

Maria Elidaiana da Silva Pereira

Brandeis University - 415 South Street, Waltham, MA 02453, USA

✉ mariaeli@brandeis.edu • 🌐 mariaelidaiana.github.io

Education

- **Doctor of Philosophy in Physics**
Brazilian Center for Research in Physics (CBPF) **Rio de Janeiro, Brazil**
Mar 2013 – Sep 2017
- **Bachelor of Education in Physics**
Rio de Janeiro State University (UERJ) **Rio de Janeiro, Brazil**
Mar 2011 – Jul 2015
- **Master of Science in Physics**
CBPF **Rio de Janeiro, Brazil**
Mar 2010 – Dec 2012
- **Bachelor of Science in Physics**
UERJ **Rio de Janeiro, Brazil**
Mar 2005 – Dec 2009

Employment

- **Postdoctoral Fellow**
Brandeis University Oct 2017 – Current

Awards

- **PhD Thesis Award, Honorable Mention**
CBPF Dec 2017
- **PhD Fellowship**
CNPq (Brazilian federal government funding agency for research) Mar 2013 – Feb 2017
- **Masters Fellowship**
CNPq Mar 2010 – Feb 2012
- **Undergraduate Research Fellowship**
CNPq Aug 2006 – Jan 2010

Grants

- **NSF Support PHY-1607611**
To attend the workshop "Astrophysics in the LIGO/Virgo Era" at the Aspen Center for Physics Aug – Sep 2019
- **MMWSS Scholarship**
Kenan Institute of Engineering, Technology and Science (Maria Mitchell Women in Science Symposium) Oct 2018

- **IUPAP Women in Physics Travel Grant Program**
International Union of Pure and Applied Physics Aug 2016
- **GR21 Travel Grant**
Columbia University (21st International Conference on General Relativity and Gravitation) Jul 2016
- **Astro Hack Week Travel Grant**
LSST Corporation and GitHub Inc. Sep – Oct 2015
- **Les Houches School of Physics Fellowship**
Les Houches School of Physics (Post-Planck Cosmology) Jul – Aug 2013

Approved proposals

- **SOAR/Goodman (ID:2020A-0371) - NOAO observing time**
SOAR Spectroscopy of LIGO/Virgo O3 Transients (PI: Charles Kilpatrick) Dec 2019
- **SOAR/Goodman (ID:SO2020A-022) - 20h**
SOAR Spectroscopy of LIGO/Virgo O3 Transients (PI: Martin Makler) Dec 2019
- **CTIO/DECam (ID:2019B-0372)**
The DECam Search & Discovery Program for Optical Signatures of Gravitational Wave Events (DESGW) (PI: Marcelle Soares-Santos) Apr 2019
- **SOAR/Goodman (ID:SO2019A-021 - Brazilian observing time)**
SOAR Spectroscopy of LIGO/Virgo O3 Transients (PI: Martin Makler) Dec 2018
- **SOAR/Goodman (ID:2019A-0307 - NOAO observing time)**
SOAR Spectroscopy of LIGO/Virgo O3 Transients (PI: Douglas Tucker) Dec 2018
- **CTIO/DECam (ID:2018A-0914) - 25.5h**
Blanco i-band Kilo-degree Survey - BlinK (PI: Martin Makler) Nov 2017
- **SOAR/Goodman (ID:SO2017B-018) - 16h**
Einstein Rings in the CFHT Stripe 82 Survey: from gravitational telescopes to probing Einstein's theory (PI: Martin Makler) Apr 2017
- **Gemini/NIFS (ID:GN2016B-015) - 8.5h**
Integral Field Spectroscopy of Arcs - Unveiling the hundreds pc of a star-forming galaxy at redshift ~ 0.9 (PI: Damian Mast) Jun 2016
- **CFHT/WIRCam (ID:CF2012B-003) - 7.2h**
Completing the WIRCam SDSS Equatorial Region Survey (PI: Martin Makler) May 2012
- **CFHT/WIRCam (ID:CF2011B-008) - 7.16h**
WISER: the WIRCam SDSS Equatorial Region Survey (PI: Martin Makler) May 2011

