# Andreu Font-Ribera

*Curriculum Vitae*

## Current Positions

2020– **Tenure-track researcher**, Institut de Fisica d'Altes Energies (IFAE), Bellaterra (Spain)

2020– **Ramon y Cajal Fellow**, Institut de Fisica d'Altes Energies (IFAE), Bellaterra (Spain)
PI of the COSMO-LYA project funded by an ERC Consolidator Grant, with currently 4 postdocs and 2 PhD students (https://cosmolya.ifae.es). Since January 2025, I co-lead the Observational Cosmology group at IFAE with ICREA Prof. Ramon Miquel. This is one of the largest groups of IFAE, with 5 senior members, 8 postdocs and 6 PhD students, with more than 5 million euros of competitive funding obtained in the last 5 years. In a couple of months I will be evaluated for tenure, at which point I am expected to become the head of the group.

## Previous Positions

2018–2020 **Lecturer in Cosmology**, University College London, London (UK)

2016–2020 **STFC Ernest Rutherford Fellow**, University College London, London (UK)
Independent group leader on observational cosmology, with 4 PhD students. Co-chair of the Ly$\alpha$ working group of the DESI collaboration.

2013–2016 **Postdoctoral Researcher**, Lawrence Berkeley National Laboratory, Berkeley (USA)
Co-chair of the Ly$\alpha$ working group in both the BOSS and eBOSS collaborations. Led first detection of BAO in the cross-correlation of quasars and the Ly$\alpha$ forest. Design of future surveys (eBOSS, DESI).

2011–2013 **Postdoctoral Researcher**, University of Zurich, Zurich (Switzerland)
Developed technique to measure cross-correlations of the Ly$\alpha$ absorption with other density tracers, and applied it to the BOSS survey. Co-chair of the Ly$\alpha$ working group of the BOSS collaboration, and co-author of the first detection of BAO at high redshift.

## Education

2008-2011 **PhD in Physics**, *Universitat de Barcelona*, Spain, Excellent Cum Laude
Title: Large Scale Structure with Lyman-$\alpha$ Absorption Surveys. Supervisor: Prof. Jordi Miralda-Escudé

2007–2008 **Master in Astrophysics**, *Universitat de Barcelona*, Spain, *Grade of 9.3 out of 10.0*

2003–2007 **Bachelor in Physics**, *Universitat de Barcelona*, Spain, *Grade of 9.0 out of 10.0*

## Summary

During the last decade, I have established myself as an international expert in studies of the large-scale structure of the Universe. My work developing novel methods to study the expansion of the Universe has been recognised with several prestigious awards (STFC Rutherford Fellowship in 2016, Ramon y Cajal fellowship in 2019, ERC Consolidator Grant in 2022), and with leadership roles in some of the largest international collaborations in cosmology: the Baryon Oscillation Spectroscopic Survey (BOSS, 2012-17), the extended BOSS (eBOSS, 2013-15) and the Dark Energy Spectroscopic Instrument (DESI, 2017-20). My main research interests are at the interface between cosmology and fundamental physics: dark energy, dark matter and massive neutrinos.

The accelerated expansion of the Universe is one of the biggest puzzles in physics. Whether it asks for a revision of the laws of gravitation or for a new, exotic energy component (dark energy), the implications are huge. Even though the acceleration was first detected using supernovae samples, the state-of-the-art in studies of dark energy rely heavily on measurements of Baryon Acoustic Oscillation (BAO) from spectroscopic surveys such as BOSS/eBOSS (Alam et al. 2021, pub. 20, 1056 citations) and DESI (DESI Collaboration 2025, pub. 1, 598 citations in 10 months).

Besides the leadership positions in these collaborations, my key role in the development of the BAO analyses has been recognised by the community: I have recently been asked to write a review on BAO for the Annual Review

of Astronomy and Astrophysics, and I have been invited to present the DESI BAO results in the form of Physics Colloquium at UC Riverside (2024), Harvard (2025) and MIT (2025).

## Academic trajectory

After working on exoplanet dynamics as an undergraduate (pub. 48, 47), in the beginning of my PhD (Universitat de Barcelona, 2008-11), I became fascinated by the possibility of mapping the distribution of matter in the distant universe using the Lyman-$\alpha$ (Ly$\alpha$) forest, absorption features in the spectra of high-redshift quasars caused by intervening gas. At the time, the largest study of correlations in the Ly$\alpha$ forest had used only 3,000 quasars, but by the time I defended my thesis the BOSS collaboration had already obtained a dataset 20 times larger.

It is not common in observational cosmology to see such a dramatic increase in the size of the datasets, and it offered me the possibility to have a big impact in the field already during my PhD. I developed the first algorithm to generate synthetic datasets (pub. 45), and provided all the *Ly$\alpha$ mocks* that were used by the BOSS collaboration. I co-led the first measurement of 3D correlations in the Ly$\alpha$ forest of BOSS quasars (pub. 46), and I wrote an article describing the astrophysical contaminants that it is still an important reference in current analyses (pub. 44).

During my postdocs at the University of Zurich (2011-13) and Berkeley Lab (2013-16), I co-chaired the Ly$\alpha$ forest working groups of BOSS and its extension eBOSS, coordinating a group of more than 30 researchers from more than 20 institutions. At the same time, I pioneered the study of cross-correlations of galaxies and quasars with the Ly$\alpha$ forest absorption (pub. 43, 40), and presented the first BAO measurement from cross-correlations (pub. 38), now considered a key observable in DESI. My work was essential in establishing BAO measurements in the Ly$\alpha$ forest as a robust probe of dark energy (pub. 42, 41, 38, 36, 33, 32).

In 2016, I was awarded an Ernest Rutherford Fellowship and moved to University College London (UCL), where I became a lecturer in 2018. At UCL I started my own research group, with 4 PhD students and 3 master students. From 2017 to 2020 I co-chaired the Ly$\alpha$ forest working group of DESI, the largest spectroscopic survey to date and the first *stage-IV* dark energy survey to start observations in 2021. In parallel, I co-led the final Ly$\alpha$ BAO analysis from BOSS/eBOSS (pub. 23) and I was one of the five lead authors of its legacy cosmological analysis (pub. 20). This analysis represented the tightest constraints on the equation of state of dark energy and on the sum of neutrino masses until we presented the DESI 2024 BAO results four years later (pub. 1).

