

Fernando Buitrago

fbuitrago@oal.ul.pt
http://fbuitrago.github.io

Curriculum Vitae

Phone (office): (+351) 213 616 736
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Personal information:

Full name: Fernando Buitrago Alonso

Date of birth: 18-Jun-1983

Nationality: Spanish (National ID number: 07990312C)

ORCID ID: 0000-0002-2861-9812

Address: Institute for Astrophysics and Space Sciences, Observatório Astronómico de Lisboa, Tapada de Ajuda, Edifício Leste, 2nd floor, PT1349-108, Lisbon, Portugal

Education:

- Since Sep 2020: **Senior investigator + lecturer tenure-track position**

Working in the University of Valladolid (Spain), although also keeping the previous Portuguese affiliation

- Sep 2015 – Sep 2020: **FCT Fellowship SFRH/BPD/103958/2014 + Invited Lecturer** (Professor Auxiliar Convidado)

Working at the Institute for Astrophysics and Space Sciences –IA– and the University of Lisbon (Portugal)

- Oct 2011 – Mar 2015: **PostDoctoral Researcher Associated James S. Dunlop’s European Research Council Advance Grant + 6-month extension funded by the ASTRODEEP FP7 European Union programme**

Working in the Institute for Astronomy, Royal Observatory of Edinburgh, University of Edinburgh (UK)

- Apr 2008 – July 2012: **PhD Thesis: Structural evolution of massive galaxies in the last 11 Gyr**

University of Nottingham (UK)

Supervisors: Dr. Ignacio Trujillo (IAC, Spain), Prof. Christopher J. Conselice and Prof. Alfonso Aragón-Salamanca (Nottingham, UK)

- Since Oct 2010: **BSc in Computer Science** (3-yr degree), University of Salamanca (Spain)
- Since Jun 2008: **MSc in Astronomy** (2-yr degree), University of La Laguna (Spain)
- Since Jun 2008: **MSc in Physics** (5-yr degree), University of Salamanca (Spain)

Awards:

- **Prize for the Best Spanish Thesis in Astronomy 2012** (ex-aequo) by the Spanish Astronomical Society (SEA)
- Science & Technology Facilities Council (UK) and Institute of Astrophysics of Canary Islands (Spain) **International Grant to study my PhD in the UK** (2008-2011)

Professional Experience:

(As of 27-Aug-2020, according to NASA ADS) 2280 citations
(including two first author papers with 319 and 119 citations)

each), **40 papers in high-impact international journals, h-index: 26**

Invited talks

- 15th July 2020 – **XIVth Spanish Astronomical Meeting – Round table on professional prospects** – Virtual conference
- 13th July 2020 – **XIVth Spanish Astronomical Meeting – Summary of all Extragalactic Astronomy contributions** – Virtual conference
- 30th June 2020 – **European Astronomical Society 2020 meeting, Session 17 Compact passive and massive galaxies across the Universe – “High redshift massive galaxies, and their surprising size evolution”** – Leiden (Netherlands)
- 26th Apr 2019 – **Charlas de Física Workshop (outreach) – “A Universe made of galaxies”** – Valladolid (Spain)
- 25th Apr 2019 – **Charlas de Física Workshop (research) – “The most massive galaxies of the Universe”** – Valladolid (Spain)
- 20th Jun 2017 – **SISSA Invited seminar – “Pressing and pending questions about massive galaxies”** – Trieste (Italy)
- 8th Jul 2014 – **XIIth Spanish Astronomical Society Meeting plenary talk – “Structural evolution of massive galaxies in the last 11 Gyr”** – Teruel (Spain)
- 4th Oct 2013 – **IVICFA Workshop – “The most massive galaxies living in a Λ CDM Universe”** – Valencia (Spain)

