolo de Bernardis, Alessandro Schillaci
Topic	Observational cosmology, spectroscopy, millimetric wavelenghts

Languages knowledge

Mother tongue(s): **Italian**

Other languages: English

Self-assessment *European level*(*)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	B1 Independent user	B1 Independent user	B1 Independent user	B1 Independent user	B1 Independent user

(*) *Common European Framework of Reference (CEF) level*

Informatics knowledge

OS	Windows, Mac OS, Linux (Ubuntu)
Office package	Word, Excel, PowerPoint, Publisher
Circuit design	Pspice, DesignSpark
Data analysis	IDL, Origin
3D design	SolidWorks, I-DEAS
Physic simulation	Comsol Multiphysics
Optic design	Zemax

Programming language and environment	C,R, MikroC, Fortran, GPGPU programming with CUDA, Python, IDL, MathLab, LabView, LaTex.
Developing board for science application	Raspberry Pi, Arduino, UDOO

Professional experiences

Date	updated in 22/04/2022 ->
Main activities (today)	Design and test of Differential Fourier Transform Spectrometer for COSMO experiment.
	Design of LSPE-SWIPE focal plane
	Spectroscopic measurement for LiteBIRD absorber materials
	Collaboration in the PRIN 2018 project: "COSMO - COSmological Monopole Observations" by Prof. Paolo de Bernardis.
	Polarization modulation forecasting for QUBIC experiment.
	Spectropolarimetry for CMB measurements
Main activities (past)	Design, implementation and calibration of a Fourier Transform Spectrometer as a plug-in for OLIMPO balloon born experiment.
	Design and implementation of fly electronic for OLIMPO DFTS.
	Design and implementation of spectral hygrometer for Site-testing measurement. Used for *Precipitable Water Vapor* measurement during Antartic summer and winter.
	Design and implementation of black body calibrators.
	Collaboration in the PRIN 2009 project: "Millimetric and sub millimetric spectroscopy for high resolution studies of primordial galaxies and galaxy clusters" by Prof. Paolo de Bernardis
	Collaboration in the PRIN 2012 project: "A W band detectors array for spectroscopic measurement at the Sardinia Radio Telescope" by Prof. Paolo de Bernardis

Experiment collaboration and responsability

	Deputy Calibration Scientis of the QUBIC experiment from Dec 2019
	System scientist for MISTRAL experiment
	Collaborator of the COSMO experiment
	Collaborator of the LSPE experiment
	Collaborator of the LiteBIRD experiment
	Collaborator of the PRISM experiment

Collaborator of the CORE+ experiment

Collaborator of the MILLIMETRON experiment

Collaborator of the OLIMPO experiment

Faculty duties at University La Sapienza of Rome

Physics department council as researcher spokespersons, from 2019 to 2022

Member of Science Faculty council as researcher spokespersons, from 2019 to 2022

Lectures

2021-2022	Physics II: 'Electromagnetism' for Informatic Engineering course degree
2020-2021	Physics II: 'Electromagnetism' for Informatic Engineering course degree
2019-2020	Physics: 'Mechanic and Thermodynamic' for Civil Engineering course degree
2016	Mathematics pre-course for first year students
2015	Mathematics pre-course for first year students
2013	Mathematics pre-course for first year students

Other academic experience

2022	Astrophysics Laboratory tutor: Spectropolarimetry for CMB
2021	Astrophysics Laboratory tutor: Spectropolarimetry for CMB
2020	Astrophysics Laboratory tutor: Half-wave plate systematic
2018	Astrophysics Laboratory tutor: Spectral hygrometer for water vapour measurement
2017	Mathematics pre-course teacher for first year students
2017	Master degree co-relator for Silvio Di Tano; degree date: 01/2018
2017	Master degree co-relator for Lorenzo Mele; degree date: 01/2018
	Astrophysics Laboratory tutor
	Astrophysics Laboratory tutor
2014	Astrophysics Laboratory tutor
	Astrophysics Laboratory tutor
2012	Astrophysics Laboratory tutor