During my four years at UCL, I also started to work on the modelling of the small-scale structure of the Universe using hydrodynamical simulations and machine learning techniques, and co-authored nine publications on the topic (including pub. 28, 25 and 19). These improved models will enable us fully exploit the DESI Ly$\alpha$ dataset, by going beyond BAO analyses of the 3D correlations of the Ly$\alpha$ forest (pub. 18, 11, 10) and by extracting non-linear information from the smallest scales (pub. 12).

In 2019 I was awarded a Ramon y Cajal fellowship by MICINN (Spain) and moved to the Institut de Física d'Altes Energies (IFAE, Spain) as a tenure-track researcher. In 2022 I was awarded an ERC Consolidator Grant for the project COSMO-LYA, to develop new techniques to analyse the Ly$\alpha$ data from DESI and study dark energy, inflation and neutrino masses. This has allowed me to enlarge my research group, consisting now of 4 postdocs and 2 PhD students.

From 2020 to 2024 I co-led the preparations for the first Ly$\alpha$ BAO measurement from DESI, and two of my students led the first measurements of clustering in early DESI data (Gordon et al. 2023, pub. 8 and Ramirez-Pérez et al. 2024, pub. 5). In April 2024, we presented the first BAO measurements from DESI, using data from the first year of observations (pub. 2). I co-led this publication, one of the three "key papers" presenting the DESI 2024 BAO results (DESI Collaboration 2025, pub. 1, 2, 3), the most impactful cosmological results of 2024 (including the most cited paper from 2024 of all HEP according to inspire-hep).

Since 2025, I co-lead the Observational Cosmology group at IFAE, a group of 18 researchers that has obtained over 5M euros in competitive funding in the last 7 years.

## Contributions

I have co-authored 154 refereed publications, with a total of 27,553 citations and an h-index of 58 (from NASA ADS). I played a key role in 48 of these publications (6,356 citations), either supervising the first author, coordinating the working group, or writing entire sections.

I have given more than 80 talks in international conferences, workshops, seminars and colloquia at institutions from 11 different countries, in 4 different continents. Recently, I have been invited to give a colloquium about my work at

UCM (2023), UC Riverside (2024), Harvard (2025) and MIT (2025).

I have presented results in two press conferences (featured at national and international television), and multiple press releases (three in the last four years, another one expected in March 2025). I have organised outreach activities in schools and public libraries (in UK and Spain), at the HMP Brixton prison (London, UK), and appeared in a DESI documentary shown in planetariums around the world.

I was asked to participate in an ERC StG panel (2022, declined due to paternity leave), and in two Ramon y Cajal panels (2022, 2024). I have also served as external referee for the ERC StG (2018), the Rita Levi-Montalcini program (2018, 2021), and as member of a NASA panel to select the science team of WFIRST (2015). I have refereed articles for Science, PRL, PRD, ApJ, A&A, ApJL, MNRAS and JCAP.

Finally, I have always been very involved in protecting the wellbeing of my colleagues. At UCL I started a mentoring program for postdocs, and years later I started a similar one at IFAE after my move. Since 2023, I also chair the Equity, Inclusion and Diversity (EDI) Committee at IFAE.

## Leadership in international collaborations

2020– Member of the Institutional Board of the Dark Energy Spectroscopic Instrument (DESI) collaboration, representing IFAE.

2020–2024 Co-convener of *DESI Key Project VI* (BAO measurement from the Lyman-$\alpha$ dataset).

2017–2024 Member of the Science Committee of DESI.

2017–2020 Co-chair of the Lyman-$\alpha$ working group of the DESI collaboration.

2013–2015 Co-chair of the Lyman-$\alpha$ working group of the Extended Baryon Oscillation Spectroscopic Survey (eBOSS).

2012–2016 Co-chair of the Lyman-$\alpha$ working group of the Baryon Oscillation Spectroscopic Survey (BOSS).

2015–2016 Member of the Collaboration Council of the Sloan Digital Sky Survey (SDSS), representing Lawrence Berkeley National Laboratory (LBNL).

## Leadership in research projects

2022– PI of ERC Consolidator Grant, *COSMO-LYA: A cosmological lever arm for fundamental physics* (grant agreement 101044612). Award: €1,885,000 over five years.

2022– Co-PI of Proyecto de Generación de Conocimiento, *COSMOFUN: cosmology and fundamental physics with extragalactic surveys* (PID2021-123012NB-C41). Award to IFAE: €480,370 over three years. Coordinated project with CIEMAT, IFT and PIC, led by IFAE.

2020– PI of Ramon y Cajal Fellowship, Spain, Award: €208,600 over five years.

2018–2020 Co-I of the UCL Astrophysics Consolidated Grant 2018-2021 (ST/J000476/1) by the Science & Technology Facilities Council, UK. Total award: £1,308,814 over three years.

2016–2020 PI of Ernest Rutherford Fellowship (ST/N003853/1), by the Science & Technology Facilities Council, UK. Award: £491,529 over five years.

### Computing allocations

2019 PI of DiRAC HPC proposal, *Constraining inflation and neutrino masses with DESI*. Award: 4.6M core hours.

2018 PI of DiRAC HPC proposal, *Modelling of neutrino masses in DESI*. Award: 460k core hours.

### Pending evaluation

2025– PI of Proyecto de Generación de Conocimiento, *COSMOFUN: cosmology and fundamental physics with extragalactic surveys* (PID2024-159420NB-C41). Budget requested for IFAE: €735,000 over three years. This time I am the coordinator of this multi-institute project (CIEMAT, IFT, PIC and IFAE), with seven Co-PIs.

## Supervision and mentoring

### Supervision of postdoctoral researchers

2021–2022 Ignasi Pérez-Ràfols, PROBIST Marie Curie Fellow at IFAE. Awarded a Maria Zambrano fellowship in 2022, he is now a lecturer at the Universitat Politècnica de Catalunya (UPC).

2022–2024 Laura Cabayol, ERC postdoc at Port d'Informació Científica (PIC-IFAE). She is now a data scientist at Dribia.

2022– Jonás Chaves-Montero, ERC postdoc at IFAE.

2023– Martine Lokken, ERC postdoc at IFAE.

2024– Sindhu Satyavolu, ERC postdoc at IFAE.

2024– César Ramírez-Pérez, ERC postdoc at IFAE.

