

# Curriculum Vitae of Alex Lobel

## General Information

<b>Name</b>	Alex Jan Lobel
<b>Date of Birth</b>	04/01/1966
<b>Place of Birth</b>	Brussels
<b>Gender</b>	M
<b>Nationality</b>	Belgian
<b>Work Address</b>	Royal Observatory of Belgium, Ringlaan 3, 1180 Brussels
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## Education

Degree	University	Year
MSc Physics	Free Univ. Brussels	1989
MSc Computer Science	Free Univ. Brussels	1990
PhD Physics	Free Univ. Brussels	1997

## Employment

- **Dec 2005** – Work Leader at the Royal Observatory of Belgium, Department of Astronomy and Astrophysics.
- **Jan 1999** – **Sep 2005** Astrophysicist at Harvard-Smithsonian Center for Astrophysics, Smithsonian Institution - Astrophysical Observatory, Cambridge, MA, USA.
- **Oct 1997** – **Dec 1998** Postdoctoral Research Assistant at The Armagh Observatory, Armagh, Northern Ireland, UK.
- **Oct 1993** – **Sep 1997** Research Fellow of the Research Foundation – Flanders at Free Univ. Brussels.
- **Oct 1990** – **Sep 1993** PhD student of the Netherlands Organization for International Cooperation in Higher Education (NUFFIC) at the Space Research Organization Netherlands SRON – Utrecht.

## Scientific Publications

A complete overview of publications (with links in ADS: Astrophysics Data System) in international scientific journals with peer review, and of communications at international scientific conferences is available at [alobel.freeshell.org/publ.html](http://alobel.freeshell.org/publ.html).

## Contributions to Scientific Conferences

A complete overview of oral and poster contributions at national and international scientific conferences, workshops, and seminars (including multimedia material of the presentation) is available at [alobel.freeshell.org/conf.html](http://alobel.freeshell.org/conf.html) sorted by year.

## 1. Vitae

Dr. Alex Lobel is a physicist in astrophysical scientific research. Over the past 3 decades, he has conducted international scientific research at universities and observatories in Belgium, the Netherlands, the UK, and the USA. He obtained his doctoral degree in 1997. His research mainly focuses on advanced studies of radiative hydrodynamics and the transport of radiation in astronomical objects. This includes, among others, the calibration, physical interpretation, and detailed theoretical modelling of astrophysical line spectra observed with ground-based and space telescopes. He develops highly specialized numerical computer programs for the quantitative analysis of stellar spectra in combination with advanced hydrodynamics simulations. Dr. Lobel has a list of international scientific publications since 1992. He is part of national and international research networks, has experience with university teaching in physics, and with the daily supervision of MSc and PhD students as co-supervisor at research institutions at home and abroad. He worked as principal investigator with the Hubble and FUSE space telescopes at Harvard SAO-CfA (USA), based on competitive project funding by NASA. He organizes international scientific conferences, gives lectures and public talks at national and international meetings, and contributes to institutional press and news releases about published research results. Since 2005, he is employed as Work Leader at the Royal Observatory of Belgium.

### **Senior Astronomer (Royal Observatory of Belgium)**

Dr. Lobel investigates the physical properties, chemical composition, and dynamics of the internal structure of stellar atmospheres and winds. He implements advanced numerical radiative transfer algorithms (e.g., the Wind3D code) for the detailed modeling of spectral lines observed in massive stars and binaries. He was Coordinator of the Belspo BRAIN-be funded networking project for the development of a public spectral and atomic database – BRASS (The Belgian Repository of Fundamental Atomic Data and Stellar Spectra). Dr. Lobel was co-promotor of a doctoral thesis at the Univ. of Leuven funded by the BRASS project (2015–2019). He is leader of a work package of the Data Processing and Analysis Consortium for data processing of the Gaia cornerstone mission of the European Space Agency. Dr. Lobel was the Belgian Partner (2019–2024) in the Horizon 2020 Marie-Curie project POEMS (Physics of Extreme Massive Stars) of the European Commission. He was supervisor of a Belspo Belgian-Ukraine post-doctoral project at the ROB in 2023 – 2024. He has been Guest Investigator of various observing programs with the Space Telescope Imaging Spectrograph aboard the NASA/ESO Hubble Space Telescope, and with the Far Ultraviolet Spectroscopic Explorer satellite. He has organized and chaired international scientific meetings (GREAT-ESF 2011; ESA-Gaia CU8 2015) about research in quantitative spectroscopy, and was main editor of its peer-reviewed conference proceedings. More detailed scientific information about his ongoing research at the Royal Observatory of Belgium is available at [alobel.freeshell.org/research.html](http://alobel.freeshell.org/research.html).