- Gemini/GMOS-S (ID:GS-2011B-Q-54) - 4h**
 ◦ *Gemini follow-up of strong lensing systems discovered on the CFHT Stripe-82 survey (PI: Martin Makler)* Apr 2011
- SOAR/MegaCam (ID:SO2010B-023) - 38.5h**
 ◦ *CFHT/Megacam High-Resolution Imaging of the SDSS Stripe 82: Measuring the Mass Distribution of Structures from Clusters to Galaxy Scale (PI: Martin Makler)* Apr 2011
- SOAR/SOI (ID:CF2010B-009) - 7h**
 ◦ *SOAR Gravitational Arc Survey (PI: Martin Makler)* Apr 2010

Conference talks

- Cosmic controversies in galaxy clusters: weak lensing mass calibration** Virtual, USA
 ◦ *APS Virtual April Meeting* Apr 2020
- Weak-Lensing Mass Calibration of μ_* at High Redshifts with the Dark Energy Survey Year 1** Boston, USA
 ◦ *Meeting of the Division of Particles & Fields of the American Physical Society, Northeastern University* Jul 2019
- Density profiles of galaxy clusters in the CFHT Stripe 82 survey from weak gravitational lensing** New York, USA
 ◦ *GR21, Columbia University* July 2016
- Weak lensing signal of Voronoi-selected galaxy clusters [un]detected by red-sequence algorithm** Rio de Janeiro, Brazil
 ◦ *GrACo III, CBPF* Apr 2016
- Measuring galaxy morphologies in the CFHT/MegaCam Stripe-82 Survey** Rio de Janeiro, Brazil
 ◦ *VI IWARA, CBPF* Oct 2013

Invited colloquia and seminars

- Cosmic Controversies in Galaxy Clusters: Weak Lensing Mass Calibration**
 ◦ *MIT - seminar* Nov 2019
- Cosmic Controversies in Galaxy Clusters: Weak Lensing Mass Calibration**
 ◦ *Federal University of Rio de Janeiro (UFRJ) - seminar* Aug 2019
- Galaxy cluster mass measurements in the Dark Energy Survey: The case for a stellar-mass based mass proxy**
 ◦ *CBPF - seminar* Aug 2019

- **Weighing galaxy clusters in wide area imaging surveys**
Fermilab - seminar Feb 2018
- **Weighing galaxy clusters on Stripe 82 through weak gravitational lensing**
UFRJ - seminar Sep 2017

Other talks

- **Planck SZ scaling relations for μ_*** Sussex, UK
DES Collaboration Meeting, University of Sussex Nov 2019
- **Weak lensing mass calibration of the DES Y1 redMaPPer clusters using the μ_* mass proxy** Philadelphia, USA
DES Collaboration Meeting, University of Pennsylvania Jun 2019
- **Weak lensing calibration of μ_*** New York, USA
Cosmology Group Meeting, Flatiron Institute Mar 2019
- **Weighing giants in the sky** Boston, USA
APS Local Links Feb 2019
- **The μ_* mass-proxy: calibration of the weak lensing mass in DES Y1** Campinas, Brazil
DES Collaboration Meeting, Unicamp Dec 2018
- **Weak Lensing Mass Calibration of μ_* at High Redshifts** Texas, USA
DES Collaboration Meeting, TAMU May 2018
- **Weak-lensing mass calibration of redMaPPer and Voronoi Tessellation clusters in SDSS Stripe 82** São Paulo, Brazil
School on Open Problems in Cosmology, ICTP-SAIFR Jul 2017
- **Density profile-fitting from cluster weak lensing** Berkeley, USA
Astro Hack Week 2016, University of California Aug 2016
- **Bayesian inference 4 dummies** New York, USA
Astro Hack Week 2015, New York University Sep 2015
- **Galaxy morphology on CS82 survey** Les Houches, France
Post-Planck Cosmology, École de Physique des Houches Jul 2013

