François Mernier, Ph.D.

ESA Research Fellow (European Space Agency)

European Space Research & Technology Centre (ESTEC) Keplerlaan 1, NL-2201 AZ Noordwijk (The Netherlands)

Phone: +31 71 565 6299 Email: françois.mernier@esa.int

URL: https://www.francoismernier.com

(ESA Cosmos: https://www.cosmos.esa.int/web/personal-profiles/francois-mernier)

Persons of reference:

• Prof. Jelle S. Kaastra (Leiden Observatory) – kaastra@strw.leidenuniv.nl

• Dr. Norbert Werner (MTA-Eötvös University Lendület) – wernernorbi@gmail.com

• Dr. Jelle de Plaa (SRON Netherlands Institute for Space Research) – j.de.plaa@sron.nl

Born: June 27, 1989 – Brussels, Belgium

Nationalities: Belgian, French

Current position

ESA Research Fellow, ESTEC (Mentor: Dr. Matteo Guainazzi)

(Noordwijk, The Netherlands)

Past positions

2017-2019 Postdoctoral Researcher, MTA-Eötvös University (Mentor: Dr. Norbert Werner)

(Budapest, Hungary)

2017-2017 Postdoctoral Researcher, Leiden University (Mentor: Prof. Jelle S. Kaastra)

(Leiden, The Netherlands)

Skills

Areas of specialization

X-ray spectroscopy – Clusters/groups of galaxies – Intracluster medium – Chemical enrichment – XMM-Newton

Computing skills

Expert SPEX - XMM-Newton SAS

 $Good \qquad UNIX\ console - BASH - Fortran\ 90 - Python - matplotlib - \LaTeX XSPEC - HEAsoft$

- SAO ds9

 $Intermed. \quad Linux-Mac\ OS-Windows-Inkscape-GIMP-C$

 $\operatorname{Basic} \qquad \qquad HTML-C++$

LANGUAGES

Fluent French - English

Intermed. Dutch

Education

2013-2017 PhD in High-energy Astrophysics, Leiden University/SRON

(Leiden/Utrecht, The Netherlands)

2010-2012 MSc in Space Sciences, University of Liège

(Liège, Belgium) – Magna Cum Laude

2007-2010 BSc in Physics, Université Libre de Bruxelles

(Brussels, Belgium) – Cum Laude

2001-2007 HIGH SCHOOL in Latin-Mathematics, Lycée Émile Jacquain

(Brussels, Belgium) – Cum Laude

Grants, honors & awards

71th Netherlands Astronomy Conference - Poster Prize: Laureate

2006 Orthograph Championship (French): Laureate

Conferences, Colloquia & Workshops

INVITED TALKS

June 2019 "Chemical abundances in the hot atmospheres of galaxy clusters, groups, and elliptical galaxies", Astrophysics of Hot Plasmas in Extended X-ray Sources, ESAC, Madrid (Spain)

March 2018 "Spatial distribution of metals in the intracluster medium", SnowCluster 2018: The Physics of Galaxy Clusters, Snowbird, Utah (USA)

Nov. 2017 "Elemental abundances and chemical enrichment in the intracluster medium", Clusters of Galaxies: Physics and Cosmology – International Space Science Institute (Workshop), Bern (Switzerland)

CONTRIBUTED TALKS

- July 2019 "Chemical abundances and enrichment in the intracluster medium", Tracing Cosmic Evolution with Clusters of Galaxies, Sexten (Italy)
- March 2019 "Chemical enrichment of the atmospheric gas in clusters, groups, and massive galaxies",

 Physics of the Intra-Cluster Medium: Theory and Computation, Budapest (Hungary)
- June 2017 "Radial distribution of metals in the hot intra-cluster medium as observed by XMM-Newton", The X-ray Universe 2017, Rome (Italy)
- April 2017 "Radial metal abundance profiles in the intra-cluster medium of cool-core clusters, groups, and ellipticals", *Physics of the Intra-Cluster Medium*, Beijing (China)
- May 2016 "CHEERS! The origin of heavy elements in galaxy clusters", SRON Science Days, Dalfsen (The Netherlands)
- July 2015 "The CHEERS project", The Metal Enrichment of Diffuse Gas in the Universe, Sexten (Italy)
- May 2015 "CHEERS: Chemical enrichment in the hot gas of galaxy clusters seen through XMM-Newton EPIC", Spectroscopy of Cosmic Plasma in the Era of ASTRO-H, Tokyo (Japan)
- June 2014 "An XMM-Newton view of Abell 4059", The X-ray Universe 2014, Dublin (Ireland)