### Supervision of graduate students

2017–2021 James Farr, graduate student at University College London. PhD thesis: *Towards precision measurements of large-scale structure with next-generation spectroscopic surveys*. Publications include: Farr, Font-Ribera et al. (2020, pub. 26); Farr, Font-Ribera & Pontzen (2020, pub. 21).

2017–2021 Chris Pedersen, graduate student at University College London. PhD thesis: *Neutrino mass and cosmology from the Lyman-$\alpha$ forest*. Publications include: Pedersen, Font-Ribera et al. (2020, pub. 25); Pedersen, Font-Ribera et al. (2021, pub. 19); Pedersen, Font-Ribera & Gnedin (2023, pub. 12).

2018–2021 Andrei Cuceu, graduate student at University College London (co-supervised by Benjamin Joachimi). PhD thesis: *Precision cosmology from the clustering of large-scale structures*. Publications include: Cuceu, Farr, Lemos & Font-Ribera (2019, pub. 27); Cuceu, Font-Ribera & Joachimi (2020, pub. 24); Cuceu, Font-Ribera & Joachimi (2021, pub. 18); Cuceu, Font-Ribera et al. (2023a, pub. 11); Cuceu, Font-Ribera et al. (2023b, pub. 10).

2019–2023 Francesca Gerardi, graduate student at University College London (co-supervised by Benjamin Joachimi). PhD thesis: *Simulation-based inference and data compression applied to cosmological problems*. Publications include: Gerardi, Cuceu, Font-Ribera et al. (2023, pub. 13); Gerardi et al. (2024, pub. 6).

2020–2024 César Ramírez, graduate student at Institut de Fisica d'Altes Energies. PhD thesis: *Analysis validation of the Lyman-$\alpha$ forest measurements from the Dark Energy Spectroscopic Instrument*. Publications include: Ramírez-Pérez, Sánchez, Alonso & Font-Ribera (2022, pub. 16); Ramírez-Pérez, Pérez-Ràfols, Font-Ribera et al. (2024, pub. 5).

2021– Calum Gordon, graduate student at Institut de Fisica d'Altes Energies. Expected defence in 2025. Publications include: Gordon et al. (2023, pub. 8); Gordon et al. (2025, in internal DESI review).

2023– Laura Casas, graduate student at Institut de Fisica d'Altes Energies. Expected defence in 2027. Publications include: Casas et al. (2025, in internal DESI review).

### Other students mentored

2019–2021 Samantha Youles, graduate student at Portsmouth University. Publications include: Youles, Bautista, Font-Ribera et al. (2022, pub. 14).

2018–2020 Naim Karacayli, graduate student at Yale University. Publications include: Karacayli, Font-Ribera & Padmanabhan (2020, pub. 22); Karacayli, Padmanabhan, Font-Ribera et al. (2021, pub. 17).

2014–2015 Casey Stark, graduate student at the University of California at Berkeley. Publications include: Stark, Font-Ribera, White & Lee (2015, pub. 34).

2014–2015 Xinkang Wang, undergraduate student at the University of California at Berkeley. Publications include: Wang, Font-Ribera & Seljak (2015, pub. 37).

2013–2016 Satya Gontcho A Gontcho, graduate student at the Universitat de Barcelona. Publications include: Gontcho A Gontcho, Miralda-Escudé, Font-Ribera et al. 2018, pub. 29).

2013–2016 Ignasi Pérez-Ràfols, graduate student at the Universitat de Barcelona. Publications include: Pérez-Ràfols, Font-Ribera et al. (2018, pub. 31).

2011–2012 Eduard Arnau, undergraduate student at the Universitat de Barcelona. Publications include: Font-Ribera, Arnau et al. (2012, pub. 43); Font-Ribera, Miralda-Escudé, Arnau et al. (2013, pub. 40).

### Other mentoring activities

2019–2020 Organiser of the *Postdoc mentoring program* at University College London (UCL).

2021–2023 Co-organiser of the *Postdoc mentoring program* at Insititut de Física d'Altes Energies (IFAE).

2023– Chair of the Equity, Diversity and Inclusion (EDI) Committee at IFAE, supervising the mentoring programs of students and postdocs.

## Peer review and evaluations

2025 Panelist of the Ramon y Cajal Fellowship

2022 Panelist of the ERC Starting Grant (declined due to paternity leave).

2022 Panelist of the Ramon y Cajal Fellowship

2021 External reviewer for the Rita Levi-Montalcini program (Italy).

2018 External reviewer for the Rita Levi-Montalcini program (Italy).

2018 Chair of the CosmoParticle PhD admission panel at UCL.

2018 Expert review for an ERC Starting Grant.

2015 Member of a NASA review panel to select the science working groups of WFIRST.

2012– Refereed articles for Science, Physical Review Letters, Physical Review D, The Astrophysical Journal, Physics Letter B, Astronomy & Astrophysics, Astrophysical Journal Letters and Journal of Cosmology and Astroparticle Physics.

2016– Examiner of seven PhD theses at University of Cambridge, University College London, CEA Saclay (twice), Institut d'Astrophysique de Paris, Universitat de Barcelona and Universitat Autònoma de Barcelona.

## Organisation of events

2026 Co-organiser of the SEA2026 meeting of the Sociedad Española de Astronomía, Barcelona (Spain).

2025 Co-organiser of the workshop *Cosmology on the steep rise*, with the participation of a Nobel Prize laureate, Sesto (Italy).

2019-2021 Member of the Meetings Committee of DESI. Active participation in the organisation of five DESI Collaboration Meetings, with roughly 200 participants each.

2019 Organiser of the workshop *Gravitational Waves at UCL*, University College London (UK).

2019 Organiser of the *DESI-UK Collaboration Meeting*, University College London (UK).

2019 Organiser of the workshop *Spectroscopic Surveys at UCL*, University College London (UK).

2018 Organiser of the workshop *Neutrinos at UCL*, University College London (UK).

2018–2020 Co-organiser of the *London Cosmology Discussion Meetings*, London, involving cosmologists from the 4 main universities in London: Imperial College, Queen Mary University, King's College and University College London (UK).

2017–2020 Co-organiser of the Astronomy Seminars at University College London (UK).

2014–2015 Co-organiser of the INPA Seminars at the Institute for Nuclear and Particle Astrophysics, Berkeley (USA).

2013 Local Organisation Committee of the BOSS Collaboration Meeting, Berkeley (USA).

## Awards

2022 PI of ERC Consolidator Grant, *COSMO-LYA: a cosmological lever arm for fundamental physics*, €1,885,000 over five years.