Conference talks

- 10th Oct 2019 – **IA-ON 6 meeting – “The secrets of massive galaxies”** – Porto (Portugal)
- 13th Sep 2019 – **Extremely big eyes on the early Universe meeting – “Extended galaxies in deep extragalactic fields are not an annoyance but a potential treasure trove”** – Rome (Italy)
- 10th Jul 2019 – **IAU Symposium 355: The realm of the low surface brightness Universe – “Stellar haloes of early-type galaxies”** – Tenerife (Spain)
- 7th Jun 2019 – **Euclid consortium meeting – “The smallest and the largest galaxies observed by Euclid”** – Helsinki (Finland)
- 11st Sep 2018 – **XXVIIIth Portuguese Astronomical Society plenary talk – “Indiana Jones and where to find relic galaxies”** – Coimbra (Portugal)
- 23rd Oct 2017 – **“Galaxy Groups and Clusters II: Laboratories to study Galaxy Evolution” meeting – “The monster's lair: open questions about the environment of the most massive galaxies”** – La Serena (Chile)
- 21st Sep 2017 – **RIA-sponsored meeting “Proposing and Processing MEGARA observations with GTC” – “Why massive and compact galaxies “disappear” across cosmic time”** – Madrid (Spain)
- 21st July 2017 – **XXVIIth Portuguese Astronomical Society Meeting plenary talk – “Is the Universe devoid of ultracompact galaxies?”** – Lisbon (Portugal)

- 9th Sep 2016 – XXVth Portuguese Astronomical Society Meeting plenary talk – “The outskirts of massive early-type galaxies at $z = 0.65$ in the Hubble Ultra Deep Field” – Aveiro (Portugal)
- 18th Mar 2016 – IAUS 321 Outskirts Of Galaxies – “The cosmic assembly of stellar haloes in massive Early-Type Galaxies” – Toledo (Spain)
- 12th Jan 2016 – “The early growth of galaxies: The HST, Spitzer and Herschel joint legacy” meeting – “Dissecting the outskirts of massive galaxies” – Sexten (Italy)
- 23rd Jul 2015 – XXVth Portuguese Astronomical Society Meeting plenary talk – “Scientific volunteering in East Africa: Opportunities in Astronomy” – Lisbon (Portugal)
- 23rd Jun 2015 – EWASS 2015 – “The outskirts of massive early-type galaxies at $\langle z \rangle = 0.65$ in the Hubble Ultra Deep Field” – Tenerife (Spain)
- 3rd Feb 2015 – “Getting a grip on galactic girths” meeting – Are the most massive galaxies substantially different using the deepest surveys? – Tokyo (Japan)
- 28th Jan 2015 – “The Spectral Energy Distribution of high redshift galaxies: lessons learned and open questions” meeting – Are the most massive galaxies substantially different using the deepest surveys? – Sexten (Italy)
- 9th Jan 2015 – XI DEX Workshop – “The low surface brightness haloes of massive galaxies in ultradeep imaging and their relative importance” – Edinburgh (UK)
- 13th Mar 2014 – 3D2014 Gas and stars in galaxies: A multi-wavelength 3D perspective – “SINFONI/VLT 3D spectroscopy of massive galaxies: Evidence of rotational support at $z \sim 1.4$ ” – Garching (Germany)
- 8th Jul 2013 – European Week of Astronomy and Space Science 2013 – “Ongoing assembly of massive early-type galaxies in the HUDF12” – Turku (Finland)
- 2nd Jul 2013 – National Astronomical Meeting 2013 – “Ongoing assembly of massive early-type galaxies in the HUDF12” – St Andrews (UK)
- 22nd Jan 2013 – “Shaping galaxy evolution: interactions & feedback” meeting – “Ongoing assembly of massive early-type galaxies in the HUDF12” – Observatoire de Paris (France)
- 6th Nov 2012 – Euclid-MOONS Meeting – “The entertaining life of massive galaxies: Euclid & MOONS” – Edinburgh (UK)
- 13th Jul 2012 – XIth Spanish Astronomical Society Meeting – “Massive galaxies: a gate for large area very deep galaxy surveys” – Valencia (Spain)
- 13th Jan 2012 – VIII DEX Workshop – “Evolution of massive galaxies in the era of large area surveys” – Durham (UK)
- 15th Oct 2010 – Xth Spanish Astronomical Society Meeting – “Shaping massive galaxies from $z=3$: merging vs secular evolution” – Centro Superior de Investigaciones Científicas, Madrid (Spain)
- 1st Jul 2009 – VIIIth Marseille International Cosmology Conference – “Superdense massive galaxies: sizes and evolution since $z \sim 3$ ” – Marseille (France)
- 24th Oct 2008 – Workshop on Extragalactic Surveys – “GOODS NICMOS Survey: Imaging most massive galaxies at $z > 2$ ” – Institute of Astrophysics of Andalucia (Spain)