Colloquia & seminars

- May 2018 "Elemental abundances and chemical enrichment in the hot intracluster medium", *Hiroshima University Seminar*, Hiroshima (Japan)
- May 2018 "Understanding the chemical enrichment pattern in the hot haloes of massive ellipticals, groups, and clusters of galaxies", *Kavli IPMU Colloquium*, Tokyo (Japan)
- March 2018 "From supernovae to galaxy clusters: Chemical enrichment in the hot intracluster medium", Lowell Observatory Colloquium, Flagstaff, Arizona (USA)
- Feb. 2018 "Elemental abundances and chemical enrichment in the intracluster medium", *IRAP Seminar*, Toulouse (France)
- April 2017 "From supernovae to galaxy clusters: Observing the chemical enrichment in the intracluster medium", *PhD Colloquium*, Leiden (The Netherlands)
- Jan. 2017 "From supernovae to galaxy clusters: Chemical enrichment of the intra-cluster medium seen by XMM-Newton", Ortvay Colloquium, Budapest (Hungary)
- Dec. 2013 "Probing chemical abundances in Abell 4059 using XMM-Newton", Argelander Institut für Astronomie Seminar, Bonn (Germany)

Posters

- Sept. 2019 "Metals in the intracluster medium", X-ray astronomy 2019: Current Challenges and New Frontiers in the Next Decade, Bologna (Italy)
- Sept. 2018 "Abundance measurements in the intracluster medium: Consequences of spectral code improvements", Exploring the Hot and Energetic Universe: The second scientific conference dedicated to the Athena X-ray observatory, Palermo (Italy)
- Sept. 2017 "Radial distribution of metals in the intra-cluster medium", The power of X-ray spectroscopy, Warsaw (Poland)
- Dec. 2016 "Radial metal abundance profiles in the hot intra-group and intra-cluster medium",

 The Physics of Groups and Galaxy Properties therein, Paris (France)
- May 2016 "Chemical enrichment in the hot intra-cluster medium seen with XMM-Newton/EPIC", XMM-Newton: The next decade, ESAC, Madrid (Spain)
- May 2016 "The origin of heavy elements in galaxy clusters", 71th Netherlands Astronomy Con-

ference, Nunspeet (The Netherlands)

- May 2015 "An XMM-Newton study of temperatures and abundances in Abell 4059", 70th Netherlands Astronomy Conference, Nunspect (The Netherlands)
- Sept. 2013 "Chemical enrichment in clusters of galaxies from the XMM/Suzaku to the ASTRO-H era", 4th ASTRO-H summer school, Shuzenji (Japan)

Teaching & Outreach

- "Astronomy on Tap Budapest" (co-organiser)
- High energy astrophysics (guest lecturer), MSc level, Eötvös University
- 2018-2019 Co-supervising BSc student (Anna Görgei): BSc thesis, Eötvös University
- 2017-2018 Co-supervising BSc student (Ádám Boldog): BSc thesis, Eötvös University
- Sum. 2015 Co-supervising BSc student (Sinancan Kara): BSc thesis, SRON/Bogazici University
- 2014-2015 High energy astrophysics (Teaching assistant), MSc level, Leiden Observatory
- 2011-2013 Private student tutoring (Mathematics; physics), high school level, Brussels
- 2007-now Astronomy camp (teaching & animating, high school level), "Jeunesse et Science ASBL", Modave (Belgium)

OUTREACH TALKS

- July 2019 "Clusters of galaxies... and the surprises of their spectacular hot atmospheres", Astronomy on Tap Budapest, Budapest (Hungary)
- April 2019 "The dark side of matter", Astronomy on Tap Budapest, Budapest (Hungary)
- Dec. 2018 "Pluto (and the borders of the Solar System)" (in French), Jeunesse et Science, Modave (Belgium)
- Dec. 2017 "Stellar nucleosynthesis" (in French), Jeunesse et Science, Modave (Belgium)
- Jan. 2017 "A journey to the stars" (in French), Heydeken rest home, Brussels (Belgium)
- April 2016 "Clusters of galaxies" (in French), Jeunesse et Science, Modave (Belgium)
- Aug. 2014 "Clusters of galaxies" (in French), Jeunesse et Science, Modave (Belgium)
- April 2013 "Massive stars" (in French), Jeunesse et Science, Modave (Belgium)
- Aug. 2012 "The Sun across time" (in French), Jeunesse et Science, Modave (Belgium)
- Aug. 2011 "Dark matter" (in French), Jeunesse et Science, Modave (Belgium)
- Aug. 2010 "Death of stars" (in French), Jeunesse et Science, Modave (Belgium)
- April 2008 "Black holes" (in French), Jeunesse et Science, Modave (Belgium)

Service to the department

2019	Webmaster of	of the	Lendület H	lot	Universe	Research	Group	website,	Budap	est
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- March 2019 LOC member of the "Physics of the Intra-Cluster Medium: Theory and Computation" conference, Budapest
- 2014-2017 Chair/organiser of regular "Galaxy clusters meetings", Leiden Observatory
- 2014-2015 Organizer of the colloquium dinner events, SRON
- 2014-2017 Member of the "Social committee", Leiden Observatory
- 2013-2014 Online update of arXiv preprints, Leiden Observatory website

Last updated: November 20, 2019