Florian Sarron

PhD in Astrophysics

Centre de Biologie Intégrative
Toulouse, France
✉ *florian.sarron@irit.fr*
🖥 *fsarron.github.io*
 fsarron

Education & Employment

2024–   **Postdoctoral position in Applied Mathematics**, *Institut de Recherche en Informatique (IRIT) / Centre de Biologie Intégrative (CBI)*, Toulouse, France.
Optimizing optical microscope using deep learning and bayesian statistics. Mambo team (Pierre Weiss)

2022–2024   **CNES Postdoctoral Fellow**, *Institut de Recherche en Astrophysique et Planétologie (IRAP)*, Toulouse, France.
Impact of filamentary accretion on galaxy cluster properties in the HSC-SSP, XXL and XCLASS surveys

2019–2021   **Postdoctoral position**, *University of Nottingham / University of Manchester*, UK.
with Christopher Conselice, working on galaxy clusters at high redshift

2015–2018   **PhD**, *Institut d'Astrophysique de Paris*, Sorbonne Université, Paris, France.
Under supervision of Florence Durret (IAP) and Christophe Adami (LAM): "Galaxy clusters in the cosmic web"

2014–2015   **Master 2**, *Université Paris Diderot - Paris VII*, Paris, France, **with honours**.
Fundamental physics - specialised in Astronomy and Astrophysics

       ◇ **3 month research internship** at the Institut d'Astrophysique de Paris, under supervision of Florence Durret – "The cosmic web around galaxy clusters in the CFHTLS survey"

2011–2015   **'Magistère'**, *Université Paris Diderot - Paris VII*, Paris, France, **with honours**.
Selective high level program in fundamental physics ($\equiv$ bachelor + master's degree)
2nd year at Columbia University, New York

       ◇ **2014: 2 month research internship** at the Observatoire de Paris, under supervision of Simona Mei and James Bartlett – "Study of the weak lensing magnification signal in the NGVS survey"

       ◇ **2012: 1 month research internship** at Laboratoire AstroParticules et Cosmologie (APC), under supervision of Fabien Kéfélian and Matteo Barsuglia – "Interferometry with Laguerre Gauss modes for gravitational wave detection using Advanced-Virgo"

2009–2011   **'Classes préparatoires'**, *Lycée Victor Hugo*, Besançon, France, **with high honours**.
Selective undergraduate program in sciences (specialised in mathematics and physics) preparing for the competitive entrance exam to French 'Grandes Écoles'

Teaching experience

2015-2017   **Lecturer in Physics**, *Sorbonne Université - 192 hours*.
"Energy and Entropy": oral examination and practicals for 1rst year Physics students
"Mechanics": exercice courses, oral examination and practicals for 2nd year Physics students

Languages

French	Native
English	Fluent, TOEFL : 106/120 (2011).

Computing

- **Langages**
  - Advanced: Python, FORTRAN 95
  - Intermediate: C, IDL, openMP, HTCondor, git

- **Softwares** : ds9, TOPcat, Paraview, ESOreflex, DisPerSE, EAZY, LePhare, Phosphoros, FAST, Astromatic

Publication List

- Citations : 234 − h-index : 8 (source ADS)

2023 **[14]** Baxter, D.; Cooper, M.; [...] **Sarron, F.** [...], **2023, MNRAS, 526, 3716**.
When the well runs dry: modelling environmental quenching of high-mass satellites in massive clusters at $z \gtrsim 1$ *Contribution: co-author as a GOGREEN collaboration member; discussions during analysis and writing; editing & review.*

2023 **[13]** Chu, A.; Durret, F.; Ellien, A.;**; Sarron, F.**[...], **2023, A&A, 673, A100**.
A UNIONS view of the brightest central galaxies of candidate fossil groups *Contribution: section on star formation history : conceptualisation, methodology, data analysis; discussions; writing; editing & review.*