2020 PI of Ramon y Cajal Fellowship, Spain, €208,600 over five years.

2016 Ernest Rutherford Fellowship (ST/N003853/1), by the Science & Technology Facilities Council, UK. Award: £491,529 over five years.

2014 Kavli Fellowship (declined), by the Institute for the Physcs and Mathematics of the Universe, Tokyo.

2014 Lagrange Fellowship (declined), by the Institut Lagrange de Paris.

2013 PhD Extraordinary Award, by the Universitat de Barcelona.

2008 JAE Predoctoral Grant, by the Spanish Research Council (CSIC).

2008 Extraordinary Award on Physics, by the Universitat de Barcelona.

2003 Best Experimental Exercise Prize and Silver Medal in the Iberoamerican Physics Olympiad, La Habana (Cuba).

2003 Gold medal in the Spanish Physics Olympiad, Cuenca (Spain).

2003 Highest mark in the Catalan Physics Olympiad, Barcelona (Spain).

## Teaching experience

2018–2020 Practical Physics and Computing 2 at University College London, demonstrator.

2017 Lecturer of a graduate course on large scale structure and statistics at University College London.

2017 Invited lecturer at *Cosmology school in the Canary Islands* (Spain).

2017 Invited lecturer at *Essential cosmology for the next generation - Cosmology on the beach* (Mexico).

2012–2016 Occasional lecturer in cosmology graduate courses at the University of Zurich and University of California in Berkeley (substituting Prof. Uroš Seljak and Prof. Martin White).

## Outreach activities

2024 Interview in the podcast *Oscilador Armónico*, with an episode about dark energy and the DESI 2024 BAO results.

2024 *Pren un cafè amb un cosmòleg* activity at the Museu d'Art Contemporani de Barcelona (MACBA), as part of the serie *Lydia Ourahmane: 108 Days*.

2023 Participation in a planetarium show describing the Dark Energy Spectroscopic Instrument (DESI), titled *5000 eyes: Mapping the Universe with DESI* and screened in more than 24 countries. I was one of the five scientists interviewed, and I coordinated and sponsored the Catalan version of the documentary, that has been shown at several planetarium centers in Catalonia.

2023 Three events organized at the CosmoCaixa museum, including the screening of the DESI Planetarium show followed by an outreach talk.

2023 Interview in the podcast *La Veu Còsmica*, mixing science and music, in an episode about the large-scale structure of the Universe.

2021 I co-authored an outreach article for the Spanish magazine *Investigación y Ciencia* about our recent eBOSS results, titled *Cartografiando el universo joven*.

2021 Outreach talk titled *Energia fosca i l'expansió accelerada de l'Univers* during the XIV Jornades de Relativitat de Terrassa organized by the Agrupació Astronòmica de Terrassa.

2017–2019 Improving the Prison Environment: HMP Brixton and the Royal Astronomical Society (RAS). Tom Kitching (UCL) and I collaborated with the artist Federica Ciotti in a project financed by the Bounce Back Foundation and the RAS, to redecorate the main Visitor's Area with astronomy-themed murals and decorations. I also gave presentations about astronomy to inmates during two sessions, followed by an extended Q&A session.

2017– Organised outreach activities in schools and public libraries (in UK and Spain), including a recent presentation *Energia fosca i l'expansió accelerada de l'Univers* organised by the Institut de Ciències de l'Educació Josep Pallach.

2008– Presented results in two press conferences (featured at national and international television), and in multiple press releases (including five in the last five years).

## Presentations

I list below the 28 seminars and the 5 colloquia that I have been invited to give in my career, as well as the 47 talks I have given at workshops and conferences (not including dozens of talks at BOSS/eBOSS/DESI collaboration meetings). For some of these presentations, the conference organisers asked the DESI collaboration for a talk, and the DESI Speakers Board selected me to represent DESI at the conference.

## Seminars and colloquia

April 2025 **Colloquium**, Center for Astrophysics, Harvard (Boston, USA); *Overview of the latest results from the Dark Energy Spectroscopic Instrument (DESI)*.

April 2025 **Colloquium**, Massachusetts Institute of Technology (Boston, USA); *Overview of the latest results from the Dark Energy Spectroscopic Instrument (DESI)*.

2024 **Colloquium**, University of California Riverside (Riverside, USA); *Studying the accelerated expansion of the Universe with the Dark Energy Spectroscopic Instrument (DESI)*.

2024 Topical Seminar, Instituto de Física Corpuscular (Valencia, Spain); *First Cosmological Results from DESI*.

2023 IPARCOS **Colloquium**, Universidad Complutense de Madrid (Spain); *Studying the accelerated expansion of the Universe with DESI*.

2022 Astronomy Seminar (online), Universidad of Waterloo (Canada); *Cosmological results from the complete eBOSS survey*.

2021 Webinar of the Laboratorio Interinstitucional de e-Astronomia (LineA, Brazil); *Dark Energy Spectroscopic Instrument: Expansion of the Universe with quasar spectra*.

2020 Astronomy Seminar (online), ETH Zurich (Switzerland); *Studying the expansion of the Universe with quasar spectra*.

2020 Pizza Seminar (online), Institut de Física d'Altes Energies (Barcelona, Spain); *Final cosmology results from the Sloan Digital Sky Survey*.

2020 Astronomy Seminar (online), Tsinghua University (Beijing, China); *Studying the expansion of the Universe with quasar spectra*.

2020 TTK Seminar, Aachen University (Germany); *Studying the expansion of the Universe with quasar spectra*.

2019 ICE Seminar, Institut de Ciències de l'Espai (Barcelona, Spain); *Studying the expansion of the Universe with quasar spectra*.

2019 IFAE Experimental Seminar, Institut de Física d'Altes Energies (Barcelona, Spain); *Studying the expansion of the Universe with quasar spectra*.

2019 MSSL Seminar, Mullard Space Science (Dorking, UK); *Studying the expansion of the Universe with quasar spectra*.

2019 Astrophysics Seminar, University of Sussex (Sussex, UK); *Baryon Acoustic Oscillations: Past, Present and Future*.

2019 ICG Seminar, University of Portsmouth (Portsmouth, UK); *Baryon Acoustic Oscillations: Past, Present and Future*.

2018 Theoretical Particle Physics and Cosmology Seminar, King's College London (UK); *Studying the expansion of the Universe with quasar spectra*.