Responsibilities and leadership

- **Co-chair of the Cluster Cosmology and Lensing Subgroup**
Dark Energy Survey Since Jun 2020
- **Organizer of the Dark Universe Seminars**
Brandeis University Jan 2018 – Feb 2020

- **Organizer of the meeting to celebrate the "International Day of Women and Girls in Science" at CBPF**
CBPF Feb 2017
- **Organizer of the "Survey of scientific working environment in the Brazilian astronomical Community" - LACAN**
CBPF May 2015 – Jun 2016
- **Member of the graduate student association**
CBPF Sep 2013 – Sep 2015

Other professional activities

Teaching.....

- **Continuing Education Program for High School Teachers**
CBPF Jul 2015
Set up and present Modern Physics experiments for teachers of public high schools.

Outreach.....

- **Cultural Tourism in the Imperial district of São Cristóvão**
Museum of Astronomy and Related Sciences (MAST) May 2015, 2017
An annual exhibition of Basic Physics experiments for the general public.
- **National Science and Technology Week**
Itinerant event Oct 2013, 2014, 2016
Set up and present Basic Physics experiments to the general public during a week.

Technical skills

- **Programming Languages:** Python, Fortran95 and C.
- **Open Source Coding:** Jupyter Notebooks, Docker, Git and Anaconda.
- **Astronomy and Cosmology Codes:** TXpipe, xpipe, TreeCorr, WLpipe, Cosmofit, emcee, xshear, PSFEx, SExtractor, Imcat and Automask.
- **Languages:** Portuguese (native speaker), English (fluent) and German (A1).

Affiliations

- **LSST Dark Energy Science Collaboration (LSST DESC)**
DESC membership Jan 2018 – Current
- **Dark Energy Survey**
Collaboration membership Oct 2017 – Current
- **American Physical Society**
ECS membership June 2017 – Current

Publications

Refereed journal articles.....