2023 **[12]** Kukstas, E.; Balogh, M.; [...] **Sarron, F.** [...], **2023, MNRAS, 518, 4782**.
GOGREEN: A critical assessment of environmental trends in cosmological hydrodynamical simulations at $z \simeq 1$. *Contribution: co-author as a GOGREEN collaboration member; discussions; editing & review*

2022 **[11]** Baxter, D.; Cooper, M.; [...] **Sarron, F.** [...], **2023, MNRAS, 515, 5479**.
The GOGREEN survey: constraining the satellite quenching time-scale in massive clusters at $z > 1$. *Contribution: co-author as a GOGREEN collaboration member; discussions; editing & review*

2022 **[10]** Chu, A.**; Sarron, F.**; Durret, F; Márquez, I, **2022, A&A, 666, A54**.
Physical properties of more than one thousand brightest cluster galaxies detected in the Canada-France-Hawaii Telescope Legacy Survey. *Contribution: methodology, software and validation of the probabilistic approach; writing (methods & discussions); editing & review*

2021 **[9] Sarron, F.;** Conselice, C., **2021, MNRAS, 506, 2136**.
DETECTIFz galaxy groups in the REFINE survey - I. Group detection and quenched fraction evolution at $z < 2.5$

2020 **[8]** Adami, C.; **Sarron, F.;** Martinet, N. and Durret, F., **2020, A&A, 639, A97**.
Candidate fossil groups in the CFHTLS: a probabilistic approach. *Contribution: Contribution: methodology, software and validation of the probabilistic approach; data reduction, writing (methods & discussions); editing & review*

2020 **[7]** Kuchner U.; Aragón-Salamanca A.; Pearce F.; Gray M.; Rost A.; Mu C.; Welker C.; Cui W.; Haggar R.; Laigle C.; Knebe, A.; Kraljic K.; **Sarron F.** and Yepes G. , **2020, MNRAS, 494, 5473**.
Mapping and characterisation of cosmic filaments in galaxy clusteroutskirts: Strategies and forecasts for observations from simulations. *Contribution: discussions; editing & review*

2019 **[6]** Darragh-Ford, E.; Laigle, C.; Gozaliasl, G.; Pichon, C.; Devriendt, J.; Slyz, A.; Arnouts, S.; Dubois, Y.; Finoguenov, A.; Griffiths, R.; Kraljic, K.; Pan, H.; Peirani, S.; **Sarron, F.**, **2019, MNRAS, 489, 5695**.
Group connectivity in COSMOS: a tracer of mass assembly. history*Contribution: discussions; editing & review*

2019 **[5]** **Sarron, F.**; Adami, C.; Durret, F. and Laigle, C., **2019 A&A, 632, A49**.
Pre-processing of galaxies in cosmic filaments around AMASCFI clusters in the CFHTLS.

2019 **[4]** Euclid Collaboration, Adam, R.; Vannier, M.; Maurogordato, S.; Biviano, A.; [...] **Sarron, F.** [...], **2019, A&A, 627, A23**.
Euclid preparation III. Galaxy cluster detection in the wide photometric survey - performance and algorithm selection. *Contribution : co-author as a developer of one of the competing codes; data analysis (cluster detection)*

2018 **[3]** **Sarron, F.**; Martinet, N.; Durret, F. and Adami, C., **2018, A&A, 613, A67**.
Evolution of the cluster optical galaxy luminosity function in the CFHTLS: breaking the degeneracy between mass and redshift

2016 **[2]** Martinet, N.; Clowe, D.; Durret, F.; Adami, C.; Acebrón, A; Hernandez-Garciá, L.; Márquez, I.; Guennou, L.; **Sarron, F.** and Ulmer, M., **2016, A&A, 590, A69**.
Weak lensing study of 16 DAFT/FADA clusters: Substructures and filaments. *Contribution: Methodology and software development (optical density maps)*