2018 Astronomy Seminar, University College London (UK); *Cosmology with the Ly$\alpha$ forest: challenges and opportunities*.

2018 DAMTP Cosmology Seminar, University of Cambridge (UK); *Studying the expansion of the Universe with quasar spectra*.

2018 Astronomy Seminar, University of Edinburgh (UK); *Studying the expansion of the Universe with quasar spectra*.

2018 Research Progress Meeting (Physics Seminar), Lawrence Berkeley National Laboratory (USA); *Cosmology with the Ly$\alpha$ forest: challenges and opportunities*.

2018 Astronomy Seminar, Nottingham University (UK); *Studying the expansion of the Universe with quasar spectra*.

2017 Astronomy Seminar, Stanford University (UK); *Studying the expansion of the Universe with quasar spectra*.

2017 Astronomy Seminar, Oxford University (UK); *Studying the expansion of the Universe with quasar spectra*.

2017 Astronomy Seminar, Queen Mary University London (UK); *Precision Cosmology at high redshift with the Ly$\alpha$ forest*.

2017 Astronomy Seminar, Durham University (UK); *Studying the expansion of the Universe with quasar spectra*.

2017 Astronomy Seminar, University College London (UK); *Studying the expansion of the Universe with quasar spectra*.

2016 ICC-UB Seminar, Universitat de Barcelona (Spain); *Cross-correlating the Lyman-$\alpha$ forest*.

2016 Research Progress Meeting (Physics Seminar), Lawrence Berkeley National Laboratory (USA); *Studying the expansion of the Universe with quasar spectra*.

2015 Cosmology Seminar, Stanford University (USA); *Studying the expansion of the Universe with quasar spectra*.

2015 Cosmology Seminar, Institute for the Physics and Mathematics of the Universe (Tokyo, Japan); *Studying the expansion of the Universe with quasar spectra*.

2014 Cosmology Seminar, Princeton University (USA); *Studying the expansion of the Universe with BOSS quasars*.

2014 ITC Seminar, Harvard University (USA); *Cosmology using the Ly$\alpha$ forest from BOSS*.

2014 CCAPP Seminar, Ohio State University (USA); *Studying the expansion of the Universe with BOSS quasars*.

2014 CCPP Astronomy Seminar, New York University (USA); *Studying the expansion of the Universe with BOSS quasars*.

2014 Cosmology Seminar, University of Pennsylvania (USA); *Studying the expansion of the Universe with BOSS quasars*.

2014 Cosmology Seminar, University of Heidelberg (Germany); *Studying the expansion of the Universe with BOSS quasars*.

2014 ICE Seminar, Institut de Ciències de l'Espai (Barcelona, Spain); *Studying the expansion of the Universe with BOSS quasars*.

2014 Cosmology Seminar, University of California at Santa Cruz (USA); *The expanding universe with quasars from SDSS*.

2014 **Astronomy Colloquium**, University of Washington (USA); *Tracing the large-scale structure of the Universe with the Ly$\alpha$ forest*.

2013 Seminar of the Institute for Nuclear and Particle Astrophysics (INPA Seminar), Lawrence Berkeley National Laboratory (USA); *Tracing the large-scale structure of the Universe with the Ly$\alpha$ forest*.

2012 ICC-UB Seminar, Universitat de Barcelona (Spain); *Cosmology with the Lyman-$\alpha$ forest: first results from BOSS*.

2012 Galaxy Formation Seminar, University of California at Berkeley (USA); *Cosmology with the Lyman-$\alpha$ forest: first results from BOSS*.

2012 Particle ans Astrophysics Seminar, University of Zurich (Switzerland); *Cosmology with the Lyman-$\alpha$ forest: first results from BOSS*.

2011 ICE Seminar, Institut de Ciències de l'Espai (Barcelona, Spain); *Simulating the Lyman-$\alpha$ forest power spectrum measurement from BOSS*.

2011 MPIA Astronomy Seminar, Max Planck Institute for Astronomy (Heidelberg, Germany); *Simulating the Lyman-$\alpha$ forest power spectrum measurement from BOSS*.

### Talks at workshops and conferences

May 2025 5th EuCAPT Symposium (online); *Overview of the latest results from the Dark Energy Spectroscopic Instrument (DESI)*; **Plenary overview talk**.

2024 IoA at 50: New Frontiers of Astronomy (Cambridge, UK); *Recent highlights from cosmological spectroscopic surveys*; **Invited highlight talk**.

2024 Dark Energy Survey (DES) Collaboration Meeting, S'Agaró (Barcelona, Spain); *First Cosmological Constraints from the Dark Energy Spectroscopic Instrument (DESI)*; **Invited plenary talk**.

2024 Fundamental physics from future spectroscopic surveys (Berkeley, USA); *Running from the Lyman-$\alpha$ forest: Inputs on inflation from small scales*; Contributed talk.

2024 Cosmology Talks (YouTube channel); *DESI 2024: Cosmological constraints from BAO*; With more than 7,200 visualizations, it is the most watched talk of the 95 available in the channel.

2024 Rencontres de Moriond (La Thuile, Italy); *DESI 2024: BAO measurement at z¿2 with the Lyman-$\alpha$ forest*; **Official representation of DESI at the conference**.

2023 L International Meeting on Fundamental Physics (Santander, Spain); *Overview of Observational Cosmology*; **Invited plenary talk**.

2023 Cosmo Palooza (online); *The Dark Energy Spectroscopic Instrument (DESI): Overview*; **Official representation of DESI at the conference**.

2022 Intriguing inconsistencies in the growth of structure over cosmic time (Sesto, Italy); *Cosmology with the Ly$\alpha$ forest: BAO measurements and more*; Invited talk.

2022 Rencontres de Blois (Blois, France); *Dark Energy Spectroscopic Instrument: Overview and early data*; **Official representation of DESI at the conference**.

2022 IberiCOS'22 (Barcelona, Spain); *Dark Energy Spectroscopic Instrument: Overview and early data*; Invited talk.

2021 Meeting of the American Physical Society, Division of Particles and Fields (online); *Dark Energy Spectroscopic Instrument: Science Overview*; **Official representation of DESI at the conference**.

2021 COSMO'21 (online); *Dark Energy Spectroscopic Instrument: Overview and early data*; **Official representation of DESI at the conference**.

2019 Understanding Cosmological Observations (Benasque, Spain); *Cosmology with Spectroscopic Surveys: Past, Present and Future*. Contributed talk.