Given seminars

- 24th Apr 2019 – “Indiana Jones and where to find relic galaxies” // Virtual talk – University of Rio Grande do Sul (Brazil)
- 28th Nov 2018 – “Indiana Jones and where to find relic galaxies” – IAC (Spain)
- 24th Jul 2018 – “Indiana Jones and where to find relic galaxies” – ESO lunch talk, Garching (Germany)
- 1st Nov 2017 – “Review on massive galaxies” – Instituto de Astronomia, Geofísica e Ciências Atmosféricas, University of São Paulo (Brazil)
- 18th Nov 2016 – “Galactic Extremophiles: The most massive galaxies of the Universe” – Centro de Astrobiología, Madrid (Spain)
- 9th Nov 2016 – “What's beyond my lab? Current challenges in extragalactic Astronomy” – Faculdade de Ciências, Lisboa (Portugal)
- 10th Mar 2016 – “Review about the state-of-the-art of massive galaxies” – CENTRA, Lisbon (Portugal)
- 28th Nov 2015 – “Review about the state-of-the-art of massive galaxies” – ESO Vitacura, Santiago de Chile (Chile)
- 27th Nov 2015 – “Review about the state-of-the-art of massive galaxies” – University of Valparaíso, Valparaíso (Chile)
- 21st Sep 2015 – “Review about the state-of-the-art of massive galaxies” – IA-OAL, Lisbon (Portugal)
- 1st Oct 2014 – “News from the galaxy monsters” – University of Nottingham, Nottingham (UK)
- 19th Sep 2014 – “The history of the galaxy monsters” – IA-OAL, Lisbon (Portugal)
- 15th May 2014 – “Stellar haloes of Early-Type massive galaxies at $z \sim 0.7$ or how to use the HUDF for local Universe studies” – Osservatorio Astronomico di Bologna, Bologna (Italy)
- 14th May 2014 – “Stellar haloes of Early-Type massive galaxies at $z \sim 0.7$ or how to use the HUDF for local Universe studies” – Osservatorio di Arcetri, Florence (Italy)
- 12th May 2014 – “Stellar haloes of Early-Type massive galaxies at $z \sim 0.7$ or how to use the HUDF for local Universe studies” – Osservatorio Astronomico di Roma, Rome (Italy)
- 4th Mar 2014 – “Ongoing assembly of massive early-type galaxies in the HUDF12 in the context of massive galaxy evolution” – University of St. Andrews (UK)
- 9th October 2013 – “Ongoing assembly of massive early-type galaxies in the HUDF12” – John Moores University, Liverpool (UK)
- 20th Dec 2010 – “On the nature of massive galaxies at high redshift” – IAC (Spain)
- 19th Nov 2008 – “Size evolution of the most massive galaxies at $1.7 < z < 3$ & the GOODS NICMOS Survey” – University of Central Lancashire (UK)
- 17th Oct 2008 – “Size evolution of the most massive galaxies at $1.7 < z < 3$ & the GOODS NICMOS Survey” – University of Durham (UK)

Supervising experience

- 2016-2020 Supervising with Dr. Polychronis Papademos the IA funded **PhD project** “Unveiling the formation and evolution of massive galaxies via photometric and kinematic decompositions”. Student name: Sandra Reis