2016 **[1]** Durret, F.; Márquez, I.; Acebrón, A.; Adami, C.; Cabrera-Lavers, A.; Capelato, H.; Martinet, N.; **Sarron, F.** and Ulmer, M., **2016, A&A, 588, A69**.
Searching for filaments and large-scale structure around DAFT/FADA clusters. *Contribution: Methodology and software development (optical density maps), writing (Methods); editing & review*

Contributions in biophysics

2023 Merle, T.; Theis, S.; Kamgoué A.; Martin, E.; **Sarron, F.**; [...] Suzanne, M., **2023, Developmental Cell, Oct 23;58(20)**.
DISSECT is a tool to segment and explore cell and tissue mechanics in highly deformed 3D epithelia *Contribution: Methodology and software development (image and network analysis), writing (Methods); editing & review*

2022 Nguyen, M.; Merle, T.; [...] **Sarron, F.** [...], **2022, Front. Cell Dev. Biol, 10**.
Mechano-biochemical marine stimulation of inversion, gastrulation, and endomesoderm specification in multicellular Eukaryota. *Contribution: Methodology and software development (image analysis), editing & review*

Conference Proceedings

2021 **Sarron, F.;** Conselice, C., *Talk*, **Galaxy Cluster Formation II (GCF 2021)** - Virtual Workshop, held 14-18 June, 2021, id.55.
Galaxy groups up to $z < 2.5$ in deep near-infrared surveys : detection and quenched fractions

2017 **Sarron, F.;** Martinet, N.; Adami, C. and Durret, F., *Poster*, **Galaxy Evolution Across Time**, Proceedings of a conference held 12-16 June, 2017 in Paris, id. 22.
Evolution of the cluster optical galaxy luminosity function in the CFHTLS

Seminars

2023 **Mini Workshop**, *Workshop : Introduction to the JAX library in the GAHEC group*, Toulouse, France.

2022 **Seminar**, *"Séminaire Galaxies" at IAP*, Paris, France.

2022 **Seminar**, *GAHEC seminar at IRAP*, Toulouse, France.

2019 **Seminar**, *GAHEC seminar at IRAP*, Toulouse, France.

2017 **Seminar**, *"Café-Club" GECO-LAM*, Marseille, France.

Conferences, workshops

2023 **Invited Talk**, *The Baryon Cycle of Protocluster Galaxies*, Leiden, Pays-Bas.

2023 **Talk**, *ESO workshop : A journey through galactic environments*, Porto Ercole, Italie.

2023 **Talk**, *Journées de la SF2A 2023*, Session "Amas et groupes de galaxies dans l'ère des grands relevés", Strasbourg, France.

2022 **Poster**, *STScI : Galaxy Clusters 2022*, Virtual workshop, US.

2021 **Talk**, *Euclid UK annual meeting*, London, UK.

2021 **Talk**, *workshop 'Galaxy Cluster Formation II (GCF 2021)''*, Virtual workshop.

2020 **Talk**, *Euclid France annual meeting*, Toulouse, France.

2019 **Talk**, *Euclid UK annual meeting*, London, UK.

2019 **Poster presentation**, *Workshop : "The Cosmic Web : from galaxies to cosmology"*, Edinburgh, UK.

2017 **Invited Talk**, *workshop "Galaxy groups and clusters II: Laboratories to study galaxy evolution"*, La Serena, Chile.

2017 **Poster presentation**, *conference "Galaxy clusters across cosmic time"*, Aix-en-Provence, France.

2017 **Poster presentation**, *conference "Galaxy evolution across cosmic time"*, Paris, France.
invested in the LOC

2016 **Workshop**, *attended "The Physics of Groups and Galaxy Properties therein"*, Paris, France.

2016 **Workshop**, *attended "High Redshift (proto)clusters: anecdotal or important phases?"*, Paris, France.

2016 **Poster presentation**, *conference "Hot spots in the XMM sky: Cosmology from X-ray to radio"*, Mykonos, Greece.