2019 DESI Collaboration Meeting, Lawrence Berkeley National Laboratory (USA); *Lyman-$\alpha$ forest with eBOSS: DR14 results*. **Invited plenary talk**.

2019 Concordances and Challenges in Cosmology, Sesto (Italy); *Baryon Acoustic Oscillations: Past, Present and Future*. Contributed talk.

2018 IGM2018: Revealing cosmology and reionization history with the intergalactic medium (Tokyo, Japan); *Cosmology with the Lyman-$\alpha$ forest*. Invited contribution.

2018 COSPAR 2018: Dark Energy at 20 (Pasadena, USA); *Dark Energy with DESI*; **Official representation of DESI at the conference**.

2018 Neutrinos at University College London, workshop (London, UK); *Neutrinos in cosmology*; Overview talk.

2018 Consistency of cosmological datasets: Evidence for new Physics? (Cambridge, UK); *The expansion of the Universe before dark energy*; Invited contribution.

2018 Tensions in the $\Lambda$CDM paradigm (Mainz, Germany); *The expansion of the Universe before dark energy*; Invited contribution.

2018 Statistical challenges in the era of LSST (Oxford, UK); *Statistical challenges in the Lyman-$\alpha$ forest*; Contributed talk.

2017 Understanding cosmological observations (Benasque, Spain); *Studying the expansion of the Universe with quasar spectra*; Contributed talk.

2017 Cosmology with neutral hydrogen (Berkeley, USA); *Inflation and neutrinos in the Lyman-$\alpha$ forest*; Contributed talk.

2016 Fundamental Cosmology (Barcelona, Spain); *Studying the Expansion of the Universe with quasar spectra*; Invited contribution.

2016 Sampling the Universe (Berkeley, USA); *3D power spectrum of the Ly$\alpha$ forest: from an optimal to a realistic estimator*; Contributed talk.

2015 Winter Meeting of the American Astronomical Society (Seattle, USA); *Final results from BOSS*; **Official representation of BOSS in the conference**.

2015 Computing the Universe (Berkeley, USA); *Mining the Ly$\alpha$ forest in BOSS*; Contributed talk.

2014 Intergalactic Matters (Heidelberg, Germany); *Studying the Expansion of the Universe with BOSS quasars*; Invited talk.

2014 April Meeting of the American Physical Society (Savannah, USA); *The expanding universe with quasars from the Sloan Digital Sky Survey*; **Official representation of BOSS in the conference**.

2013 Theoretical challenges for the next generation of large-scale surveys of the Universe (Ascona, Switzerland); *Cross-correlating the Ly$\alpha$ forest*; Contributed talk.

2013 Intergalactic interactions: a Higgs Centre workshop on the IGM (Edinburgh, UK); *Cross-correlating the Ly$\alpha$ forest*; Contributed talk.

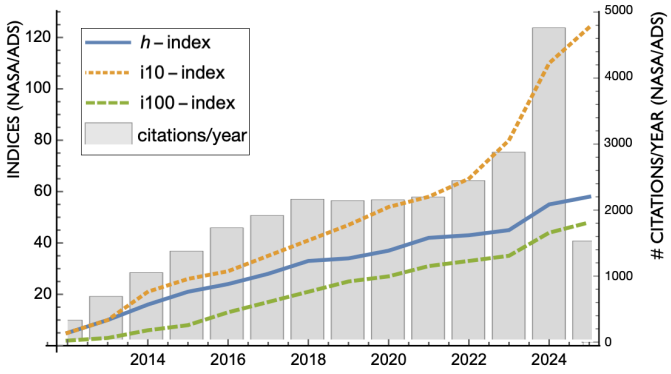
2013 Winter Meeting of the American Astronomical Society (Long Beach, USA); *Learning about Damped Ly$\alpha$ systems with BOSS*; Contributed talk.

2008 Sociedad Española de Astronomia (SEA) Meeting (Santander, Spain); *A 5 Earth-mass Super-Earth Orbiting GJ 436?: The Power of Near-Grazing Transits*; Contributed talk.

## Publications

I have co-authored a total of 154 peer-reviewed publications, with a total of 27,553 citations and an h-index of 58 (from NASA ADS, as of March 3rd 2025). I have also co-authored 7 white papers, and I have 24 manuscripts under peer review or in press.

Below you can find a selected list of 48 of these publications, with inverse chronologically order, in which I have played a key role. It includes those where I have led or co-led the work, those where the first author is a student under my direct supervision and those that I coordinated as chair of the Ly$\alpha$ forest working group of BOSS, eBOSS or DESI. This selected list of publications has been cited 6,356 times and has an h-index of 25 (from NASA ADS).




1. DESI Collaboration, including **A. Font-Ribera** (2025); *DESI 2024 VI: cosmological constraints from the measurements of baryon acoustic oscillations*; Journal of Cosmology and Astroparticle Physics, Volume 2025, Issue 02, id.021, 70 pp.; arXiv:2404.03002

2. DESI Collaboration, including **A. Font-Ribera** as corresponding author (2025); *DESI 2024 IV: Baryon Acoustic Oscillations from the Lyman alpha forest*; Journal of Cosmology and Astroparticle Physics, Volume 2025, Issue 01, id.124, 64 pp.; arXiv:2404.03001

3. DESI Collaboration, including **A. Font-Ribera** (2025); *DESI 2024 III: Baryon Acoustic Oscillations from Galaxies and Quasars*; Journal of Cosmology and Astroparticle Physics, in press.; arXiv:2404.03000

4. Chaves-Montero, Cabayol-Garcia, Lokken, **A. Font-Ribera** et al. (2025); *ForestFlow: predicting the Lyman-$\alpha$ forest clustering from linear to nonlinear scales*; Astronomy & Astrophysics, Volume 694, id.A187, 18 pp.; arXiv:2409.05682

5. C. Ramírez-Pérez, I. Pérez-Ràfols, **A. Font-Ribera** et al. (2024); *The Lyman-$\alpha$ forest catalogue from the Dark Energy Spectroscopic Instrument Early Data Release* ; Monthly Notices of the Royal Astronomical Society, Volume 528, Issue 4, pp.6666-6679; arXiv:2306.06312

6. F. Gerardi, A. Cuceu, B. Joachimi, S. Nadathur & **A. Font-Ribera** (2024); *Optimal data compression for Lyman-$\alpha$ forest cosmology*; Monthly Notices of the Royal Astronomical Society, Volume 528, Issue 2, pp.2667-2678; arXiv:2309.13164