- 2016-2018 University of Lisbon **MPhys thesis** "A multiwavelength study of galaxy disks across cosmic time". Student name: João Águas. Mark: 18/20.
- 2018 University of Lisbon Laboratory of Astrophysics **BSc course** project "Extracting the most accurate pixel segmentation and photometric data from astronomical images". Student name: Henrique Miranda. Mark: 16/20.
- Summer 2018 IA **BSc BIC project** "Spectrophotometric analysis of galaxies in high density environments". Student name: Hugo Martins (+1140€ IA grant)
- 2013/2014 University of Edinburgh – Supervising with Dr. Annette Ferguson the final **MPhys thesis** "Faint Tidal Debris in Galaxies". Student name: Aron Krausz
- **Summer student** University of Edinburgh – Tamara Leitan, working on the project "High redshift galaxies: windows to the unknown" (with RAS £1200 grant)
- **Summer student** University of Edinburgh – Emma Ryan, working on the project "The effect of twisting on optical fibres for the MOONS spectrograph"

Teaching experience

- Since Feb 2016: Astrofísica Extra-Galáctica: Formação e Evolução de Galáxias (AE-FEG), **Extragalactic Astrophysics: Galaxy formation and evolution, MSc course in the University of Lisbon**, 6 ECTS, Courses: 2nd semester 2015-2016, 2nd semester 2016-2017, 2nd semester 2017-2018, 2nd semester 2018-2019
- Since Feb 2016: Tópicos Avançados de Astrofísica Extra Galáctica: Formação e Evolução de Galáxias (TAAEG-FEG), **Advanced topics in Extragalactic Astrophysics: galaxy formation and evolution, PhD course in the University of Lisbon**, 6 ECTS, Courses: 2nd semester 2015-2016, 2nd semester 2016-2017, 2nd semester 2017-2018, 2nd semester 2018-2019
- Apr 2015 - May 2015 – Addis Abeba University (Entoto Observatory, Ethiopia) – **Extragalactic Astronomy Invited Lecturer**, PhD in Astronomy
- Apr 2015 – Mbarara University for Science and Technology (Mbarara, Uganda) – **Extragalactic Astronomy Invited Lecturer**, MSc in Astronomy
- 2013/2014 University of Edinburgh – **Assistant teacher** in the "Research Methods in Physics" course. Main lecturer: Richard Blythe

Committee participation

- **Galaxies and Cosmology Vice-Commissioner for the Canary Island Night Allocation Time Committee** (4 periods: from Nov19 to Jun21)
- Panelist of the **ESO OPC for periods P99, P100 and P101**
- 7th Jan 2019 – University of Lisbon (Portugal) – Dr. Ana Sofia Paulino-Afonso – **Jury for PhD thesis**: "'Star-Forming Galaxies` Structural Evolution Across Cosmic Time and Environment'" – Mark: A with honours (Aprovada com distinção e louvor)
- **Jury for BSc** in Physics "Laboratory of Astrophysics" course in the University of Lisbon (Jul-17, 21 people) **and MSc thesis** in Mbarara University for Science and Technology (Aug-17, Ms. Beatrice Nyiransengiyumva)
- Mar17 – Complutense University (Spain) – External evaluator for PhD thesis from Luis A. Díaz García

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- 27th Jul 2016 – University of La Laguna (Spain) – Dr. Luis Peralta de Arriba – **Jury for PhD thesis:** “Growth of massive galaxies through cosmic time” – Mark: A with honours (Sobresaliente Cum Laude)

Money awarded

- 2020 – University of Valladolid senior investigator position: 5k€ + 1 PhD student salary (own salary apart)
- 2020 – Declined Madrid Talento 2019 Mode 1 position, with awarded 250k€ budget (own salary apart)
- 2019 – 4000€ for the FCT-DAAD collaboration “The hunt for the biggest supermassive black hole” (+9440€ from Germany; German PI G. van de Ven)
- 2018 – 4000€ for the FCT-DAAD collaboration “The hunt for the biggest supermassive black hole” (+9440 € from Germany; German PI G. van de Ven)
- 2018 – 14000€ from FECyT (Spanish Foundation for Science and Technology) to organize the exhibition “Con A de astrónomAs”.
- 2017 – 5000 Brazilian reais for my AIG visit
- 2017 – 880€ for my SISSA invited talk
- 2013 – 1000€ for the Spanish Astronomical Society Thesis Prize
- 2013 – £500 for organizing the National Astronomical Meeting Parallel Session 29

