Cod ID: 4545

AL MAGNIFICO RETTORE
DELL'UNIVERSITA' DEGLI STUDI DI MILANO

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Fisica "Aldo Pontremoli"**

Scientist-in-charge: **Prof. Claudio Grillo**

Ana Acebron Munoz

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Acebron Munoz
Name	Ana
Date of birth	15/05/1991

PRESENT OCCUPATION

Appointment	Postdoctoral researcher
Postdoctoral researcher	Ben Gurion University of the Negev, Physics Department

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	Bachelor Degree in Fundamental Physics	University Montpellier II	2012
Specialization			
PhD	Astrophysics and Cosmology. Title: "Cosmography with strong lensing galaxy clusters"	Aix-Marseille University	2017
Master	Astronomy, Astrophysics and Space Engeeniring	Observatory of Paris	2014
Degree of medical specialization			
Degree of European specialization			

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Assegni.ricerca@unimi.it

Other			

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City

FOREIGN LANGUAGES

Languages	level of knowledge
Spanish	Mother Tongue
French	Bilingual
English	Fluent spoken and written (CAE 73/100, TOEFL 110/120)
Latin	6 years of study

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award

TRAINING OR RESEARCH ACTIVITY

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During my PhD (obtained in September 2017, under the supervision of Dr. Eric Jullo and Dr. Marceau Limousin), I acquired a strong experience in the modelling of strong lensing (SL) galaxy clusters with the parametric pipeline *Lenstool*. I investigated the impact of systematic uncertainties in parametric lens models with state-of-the-art simulated clusters and the implications for the retrieval of cosmological parameters *(Acebron et al. 2017)*, gaining a unique expertise in the SL cosmography technique. The main result of this work showed that the cluster environment has a significant impact on the derived cluster mass distribution and therefore on all lensing applications such as magnification estimates (crucial for high-redshift studies) or cosmology. I collaborated with researchers from the University of Valparaiso (Chile) and used SL, both simulated and observed, clusters to study the potential of SL cosmography to probe alternative dark energy models *(Magaña, Acebron et al. 2018)*. These works further showed the potential of SL cosmography to become a complementary and powerful cosmological probe. Since November 2017, I have broaden my expertise as a postdoctoral researcher at the University of Ben Gurion under the supervision of Dr. Adi Zitrin. I am actively invested in large international collaborations such as the *Reionization Lensing Cluster Suvey* (RELICS; P.I: D. Coe) and the *Beyond Ultra-deep Frontier Fields And Legacy Observations* (BUFFALO; P.Is: C. Steinhardt & M. Jauzac) for which I am co-leading the mass modeling effort with several international independent teams. I have worked with different mass modelling algorithms, Light-Traces-Mass (LTM) or the fully-parametric dPIEMDeNFW to analyse the dark matter distribution of galaxy clusters observed with the *Hubble Space Telescope*. In addition, I have been implicated in the characterisation of high-redshift galaxies properties lensed by foreground SL clusters *(Acebron et al. 2018, 2019a,b and Cibirka, Acebron et al., 2018)* as well as in the spectroscopic follow-up with Gemini observatory (from the mask creation to the final GMOS and FLAMINGOS data reduction process). Finally, I have also attended several advanced schools on several topics within astrophysics and cosmology, that are listed hereafter.
28th July - 7th August 2019 - *First Light Advanced School: Stars, Galaxies and Black Holes in the Epoch of Reionization*, Sao Paulo, Brazil
1-2 June 2017 - *Formation and evolution of galaxies inside large structures* by S. de la Torre, LAM, Marseille
19-20 May 2016 - *Galaxy Formation* lecture by A. Cattaneo, IRAP, Toulouse
7-12 December 2014 - *8th TRR33 Winter School on Cosmology*, Passo del Tonale, Italy