7. L. Cabayol-Garcia, J. Chaves-Montero, **A. Font-Ribera** & Pedersen (2023); *A neural network emulator for the Lyman-$\alpha$ forest 1D flux power spectrum*; Monthly Notices of the Royal Astronomical Society, Volume 525, Issue 3, pp.3499-3515; arXiv:2305.19064

8. C. Gordon, A. Cuceu, J. Chaves-Montero, **A. Font-Ribera** et al. (2023); *3D correlations in the Lyman-$\alpha$ forest from early DESI data*; Journal of Cosmology and Astroparticle Physics, Volume 2023, Issue 11, id.045, 34 pp.; arXiv:2308.10950

9. B. Hadzhiyska, **A. Font-Ribera** et al. (2023); *Planting a Lyman alpha forest on ABACUSSUMMIT*; Monthly Notices of the Royal Astronomical Society, Volume 524, Issue 1, pp.1008-1024; arXiv:2305.08899

10. A. Cuceu, **A. Font-Ribera** et al. (2023); *The Alcock-Paczyński effect from Lyman-$\alpha$ forest correlations: analysis validation with synthetic data*; Monthly Notices of the Royal Astronomical Society, Volume 523, Issue 3, pp.3773-3790; arXiv:2209.12931

11. A. Cuceu, **A. Font-Ribera** et al. (2023); *Constraints on the Cosmic Expansion Rate at Redshift 2.3 from the Lyman-$\alpha$ Forest*; Physical Review Letters, Volume 130, Issue 19, article id.191003; arXiv:2209.13942

12. C. Pedersen, **A. Font-Ribera** & N. Gnedin (2023); *Compressing the Cosmological Information in One-dimensional Correlations of the Lyman-$\alpha$ Forest*; The Astrophysical Journal, Volume 944, Issue 2, id.223, 13 pp.; arXiv:2209.09895

13. F. Gerardi, A. Cuceu, **A. Font-Ribera** et al. (2023); *Direct cosmological inference from three-dimensional correlations of the Lyman $\alpha$ forest*; Monthly Notices of the Royal Astronomical Society, Volume 518, Issue 2, pp.2567-2573; arXiv:2209.11263

14. S. Youles, J. Bautista, **A. Font-Ribera** et al. (2022); *The effect of quasar redshift errors on Lyman-$\alpha$ forest correlation functions*; Monthly Notices of the Royal Astronomical Society, Volume 516, Issue 1, pp.421-433; arXiv:2205.06648

15. J. Givans, **A. Font-Ribera** et al. (2022); *Non-linearities in the Lyman-$\alpha$ forest and in its cross-correlation with dark matter halos* ; Journal of Cosmology and Astroparticle Physics, Volume 2022, Issue 09, id.070, 32 pp.; arXiv:2205.00962

16. C. Ramírez-Pérez, J. Sanchez, D. Alonso & **A. Font-Ribera** (2022); *CoLoRe: fast cosmological realisations over large volumes with multiple tracers*; Journal of Cosmology and Astroparticle Physics, Volume 2022, Issue 05, id.002, 36 pp.; arXiv:2111.05069

17. N. Karacayli, N. Padmanabhan, **A. Font-Ribera** et al. (2022); *Optimal 1D Ly $\alpha$ forest power spectrum estimation - II. KODIAQ, SQUAD, and XQ-100*; Monthly Notices of the Royal Astronomical Society, Volume 509, Issue 2, pp.2842-2855; arXiv:2108.10870

18. A. Cuceu, **A. Font-Ribera**, B. Joachimi & S. Nadathur (2021); *Cosmology beyond BAO from the 3D distribution of the Lyman-$\alpha$ forest*; Monthly Notices of the Royal Astronomical Society, Volume 506, Issue 4, pp.5439-5450; arXiv:2103.14075

19. C. Pedersen, **A. Font-Ribera** et al. (2021); *An emulator for the Lyman-$\alpha$ forest in beyond-$\Lambda$CDM cosmologies*; Journal of Cosmology and Astroparticle Physics, Volume 2021, Issue 05, id.033, 28 pp.; arXiv:2011.15127

20. S. Alam et al., including **A. Font-Ribera** (alphabetically ordered) (2021); *Completed SDSS-IV extended Baryon Oscillation Spectroscopic Survey: Cosmological implications from two decades of spectroscopic surveys at the Apache Point Observatory*; Physical Review D, Volume 103, Issue 8, article id.083533; arXiv:2007.08991

21. J. Farr, **A. Font-Ribera** & A. Pontzen (2020); *Optimal strategies for identifying quasars in DESI*; Journal of Cosmology and Astroparticle Physics, Issue 11, article id. 015; arXiv:2007.10348

22. N. Karacayli, **A. Font-Ribera** & N. Padmanabhan (2020); *Optimal 1D Ly $\alpha$ forest power spectrum estimation - I. DESI-lite spectra*; Monthly Notices of the Royal Astronomical Society, Volume 497, Issue 4, pp.4742-4752; arXiv:2008.06421

23. H. du Mas des Bourboux, J. Rich, **A. Font-Ribera** et al. (2020); *The Completed SDSS-IV Extended Baryon Oscillation Spectroscopic Survey: Baryon Acoustic Oscillations with Ly$\alpha$ Forests*; The Astrophysical Journal, Volume 901, Issue 2, id.153, 39 pp.; arXiv:2007.08995

24. A. Cuceu, **A. Font-Ribera** & B. Joachimi (2020); *Bayesian methods for fitting Baryon Acoustic Oscillations in the Lyman-$\alpha$ forest*; Journal of Cosmology and Astroparticle Physics, Issue 07, article id. 035; arXiv:2004.02761

25. C. Pedersen,**A. Font-Ribera** et al (2020); *Massive neutrinos and degeneracies in Lyman-alpha forest simulations* ; Journal of Cosmology and Astroparticle Physics, Issue 04, article id. 025; arXiv:1911.09596

26. J. Farr, **A. Font-Ribera** et al. (2020); *LyaCoLoRe: synthetic datasets for current and future Lyman-$\alpha$ forest BAO surveys*; Journal of Cosmology and Astroparticle Physics, Issue 03, article id. 068; arXiv:1912.02763