### **Postdoctoral Research (Harvard SAO-CfA, USA and Armagh Obs., UK)**

During his postdoctoral fellowships abroad, Dr. Lobel studied the modeling of radiative transfer and the dynamics of dust shells around asymptotic giant branch stars using optical and infrared spectra. He developed advanced atmospheric models based on the transport of radiation through the photosphere, chromosphere, and transition region of giant and supergiant stars, and of dwarf novae, using ultraviolet spectra observed at high resolution by the Hubble Space Telescope, the Far Ultraviolet Satellite Explorer, and ground-based telescopes. Additionally, he conducted theoretical and numerical research into the natural upper limit for the luminosity of the most massive stars. He investigated the physical properties of stellar atmospheric plasmas through detailed multi-dimensional hydrodynamic simulations. His NASA-funded research projects (1999–2005)

studied the physical mechanisms for driving and heating very extended atmospheres and winds in hot and cool massive stars. In the USA and Belgium he has held a press conferences with positive attention from the media.

### PhD in Sciences (Free Univ. Brussels) – Dissertation

Lobel, A., 1997, *Pulsation and Atmospheric Instability of Luminous F and G-type Stars; the Cool Hypergiant Rho Cassiopeiae*, 121 p, ISBN 90-423-0014-0, Shaker Publishing, Maastricht, Netherlands. PhD dissertation in Sciences, Free Univ. Brussels. Advisor: Prof. Dr. J.-P De Greve (Free Univ. Brussels), co-advisor: Prof. Dr. C. De Jager (Univ. Utrecht - SRON, NL). [shaker.nl](http://shaker.nl)

### Doctoral Research (SRON-Utrecht, NL and Free Univ. Brussels)

Spectral monitoring of pulsating super- and hypergiant stars. Observation, calibration, and interpretation of échelle spectra. Numerical modeling of the dynamics of stellar atmospheres. Theoretical studies of the physics of stellar pulsations, chromospheric plasmas, stellar winds, atmospheric shock waves, and turbulence.

### MSc (License) Theses (Free Univ. Brussels)

1. Lobel, A., 1989, *Eccentricity Changes in Massive Binaries: WR 140*. Calculations of the orbital elements of massive Wolf-Rayet binaries under the influence of isotropic mass loss, atmospheric tides, and non-central forces, Advisor: Prof. Dr. J.-P. De Greve. [biblio.vub.ac.be](http://biblio.vub.ac.be)
2. Lobel, A., 1990, *Dynamic Infrared Thermography: Evaluation of a Method for Tumor Detection* – Implementation of image processing methods in the C programming language. Digital mammographic image segmentation based on the Karhunen–Loève transformation, Advisor: Prof. Dr. J. Cornelis. [biblio.vub.ac.be](http://biblio.vub.ac.be)

## 2. Language Skills

- **Dutch:** native
- **French:** good
- **German:** fair
- **English:** fluent

## 3. Computer Programming Skills

**Computational:** Java, C, FORTRAN, BLAS, LAPACK, OpenMP

**Scripting:** Python, NumPy, PyPI, Matplotlib, SciPy/Pyplot, Gnuplot, SuperMongo, Topcat-Stilts, IDL, Bash script, Awk, Sed, MathCad, ESO-Midas, NOAO-IRAF, Maple 11, Eclipse, Excel