Awards

2021 -> Winner of a competition for *medium research project: Studio degli effetti sistematici in strumenti spettro-polarimetrici per misure sul Fondo Cosmico a Microonde* issued by the University La Sapienza in Rome

2020 -> Winner of a competition for *little research project: Approccio analitico agli effetti sistematici e ibridizzazione di tecniche di misura per lo studio del Fondo Cosmico a Microonde* issued by the University La Sapienza in Rome

2019 -> Winner of a competition for Research fellownship (RTD-A) issued by the Physics department at the University La Sapienza in Rome

2017 -> Winner of a competition for PostDoc position for one year issued by the Physics department at the University La Sapienza in Rome on LSPE polarization rotator and OLIMPO spectrometer

2016 -> Winner of a competition for *research-startup funds* issued by the University La Sapienza in Rome

2016 -> Winner of a competition for PostDoc position for one year issued by the Physics department at the University La Sapienza in Rome on balloon experiment

2015 -> Winning of the competition for the mathematics pre-course teacher for first year students

2015 -> Winner of a competition for PostDoc position for one year issued by the Physics department at the University La Sapienza in Rome on QUBIC experiment

2014 -> Winner of a competition for *research-startup funds* issued by the University La Sapienza in Rome

2013 -> Winner of a competition for *research-startup funds* issued by the University La Sapienza in Rome

2013 -> Winning of the competition for the mathematics pre-course teacher for first year students

2012 -> Winner of the scholarship:"Simulation for the optimization of differential spectrometer of Millimetron experiment" issued by INAF-OAR Observatory of Rome Monte Porzio Catone

2011 -> Winner of a competition for the Astronomy PhD studentship.

2010 -> Winner of a scholarship *Paths of excellence* issued by Science faculty of University La Sapienza in Rome for excellent students.

Bibliometrics by SCOPUS

April 2022

- Publications: 58
- Citations: 1134
- H-index: 17

Papers

2022

Millimetric Sardinia radio Telescope Receiver based on Array of Lumped elements kids. DOI:10.1051/epjconf/202225700012. pp.12 In EPJ WEB OF CONFERENCES - ISSN:2100-014X vol. 257

QUBIC I: Overview and science program, DOI: https://doi.org/10.1088/1475-7516/2022/04/034 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC II: Spectral polarimetry with bolometric interferometry , DOI: https://doi.org/10.1088/1475-7516/2022/04/035 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC III: Laboratory characterization , DOI: https://doi.org/10.1088/1475-7516/2022/04/036 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBICIV:PerformanceofTESbolometersandreadoutelectronics,DOI:https://doi.org/10.1088/7516/2022/04/037 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC V: Cryogenic system design and performance, DOI: https://doi.org/10.1088/1475-7516/2022/04/038 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC VI: Cryogenic half wave plate rotator, design and performance, DOI: https://doi.org/10.1088/1475-7516/2022/04/039 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC VII: The feedhorn-switch system of the technological demonstrator, DOI: https://doi.org/10.1088/1475-7516/2022/04/040 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

QUBIC VIII: Optical design and performance, DOI: https://doi.org/10.1088/1475-7516/2022/04/041 Journal of Cosmology and Astroparticle Physics, Volume 2022, April 2022

2021

The large scale polarization explorer (LSPE) for CMB measurements: Performance forecast DOI:10.1088/1475-7516/2021/08/008. Journal of Cosmology and Astroparticle PhysicsOpen AccessVolume 2021, Issue 8August 2021 Article number 008

2020

Kinetic Inductance Detectors for the OLIMPO experiment: in-flight operation and performance. DOI:10.1088/1475-7516/2019/07/003. pp.003-003. In JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS - ISSN:1475-7516 vol. 2019 (07)

TES Bolometer Arrays for the QUBIC B-Mode CMB Experiment. DOI:10.1007/s10909-019-02304-5. In JOURNAL OF LOW TEMPERATURE PHYSICS - ISSN:0022-2291

The long duration cryogenic system of the OLIMPO balloon–borne experiment: Design and in–flight performance. Cryogenics Volume 110, September 2020, Article number 103129