27. A. Cuceu, J. Farr, P. Lemos & **A. Font-Ribera** et al. (2019); *Baryon Acoustic Oscillations and the Hubble constant: past, present and future*; Journal of Cosmology and Astroparticle Physics, Issue 10, article id. 044; arXiv:1906.11628

28. L. Anderson, A. Pontzen, **A. Font-Ribera** et al. (2019); *Cosmological Hydrodynamic Simulations with Suppressed Variance in the Lyman-$\alpha$ Forest Power Spectrum*; The Astrophysical Journal, Volume 871, Issue 2, article id. 144, 7 pp.; arXiv:1811.00043

29. S. Gontcho A Gontcho, J. Miralda-Escudé, **A. Font-Ribera** et al. (2018); *Quasar – CIV forest cross-correlation with SDSS DR12*; Monthly Notices of the Royal Astronomical Society, Volume 480, Issue 1, p.610-622; arXiv:1712.09886

30. **A. Font-Ribera**, P. McDonald and A. Slosar (2018); *How to estimate the 3D power spectrum of the Lyman-$\alpha$ forest*; Journal of Cosmology and Astroparticle Physics, Issue 01, article id. 003; arXiv:1709.00889

31. I. Pérez-Ràfols, **A. Font-Ribera** et al. (2018); *The SDSS-DR12 large-scale cross-correlation of Damped Lyman-$\alpha$ Systems with the Lyman-$\alpha$ Forest*; Monthly Notices of the Royal Astronomical Society, Volume 473, Issue 3, p.3019-3038; arXiv:1710.11036

32. H. du Mas des Bourboux et al., including **A. Font-Ribera** (2017); *Baryon acoustic oscillations from the complete SDSS-III Ly$\alpha$-quasar cross-correlation function at $z = 2.4$* Astronomy & Astrophysics, Volume 608, id.A130, 22 pp.; arXiv:1708.02225

33. J. Bautista et al., including **A. Font-Ribera** (2017); *Measurement of BAO correlations at $z = 2.3$ with SDSS DR12 Lyman-$\alpha$ forests*; Astronomy & Astrophysics, Volume 603, id.A12, 23 pp.; arXiv:1702.00176

34. C. Stark, **A. Font-Ribera**, M. White & K.G. Lee (2015); *Finding High-Redshift Voids Using Lyman-$\alpha$ Forest Tomography*; Monthly Notices of the Royal Astronomical Society, Volume 453, Issue 4, p.4311-4323; arXiv:1504.03290

35. J. Bautista, S. Bailey, **A. Font-Ribera** et al. (2015); *Mock Quasar-Lyman-$\alpha$ Forest Data-sets for the SDSS-III Baryon Oscillation Spectroscopic Survey*; Journal of Cosmology and Astroparticle Physics, Issue 05, article id. 060; arXiv:1412.0658

36. T. Delubac, J. Bautista, N. Busca, J. Rich, D. Kirkby, S. Bailey, **A. Font-Ribera** et al. (2015); *Baryon Acoustic Oscillations in the Lyman $\alpha$ forest of BOSS DR11 quasars*; Astronomy and Astrophysics, Volume 574, id.A59; arXiv:1404.1801

37. X. Wang, **A. Font-Ribera** and U. Seljak (2015); *Optimizing BAO measurements with non-linear transformations of the Lyman-$\alpha$ forest*; Journal of Cosmology and Astroparticle Physics, Issue 04, article id. 00; arXiv:1412.4727

38. **A.Font-Ribera** et al. (2014); *Quasar-Lyman $\alpha$ Forest Cross-Correlation from BOSS DR11: Baryon Acoustic Oscillations*; Journal of Cosmology and Astroparticle Physics, Issue 05, article id. 027; arXiv:1311.1767

39. **A. Font-Ribera** et al. (2014); *DESI and other dark energy experiments in the era of neutrino mass measurements*; Journal of Cosmology and Astroparticle Physics, Issue 05, article id. 023; arXiv:1308.4164

40. **A. Font-Ribera** et al. (2013); *The large-scale quasar-Lyman $\alpha$ forest cross-correlation from BOSS*; Journal of Cosmology and Astroparticle Physics, Issue 05, article id. 018; arXiv:1303.1937

41. A. Slosar et al., including **A. Font-Ribera** (2013); *Measurement of baryon acoustic oscillations in the Ly-$\alpha$ forest fluctuations in BOSS data release 9*; Journal of Cosmology and Astroparticle Physics, Issue 04, article id. 026; arXiv:1301.3459

42. N. Busca, T. Delubac, J. Rich, S. Bailey, **A. Font-Ribera** et al. (2013); *Baryon acoustic oscillations in the Ly$\alpha$ forest of BOSS quasars*; Astronomy and Astrophysics, Volume 552, id.A96, 18 pp.; arXiv:1211.2616

43. **A. Font-Ribera** et al. (2012); *The large-scale cross-correlation of Damped Lyman alpha systems with the Lyman alpha forest: first measurements from BOSS*; Journal of Cosmology and Astroparticle Physics, Issue 11, article id. 059; arXiv:1209.4596

44. **A. Font-Ribera** & J. Miralda-Escudé (2012); *The effect of high column density systems on the measurement of the Lyman-$\alpha$ forest correlation function*; Journal of Cosmology and Astroparticle Physics, Issue 07, id. 028; arXiv:1205.2018

45. **A. Font-Ribera**, P. McDonald, J. Miralda-Escudé (2012); *Generating mock data sets for large-scale Lyman-$\alpha$ forest correlation measurements*; Journal of Cosmology and Astroparticle Physics, Issue 01, id. 001; arXiv:1108.5606

46. A. Slosar, **A. Font-Ribera** et al. (2011); *The Lyman-$\alpha$ forest in three dimensions: measurements of large scale flux correlations from BOSS 1st-year data*; Journal of Cosmology and Astroparticle Physics, Issue 09, id. 001; arXiv:1104.5244

47. **A. Font-Ribera**, J. Miralda-Escudé & I. Ribas (2009); *Formation of Massive exoplanets by fragmentation of the protostellar cloud and disk capture*; The Astrophysical Journal, Volume 694, Issue 1, pag. 183-19; arXiv:0806.4174

48. I. Ribas, **A. Font-Ribera** & J.P. Beaulieu (2008); *A $\sim 5M_{earth}$ Super-Earth orbiting GJ 436? The power of near-grazin transits*; The Astrophysical Journal Letters, vol. 667, pag.59-62; arXiv:0801.3230