- **18)** A. Palmese, J. Annis, J. C. Burgad, H. Lin, **M. E. S. Pereira**, M. Soares-Santos, B. Welch, A. Farahi, A. Bermeo, S. Bhargava, J. DeMastri, J. DeRose, D. Gruen, P. Giles, W. Hartley, D. Hollowood, O. Lahav, B. Leistedt, T. Jeltelma, T. McClintock, P. Melchior, A. K. Romer, E. Rozo, E. S. Rykoff, T. N. Varga, R. Wechsler, Y. Zhang and the DES Collaboration. *Stellar mass as a galaxy cluster mass proxy: application to the Dark Energy Survey redMaPPer clusters*. MNRAS, 493: 4591-4606, Apr 2020. [[arXiv](#) | [ADS](#)]
- **17)** The DES Collaboration, the LIGO Scientific Collaboration, the Virgo Collaboration, M. Soares-Santos, A. Palmese, W. Hartley, J. Annis, J. Garcia-Bellido, O. Lahav, Z. Doctor, H. Lin, M. Fishbach, **M. E. S. Pereira** and others. *First measurement of the Hubble constant from a dark standard siren using the Dark Energy Survey galaxies and the LIGO/Virgo binary-black-hole merger GW170814*. ApJL, 876, 1-L7, Apr 2019. [[arXiv](#) | [ADS](#)]
- **16)** E. J. Gonzalez, F. Rodriguez, D. G. Lambas, M. Makler, V. Mesa, S. Alonso, F. Duplancic, **M. E. S. Pereira** and H. Shan. *Weak lensing analysis of galaxy pairs using CS82 data*. A & A, 621, A90, Nov 2018. [[arXiv](#) | [ADS](#)]
- **15)** M. Chalela, E. J. Gonzalez, M. Makler, D. G. Lambas, **M. E. S. Pereira**, A. O'mill and H. Shan. *Compact Groups analysis using weak gravitational lensing II: CFHT Stripe82 data*. MNRAS, 479: 1170-1179, Sep 2018. [[arXiv](#) | [ADS](#)]
- **14)** T. H. Diehl and the DES Collaboration. *The Dark Energy Survey and Operations: Years 4 and 5*. Jul 2018. [[inSPIRE HEP](#) | [Fermilab Library Server](#)]
- **13)** A. Niemiec , E. Jullo, A. D. Montero-Dorta, F. Prada, S. Rodriguez-Torres, E. Perez, A. Klypin, T. Erben, M. Makler, B. Moraes, **M. E. S. Pereira** and H. Shan. *Probing galaxy assembly bias with LRG weak lensing observations*. MNRAS, 477: L1-L5, Jun 2018. [[arXiv](#) | [ADS](#)]
- **12)** C. Wang, R. Li, L. Gao, H. Shan, J.-P. Kneib, W. Wang, G. Chen, M. Makler, **M. E. S. Pereira**, L. Wang, M. Maia and T. Erben. *Do satellite galaxies trace matter in galaxy clusters?* MNRAS, 475: 4020-4026, Apr 2018. [[arXiv](#) | [ADS](#)]
- **11)** J. Y. H. Soo , B. Moraes, B. Joachimi, W. Hartley, O. Lahav, A. Charbonnier, M. Makler, **M. E. S. Pereira**, J. Comparat, T. Erben, A. Leauthaud, H. Shan and L. Van Waerbeke. *Morpho-z: improving photometric redshifts with galaxy morphology*. MNRAS 475: 3616-3632, Apr 2018. [[arXiv](#) | [ADS](#)]
- **10)** **M. E. S. Pereira**, M. Soares-Santos, M. Makler, J. Annis, G. B. Caminha, T. Erben, H. Lin, B. Moraes, A. Palmese, H. Shan, A. Z. Vitorelli and B. Welch. *Weak-lensing calibration of a stellar mass-based mass proxy for redMaPPer and Voronoi Tessellation clusters in SDSS Stripe 82*. MNRAS, 474: 1361-1372, Feb 2018. [[arXiv](#) | [ADS](#)]
- **9)** A. Z. Vitorelli, E. S. Cypriano, M. Makler, **M. E. S. Pereira**, T. Erben and B. Moraes. *On mass concentrations and magnitude gaps of galaxy systems in the CS82 survey*. MNRAS, 474: 866-875, Feb 2018. [[arXiv](#) | [ADS](#)]
- **8)** A. Niemiec, E. Jullo, M. Limousin, C. Giocoli, T. Erben, H. Hildebrandt, J-P. Kneib, A. Leauthaud, M. Makler, B. Moraes, **M. E. S. Pereira**, H. Shan, E. Rozo, E. Rykoff and L. Van

Waerbeke. *Stellar-to-halo mass relation of cluster galaxies*. MNRAS, 471: 1153-1166, Oct 2017. [[arXiv](#) | [ADS](#)]