Progress Report on the Large-Scale Polarization Explorer; Journal of Low Temperature Physics, 2020, 200(5-6), pp. 374–383

2019

Kinetic Inductance Detectors and readout electronics for the OLIMPO experiment, Journal of Physics: Conference Series 1182(1),012005

Systematic effects induced by half-wave plate precession into measurements of the cosmic microwave background polarization, Astronomy and Astrophysics 627,A160

	The short wavelength instrument for the polarization explorer balloon-borne experiment: Polarization modulation issues, Astronomische Nachrichten 340(1-3), pp. 83-88
	QUBIC: Exploring the primordial universe with the Q&U bolometric interferometer, Universe 5(2),42
	Kinetic inductance detectors for the OLIMPO experiment: Design and pre-flight characterization, Journal of Cosmology and Astroparticle Physics 2019(1),039
2018	Ultra High Molecular Weight Polyethylene: optical features at millimeter wavelengths, Infrared Physics and Technology vol. 90, pp 59-65
	Exploring Cosmic Origins with CORE: Cosmological parameters; JCAP 2018(04)017
	Exploring Cosmic Origins with CORE: Inflation; JCAP 2018(04)016
	Exploring Cosmic Origins with CORE: B-mode Component Separation; JCAP 2018(04)023
	Exploring Cosmic Origins with CORE: effects of observer peculiar motion; JCAP 2018(04)021
	Exploring Cosmic Origins with CORE: The Instrument; JCAP 2018(04)015
	Exploring Cosmic Origins with CORE: Cluster Science; JCAP 2018(04)019
	Exploring Cosmic Origins with CORE: Survey requirements and mission design; JCAP 2018(04)014
	Exploring Cosmic Origins with CORE: Gravitational lensing of the CMB; JCAP 2018(04)018
	Exploring Cosmic Origins with CORE: Mitigation of systematic effects; JCAP 2018(4)022
	Exploring Cosmic Origins with CORE: Extragalactic sources in cosmic microwave background maps; JCAP 2018(04)020
2017	Polarizing beam-splitter rotation in Martin-Puplett interferometers for spectroscopic measurements at millimeter wavelengths; Infrared Physics and Technology Vol.85, pp 92-98
	A new Data Logger based on Raspberry-Pi for Arctic Notostraca Locomotion Investigations, Pasquali et al., Measurements 110,249-256
2016	QUBIC: A Fizeau Interferometer Targeting Primordial B-Modes; J Low Temp Phys; pp 1,7
	Monitoring and Analyzing of Circadian and Ultradian Locomotor Activity Based on Raspberry-Pi, Pasquali et.al, Electronics
2015	Common-mode rejection in Martin-Puplett spectrometers for astronomical observations at mm-wavelengths; Applied Optic Vol.54, Issue 31, pp 9269-9276 (2015)
2014	Efficient Differential Fourier-Transform Spectrometer for precision Sunyaev-Zel'dovich effect measurements, A & A 565, A125 (2014)
	The Polarized Radiation Imaging and Spectroscopy Mission, The Prism Collaboration, JPAC)
2013	On the emissivity of wire-grid polarizer for astronomical observation at mm-wavelengths, Infrared Physics and Technology, Volume 58 P.64-68

2012 Low-resolution Sunyaev-Zeldovich spectroscopy and estimates of cluster parameters, A&A 538, A86

Conference proceedings

2019 The short wavelength instrument for the polarization explorer balloon-borne experiment: Polarization modulation issues, Astronomische Nachrichten 340(1-3), pp. 83-88

2018 Design and Electrical Performance of the Kinetic Inductance Detectors of the OLIMPO Experiment, 16th International Superconductive Electronics Conference, ISEC 2017 2018-January,pp. 1-3

Optical modelling and analysis of the Q and U bolometric interferometer for cosmology; Proceedings of SPIE - The International Society for Optical Engineering 10531,105310G

Simulations and performance of the QUBIC optical beam combiner; Proceedings of SPIE - The International Society for Optical Engineering 10708,107082I