Meeting organization

- 16th-20th July 2018 – **LOC coordinator and SOC member of the XIIIth Spanish Astronomical Meeting (SEA 2018)**, held in the University of Salamanca, celebrating its 800th anniversary – <https://sea2018.usal.es>
- 8th-9th January 2015 – **LOC member** for the Durham-Edinburgh eXtragalactic 11th annual meeting (DEX XI) “Big Surveys + Big Simulations = Big Science” Edinburgh (UK) – <http://www.roe.ac.uk/ifa/Meetings/DEX/XI/>
- 9th-10th January 2014 – **LOC member** for the Durham-Edinburgh eXtragalactic 10th annual meeting (DEX X) “The peak of activity in the Universe” Durham (UK) – <http://astro.dur.ac.uk/DEX/X/>
- 2nd July 2013 – **SOC coordinator** for the NAM Parallel Session 29 “Declining star formation in galaxies: from primeval disks to the rise of ellipticals” held in St. Andrews (UK) – http://www.roe.ac.uk/ifa/Meetings/NAM2013-quenching/nam2013_session29.html
- 10th-11th January 2013 – **LOC member** for the Durham-Edinburgh eXtragalactic 9th annual meeting (DEX IX) “Physics of galaxy formation” held in Edinburgh (UK) – <http://www.roe.ac.uk/ifa/Meetings/DEX/IX/>

Telescope time as PI

- **3h using MUSE at VLT**, programme ID 0101.B-0808: “The hunt for the biggest black hole in the nearby Universe with MUSE”
- **4.2h using KMOS at VLT**, programme ID 60.A-9465(A): “Unveiling low redshift HUDF ETGs: their internal disks & galactic satellites” Science Verification Programme

Poster contributions

- Jul 2020 – “Truncations at high redshift” – XIVth Spanish Astronomical Society Meeting, Virtual Meeting
- Jul 2018 – “Studying Astronomy in Portugal and the IA, the best choice for your future career” – XIIIth Spanish Astronomical Society Meeting, Salamanca (Spain)
- Jul 2018 – “Accurate number densities and environment for compact and relic massive galaxies” – XIIIth Spanish Astronomical Society Meeting, Salamanca (Spain)
- Aug 2016 – “Stellar haloes in massive early-type galaxies” – XIIth Spanish Astronomical Society Meeting, Bilbao (Spain)
- Aug 2012 – “Massive galaxies: born as disks, dead as spheroids” – XXVIIIth IAU General Assembly, Beijing (China)
- Sep 2010 – “3D Spectroscopy unveils Massive Galaxies at High-z Evolution” – Joint European and National Astronomy Meeting (JENAM) – Lisbon (Portugal)
- Jul 2008 – “Extremely Compact Massive Galaxies at $1.7 < z < 3$ ” – VIIIth Spanish Astronomical Society Meeting – Universidad de Cantabria (Spain)

Outreach activities

- Lots of talks in English/Spanish/Portuguese for schools, high schools and other associations
- **June 2017 and April 2019: Title page & article in “Astronomia”,** outreach astronomical monthly journal in Spanish-speaking countries
- **IGNITE** talks in Campo Maior (30 people), Lisbon (360 people), óbidos (30 people), Figueira de Castelo Rodrigo (100 people) <http://www.iastro.pt/outreach/activities/ignite/>
- **Noites do Observatório** talks: “As galáxias e o infinito” (30th Abr 16, 200 people) and “Mitos e lendas na Astronomia” (25th Feb 2017, 360 people), “O Universo para além da imaginação” (16th Dec 2017, 315 people)
- 2013-2015 – **Meet the Astronomer activity** – Royal Observatory of Edinburgh Visitor Center (UK)
- **Stars ‘R’ Us activity** – University of Nottingham (UK) activity during academic year 2009/2010
- 17th Jun 2010 – Public Astronomy Lecture Series “History of Space Exploration: Looking for New Horizons” – University of Nottingham (UK)
- 18th Sep 2009 – International Year of Astronomy Talk “The universe and its galaxies” – University of Salamanca (Spain)
- 6th Nov 2009 – “The Astronomy's blue horizon” **Article in El País** Newspaper Digital Edition
http://www.elpais.com/articulo/sociedad/horizonte/azul/astronomia/elpepusoc/20091106elpepusoc_7/Tes\\
- **Leisure time activities instructor** by the CENSA school (270h)