PROJECT ACTIVITY

Year	Project
Since 2017	I have been a member of the international RELICS collaboration (that obtained 191 orbits with the Hubble Space Telescope). I have modelled several galaxy clusters with strong lensing mass reconstruction techniques.
Since 2017	I have been a member of the international BUFFALO collaboration (that obtained 101 orbits with the Hubble Space Telescope). I am the co-chair of the *Lensing Mass Modeling* Working Group.
2020	Co-Investigator of *Unprecedented Spatial Resolution in a Strongly Magnified $z\sim6$ Galaxy* with the Hubble Space Telescope (9 orbits)
2020	Co-Investigator of *RELICS: Unveiling the Most Distant Lensed Arc at z~10* with the Hubble Space Telescope (6 orbits)
2020	Co-Investigator of *Flashlights: Many Extremely Magnified Individual Stars as Probes of Dark Matter and Stellar Populations to Redshift z~2* (192 orbits)
2020	Co-Investigator of *Observations of the JWST/GTO Very Rich Cluster Lens RMJ121218.5+273255.1* (5 orbits)

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PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
3-6 June 2014	Journées de la SF2A **(Poster)**	Paris, France
3-4 March 2015	Workshop on Dark Energy: beyond 6 parameters	CPPM, Marseille, France
26-28 May 2015	4th OCEVU General Workshop **(Talk)**	CPPM, Marseille, France
3-14 Agust 2015	IAU General Assembly **(Poster)**	Honolulu, Hawaii, USA
29-30 June 2016	5th OCEVU General Workshop **(Talk)**	IRAP, Toulouse, France
4-8 July 2016	EWASS: Probing the New Frontiers with Cluster Lenses **(Talk)**	Athens, Greece
11-15 July 2016	GRAVLENS2016: Celebrating a century of gravitational lensing **(Poster)**	Leiden, The Netherlands
2nd May 2017	Scientific Days of the Doctoral School **(Talk)**	Marseille, France
26-30 June 2017	EWASS: New Frontiers with Cluster Lenses **(Talk)**	Prague, Czech Republic
3- 7 July 2017	Galaxy Clusters 2017: Theory, observations & future developments **(Poster)**	Santander, Spain
10-13 July 2017	Galaxy Clusters Across Cosmic Time **(Talk)**	Aix-en-Provence, France
27-29 September 2017	6th OCEVU General Workshop **(Talk)**	Montpellier, France
1st February 2018	National Israeli Astronomy Seminar- Institute for Advanced Studies **(Talk)**	Jerusalem, Israel
6th March 2018	**Invited Seminar**- Physics Department	Ben Gurion University of the Negev, Beer Sheva, Israel
13th March 2018	**Invited Seminar**- The Racah Institute of Physics	The Hebrew University of Jerusalem, Israel
2-6 April 2018	EWASS: WL & SL techniques to unveil mysteries of the Universe **(Talk)**	Liverpool, United Kingdom
17 September 2018	**Invited Seminar**- Cluster Seminar Series	University of Michigan, Ann Arbor, USA
11 October 2018	First BUFFALO Workshop **(Talk)**	Laboratoire d'Astrophysique de Marseille, France
9th December 2018	The Israel Physical Society Conference **(Talk)**	The Hebrew University of Jerusalem, Israel
12th December 2018	**Invited Seminar**- Israel Institute of Technology (Technion)	Haifa, Israel

4th-8th February 2019	BUFFALO Collaboration meeting	Las Vegas, USA
17th February 2020	The Israel Physical Society Conference **(Talk)**	Weizmann Institute of Science, Rehovot, Israel