Simulations and performance of the QUBIC optical beam combiner; Proceedings of SPIE - The International Society for Optical Engineering 10708,107082I

Performance of NbSi transition-edge sensors readout with a 128 MUX factor for the QUBIC experiment; Proceedings of SPIE - The International Society for Optical Engineering 10708,1070845

QUBIC: The Q and U bolometric interferometer for cosmology; Proceedings of SPIE - The International Society for Optical Engineering 10708,107082B

Thermal architecture for the QUBIC cryogenic receiver; Proceedings of SPIE - The International Society for Optical Engineering 10708,107083V

2016 Experimental in field reliability test for data logger based on Raspberry-Pi for extreme scenarios: A first step versus aerospace applications; 3rd IEEE International Workshop on Metrology for Aerospace, MetroAeroSpace 2016 - Proceedings 7573242, pp. 365-370

Development of instrumentation for differential spectroscopic measurements at millimeter wavelengths, Proc. SPIE 9914, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 99143N (July 19, 2016); doi:10.1117/12.2238504

Optical design and modelling of the QUBIC instrument, a next-generation quasi-optical bolometric interferometer for cosmology, Proc. SPIE 9914, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 99143N ;10.1117/12.2231717

2014 OLIMPO: A 4-bands imaging spectro-photometer for balloon-borne observations of the Sunyaev-Zel'dovich effect; Proceedings of the International School of Physics "Enrico Fermi" 186, pp. 257-264

2012 SWIPE: a bolometric polarimeter for the Large-Scale Polarization Explorer, arxiv 1208.0282, proceedings of the Astronomical Telescopes + Instrumentation 2012 Conference - Ground-based and Airborne Instrumentation for Astronomy IV, Amsterdam 1-6

The Large-Scale Polarization Explorer (LSPE), arxiv 1208.0281, proceedings of the Astronomical Telescopes + Instrumentation 2012 Conference - Ground-based and Airborne Instrumentation for Astronomy IV, Amsterdam 1-6

Invited Talks

The QUBIC experiment, 1-7 July 2018,Marcel Grossmann Meeting , Università degli studi Sapienza, Roma (RM) (Italy), D'Alessandro G.

HWP wobble effect, Global LiteBIRD kick-off symposium, July 1-2, 2019 at ISAS, Sagamihara, Japan. Titolo:

Posters, Talks

(Talk)MIllimetric Sardinia radio Telescope Receiver based on Array of Lumped elements kids, Observing the Millimeter Univers with NIKA2 camera, 28 June 2021 to 2 July 2021 Sapienza University in Rome, D'Alessandro G.

Talk: The QUBIC experiment, 18 March 2018, Rencontres de Moriond, La Thuile (AO) (Italy), D'Alessandro G.

Talk: CMB Spectroscopy with differential fourier spectrometers, 5 Agoust 2017, SCAR AAA, Chiang May (Thailand), D'Alessandro G.

Talk: Instrumentation development for spectroscopic observation of the Cosmic Microwave Background 20 March 2016, Rencontres de Moriond Cosmology session, La Thuile (Italy), D'Alessandro G.

Poster: Site testing at dome C for millimetric Astronomy, Siena 2013 AAA2013: Second workshop of the SCAR AAA Scientific research Program, 24-26 July 2013, Certosa di Pontignano, Siena, Italy, http://www.astronomy.scar.org/AAA2013/, (Puddu et al.)

Poster: A differential Fourier-Trasform Spectrometer for Olimpo, Santander 2011 A new era for SZ science, Santander Spain June 27-30 2011.(Schillaci et al.)

Poster: Olimpo: an update, Santander 2011A new era for SZ science, Santander Spain June 27-30 2011.(Masi et al.)

Journals Referee

MDPI, Sensors

OSA, Applied optics

Elsevier, Applied Thermal Engineering

Journals Editor

MDPI, Metrology, Special Issue: Advances in Optical Polarization Measurement and Instruments

Educational Publications

La cosmologia fra terra e spazio, Quaderni di Scienza e Scienziati Molisani (Agosto 2015)