Software applications

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- Full software package developed for **BSc degree final project** titled “Photometric and spectroscopic study of high redshift massive galaxies using IDL” under the supervision of Dr. Juan Manuel Corchado (University of Salamanca, Spain)

Others

- **ApJ, MNRAS, Astronomy & Astrophysics and Frontiers Referee**
- Member of the UltraVISTA, CANDELS, SHARDS, S-PLUS, VANDELS, Euclid and JWST CEERS **surveys**
- **GTO Member** for the EMIR@GTC and MOONS@VLT near-infrared spectrographs
- Active member in the **Euclid Galaxy Morphology Working Group**
- Active member in the **MOONS' Passive Galaxies, AGNs and Environment Working Groups**
- Member of the Real And Virtual Early-Type (**RAVET**) programme founded by Spanish Science Ministry
- Ex-member of the past **ASTRODEEP** FP7 European programme – *<http://www.astrodeep.eu/>*
- Member of the Spanish Astronomical Society, the Portuguese Astronomical Society and the International Astronomical Union
- **Chair** for the European Astronomical Society meeting Session 17 “Compact passive and massive galaxies across the Universe” held virtually in Leiden (Netherlands) on 30th June 2020
- **Chair** for the IAU Symposium 355 “The realm of the low surface brightness Universe” held in Tenerife (Spain) on the 10th July 2019
- **Chair** for the session “Astronomy in Portugal/Collaborations Portugal-Spain” in the XIIIth Spanish Astronomical Meeting (SEA 2018) on 17th July 2018
- Ex-fellow of the Royal Astronomical Society and ex-member of the European Astronomical Society
- Ex-member of the Society of Spanish Researchers in the UK (SRUK/CERU)
- Ex-member of the Research Staff Society and the Equality & Diversity Committee of the University of Edinburgh's School of Physics & Astronomy
- Coffee talks' organizer in the Royal Observatory of Edinburgh (from March 2013 to March 2015)
- Seminars' organizer in the Instituto de Astrofísica e Ciências do Espaço (from January 2016 to January 2018)

SKILLS:

Languages

- Spanish: Mother tongue
- English: Fluent (both spoken and written)
- Portuguese: Fluent (both spoken and written)
- Italian: Intermediate (both spoken and written)

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Computation

- Programming languages: Python, IDL, C, Fortran, Matlab, HTML, SQL, Java, PHP (GitHub username fbuitrago)
- Other software: IRAF, LaTeX, Virtual Observatory and associated databases
- Phase 2 preparation experience for KMOS@VLT, MUSE@VLT and MEGARA@GTC
- Large experience with GALFIT, SExtractor and ESO data reduction pipeline

Telescope experience

- **20-27th Nov 2016** at UT3 Melipal (8.2 m) for the VANDELS survey – VIMOS optical MOS instrument – **Cerro Paranal Observatory** (Chile)
- **15-20th Nov 2015** at UT3 Melipal (8.2 m) for the VANDELS survey – VIMOS optical MOS instrument – **Cerro Paranal Observatory** (Chile)
- **20-24th Sep 2008** at William Herschel Telescope (4.2 m) – LIRIS near-infrared MOS instrument – **Roque de los Muchachos Observatory** (Spain)
- **10th Oct 2007** at William Herschel Telescope (4.2 m) – PFIP wide field camera – **Roque de los Muchachos Observatory** (Spain)