PUBLICATIONS

Articles in reviews
RELICS: A Very Large (θ_E~40") Cluster Lens - RXC J0032.1+1808, **A. Acebron**, A. Zitrin, D. Coe, et al., submitted for publication to ApJ, 2019
RELICS: High Resolution Constraints on the Inner Mass Distribution of the z=0.83 Merging Cluster RXJ0152.7-1357 from strong lensing, **A. Acebron**, M. Alon, A. Zitrin, et al., ApJ, 874, Issue 2, article id. 132, 2019
RELICS: Strong-lensing analysis of the massive clusters MACS J0308.9+2645 and PLCK G171.9-40.7}}, **A. Acebron**, N. Cibirka, A. Zitrin, et al., ApJ 858, 42, 2018
Hubble Frontier Fields: systematic errors in strong lensing models of galaxy clusters - Implications for cosmography, **A. Acebron,** E. Jullo, M. Limousin, et al., MNRAS 470, 1809, 2017
The BUFFALO HST Survey, C. Steinhardt, M. Jauzac, **A. Acebron** et al. [+92 co-authors], accepted for publication in Apj, 2020
Stellar Properties of z ~ 8 Galaxies in the Reionization Lensing Cluster Survey,V. Strait, M. Bradac, D. Coe, L. Bradley, B. Salmon, B. C. Lemaux, K-H. Huang, A. Zitrin, K. Sharon, **A. Acebron**, et al., ApJ, Issue 2, article id.124, 2020
RELICS: Reionization Lensing Cluster Survey, D. Coe, B. Salmon, M. Bradac, L. D. Bradley, K. Sharon, A. Zitrin, **A. Acebron**, et al., ApJ, 884, Issue 1, article id. 85, 2019
RELICS: Strong Lensing Analysis of MACS J0417.51154 and Predictions for Observing the Magnified High-Redshift Universe with JWST, G. Mahler, K. Sharon, C. Fox, D. Coe, M. Jauzac, V. Strait, A. Edge, **A. Acebron**, et al., ApJ, 873, Issue 1, article id. 96, 2019
Strong lensing modeling in galaxy clusters as a promising method to test cosmography I. Parametric dark energy models, J. Magaña, **A. Acebron**, V. Motta, T. Verdugo, E. Jullo and M. Limousin, ApJ, 865, Issue 2, article id. 122, 2018
A Candidate z ~ 10 Galaxy Strongly Lensed into a Spatially Resolved Arc, B. Salmon, D. Coe, L. Bradley, M. Brada, K-H. Huang,V. Strait, P. A. Oesch, R. Paterno- Mahler, A. Zitrin, **A. Acebron**, et al., 2018, ApJ Letters, 864, Issue 1, article id. L22
RELICS: Strong Lensing analysis of the galaxy clusters Abell S295, Abell 697, MACS J0025.4-1222, and MACS J0159.8-0849, N. Cibirka, **A. Acebron**, A. Zitrin, et al., ApJ, 863, Issue 2, article id. 145, 2018
The Frontier Fields Lens Modeling Comparison Project, M. Meneghetti, P. Natarajan, D. Coe, E. Contini, G. De Lucia, C. Giocoli, **A. Acebron**, et al., MNRAS 472, 3177, 2017
Weak lensing study of 16 DAFT/FADA clusters: sub-structures and filaments, N. Martinet, D. Clowe, F. Durret, C. Adami, **A. Acebron**, et al., A&A, 590, 69, 2016

Searching for filaments and large-scale structure around DAFT/FADA clusters, F. Durret, I. Marquez, **A. Acebron**, et al., A&A, 588, 69, 2016

Congress proceedings
Galaxy clusters in the cosmic web, **Acebron, A.** Durret, F.; Martinet, N.; Adami, C.; Guennou, L., Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, pp.293-297, 2014

OTHER INFORMATION

- Regular referee for the publishing journals ApJ and MNRAS
- SOC member of the BUFFALO Collaboration Meeting (February 2019, Las Vegas)
- Co-chair of the *Lens Mass Modelling* working group in the BUFFALO collaboration (~50 people)
- Member of the Outreach & Social Media group in the BUFFALO collaboration
- Brief article (in French) in the Aix-Marseille magazine *La Lettre d'Amu*
- Service Observations at Bernard Lyot Telescope in Pic du Midi in December 2016 (7 nights, volunteering)
- One radio program for "Radio Grenouille" about astronomy in May 2016
- Organisation of "Café Club" informal talks for visitors at Laboratoire d'Astrophysique de Marseille (2016-2017)
- Part of the supervision team of the Physics Olympics - Palais de la Découverte, Paris (2 days in January 2013 and 2014)

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: Beer Sheva, 26/02/2020

SIGNATURE

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