- **7)** A. Charbonnier, M. H. Company, T. S. Gonçalves, K. Bundy, K. Menéndez-Delmestre, E. Galliano, B. Moraes, **M. E. S. Pereira**, M. Makler, T. Erben, H. Hildebrandt, H. Shan, G. B. Caminha, M. Grossi and L. Riguccini. *The abundance of compact quiescent galaxies since $z \sim 0.6$* . MNRAS, 469: 4523-4536, Aug 2017. [[arXiv](#) | [ADS](#)]
- **6)** J. Geach, Y-T. Lin, M. Makler, J-P. Kneib, N. Ross, W-H. Wang, B-C. Hsieh, A. Leauthaud, K. Bundy, H. McCracken, J. Comparat, G. Caminha, P. Hudelot, L. Lin, L. Van Waerbeke, **M. E. S. Pereira** and D. Mast. *VICS82: the VISTA-CFHT Stripe 82 near-infrared survey*. ApJ, 231: 7, Jul 2017. [[arXiv](#) | [ADS](#)]
- **5)** H. Shan, J-P. Kneib, R. Li, J. Comparat, T. Erben, M. Makler, B. Moraes, L. Van Waerbeke, J. E. Taylor, A. Charbonnier and **M. E. S. Pereira**. *The Mass-Concentration Relation and the Stellar-to-Halo Mass Ratio in the CFHT Stripe 82 Survey*. ApJ, 840: 104, May 2017. [[arXiv](#) | [ADS](#)]
- **4)** A. Leauthaud, S. Saito, S. Hilbert, A. Barreira, S. More, M. White, S. Alam, P. Behroozi, K. Bundy, J. Coupon, T. Erben, C. Heymans, H. Hildebrandt, R. Mandelbaum, B. Moraes, **M. E. S. Pereira**, S. A. Rodríguez-Torres and H. Shan. *Lensing is Low: Cosmology, Galaxy Formation, or New Physics?*. MNRAS, 467: 3024-3047, Feb 2017. [[arXiv](#) | [ADS](#)]
- **3)** B. Nord, E. Buckley-Geer, H. Lin, H. T. Diehl, J. Helsby, N. Kuropatkin, A. Amara, T. Collett, S. Allam, G. B. Caminha, C. De Bom, S. Desai, H. Dúmet-Montoya, **M. E. S. Pereira**, and The DES Collaboration. *Observation and Confirmation of Six Strong-lensing Systems in the Dark Energy Survey Science Verification Data*. ApJ, 827: 51, Aug 2016. [[arXiv](#) | [ADS](#)]
- **2)** J. Comparat, E. Jullo, J.-P. Kneib, C. Schimd, H. Shan, T. Erben, O. Ilbert, J. Brownstein, A. Ealet, S. Escoffier, B. Moraes, N. Mostek, J. A. Newman, **M. E. S. Pereira**, F. Prada, D. J. Schlegel, D. P. Schneider, and C. H. Brandt. *Stochastic bias of colour-selected BAO tracers by joint clustering-weak lensing analysis*. MNRAS, 433: 1146-1160, Aug 2013. [[arXiv](#) | [ADS](#)]
- **1)** C. Furlanetto, B. X. Santiago, M. Makler, E. S. Cypriano, G. B. Caminha, **M. E. S. Pereira**, A. F. Neto, J. Estrada, H. Lin, J. Hao, T. A. McKay, L. N. da Costa and M. A. G. Maia. *The SOAR Gravitational Arc Survey - I. Survey overview and photometric catalogues*. MNRAS, 432: 73-88, Jun 2013. [[arXiv](#) | [ADS](#)]

Submitted articles.....

- A. Palmese, J. de Vicente, **M. E. S. Pereira** et al. *A statistical standard siren measurement of the Hubble constant from the LIGO/Virgo gravitational wave compact object merger GW190814 and Dark Energy Survey galaxies*. Submitted to ApJL, Jun 2020. [[arXiv](#) | [ADS](#)]
- **M. E. S. Pereira** et al. μ_* *Masses: Weak Lensing Calibration of the Dark Energy Survey Year 1 redMaPPer Clusters using Stellar Masses*. Submitted to MNRAS, Jun 2020. [[arXiv](#) | [ADS](#)]
- E. J. Gonzalez, M. Makler, D. Garcia Lambas, M. Chalela, **M. E. S. Pereira**, L. Van Waerbeke, H. Shan and T. Erben. *Measuring the surface mass density ellipticity of redMaPPer galaxy clusters using weak-lensing*. Submitted to MNRAS, Jun 2020. [[arXiv](#) | [ADS](#)]