**Databases:** MySQL, ADQL, PostgreSQL, DBVisualizer

**Typesetting:** LaTeX2e, Kile, Overleaf, LibreOffice: Writer & Impress, MS-Office: Word & PowerPoint

**Imaging, Video, Audio:** GNU Gimp, ffmpeg, Openshot, Audacity

**Web Publishing:** HTML, CSS, XML, Javascript, Node-JS, PHP, JSP

**Operating Systems:** Linux, UNIX, MS-Windows, MS-DOS

## 4. Experience in Professional Scientific Research and Teaching

### 4.1 Projects with Review Committee obtained for Research/Operations Funding

- A. Lobel (ROB), et al., 01/01/2019, European Commission Cordis – Horizon 2020, Marie Skłodowska-Curie Actions, MSCA-RISE-2018 - Research and Innovation Staff Exchange, Grant agreement ID: 823734, *Physics of Extreme Massive Stars*. Duration: 01/01/2019 - 31/08/2024. Allocated budget: 46,000 EUR. [cordis.europa.eu/project/id/823734](https://cordis.europa.eu/project/id/823734)
- A. Lobel (ROB) and P. Royer (Univ. Leuven), 10/2014, Belgian Science Policy Office, BRAIN-be 2012 - 2017, Research Project BR/143/A2/BRASS: *The Belgian Repository of Fundamental Atomic Data and Stellar Spectra – BRASS*. Duration: 15/12/2014 - 15/09/2019. Allocated budget: 526,362 EUR. [www.belspo.be](http://www.belspo.be)
- A. Lobel (ROB), 02/02/2011, European Science Foundation – Science Meetings, Gaia Research for European Astronomy Training, Grant Ref. No. 3529 for organizing a Workshop in Brussels: *Stellar Atmospheres in the Gaia Era: Quantitative Spectroscopy and Comparative Spectrum Modelling*, 23-24/06/2011. Allocated budget: 6,000 EUR.
- A. Lobel (ROB), 14/01/2011, Research Foundation – Flanders, Credit for organizing a scientific congress in Belgium: *Stellar Atmospheres in the Gaia Era*. Allocated budget: 1,325 EUR.
- A. Lobel (ROB), 09/2005, Belgian Science Policy Office - Researcher Mandates 2005: *The Physics of Co-rotating Interaction Regions in Winds of Hot Stars*. Work leader at ROB from 01/12/2005 - 01/12/2007 with operational budget: 25,000 EUR.
- A. Lobel (SAO-CfA, USA), 20/07/2004, NASA Space Telescope Science Institute Grant Award, Hubble Space Telescope Cycle 13, Guest Observer Program 10212. *A Critical Test for Radiatively Driven Hot Winds in Cool Stars*. HST-GO-10212. Allocated budget: 112,985 USD.
- A. Lobel (SAO-CfA, USA), 26/01/2004, NASA Far Ultraviolet Satellite Explorer Grant Award. FUSE Cycle 5, Guest Investigator Program E068. *Wind Acceleration Mechanism of Cool Supergiants*. FUSE-GI-E068. Allocated budget: 35,000 USD.
- A. Lobel (SAO-CfA, USA), 05/02/2003, NASA Far Ultraviolet Satellite Explorer Grant Award. FUSE Cycle 4, Guest Investigator Program D107. *Modeling Transition Region Wind Dynamics of F-type Supergiants*. FUSE-GI-D107. Allocated budget: 26,600 USD.
- A. Lobel (SAO-CfA, USA), 16/10/2002, NASA Space Telescope Science Institute Grant Award. Hubble Space Telescope Cycle 11, Guest Observer Program 09369. *A Direct Test for Dust Driven Wind Physics*. HST-GO-09369. Allocated budget: 138,685 USD.

## 4.2 Contributions to Scientific Juries and Research Committees

- Co-advisor of Mr. M. Laverick (Univ. Leuven & ROB) for Academic Dissertation: *Fundamental Atomic Deduced using Stellar Spectroscopy*, Public Defense of 10/09/2019, Faculty of Science, Inst. for Astronomy, Univ. Leuven. [www.kuleuven.be](http://www.kuleuven.be)
- External jury member for Mr. E. Lee (Univ. Leuven) for Academic Dissertation: *Current Sheets and Particle Acceleration in Turbulent Solar and Space Plasma*, Public Defence of 29/06/2012, Faculty of Science, Center for Plasma Astrophysics, Univ. Leuven. [www.kuleuven.be](http://www.kuleuven.be)
- Coordinator and responsible for Belspo BRAIN-be Networking project: *The Belgian Repository of Fundamental Atomic Data and Stellar Spectra – BRASS* (2015-2019). Chair of annual committee meetings at ROB with BRASS Partner Inst. [www.belspo.be](http://www.belspo.be)
- Belgian Partner of EC – Horizon 2020: *Physics of Extreme Massive Stars* - POEMS project at ROB (2019-2024). Responsible for workpackages 1, 3 & 5, and secondments between ROB and Univ. Valparaíso, Chile. Participation in POEMS Partners Committee Meetings, contributions to scientific and financial reporting to European Commission Project Office. [cordis.europa.eu](http://cordis.europa.eu)

## 4.3 Funding for Employment and Secondments to ROB of Project Researchers

External funding competitively obtained for scientific research projects at the ROB for supporting employment and for working visits of guest researchers:

- **Dr. N. Gorlova:** supervision at ROB as postdoctoral researcher in 10/2023 – 10/2024 for the Belgium-Ukraine Post-doctoral program of the Belgian Federal Science Policy Office. *Binarity and Winds in Massive Stars*.
- **Dr. P. Van Hoof:** employment at ROB as postdoctoral researcher in 2017-2019 for the BRAIN-be BRASS project at ROB. *Analysis of standard stellar spectra from the Mercator-HERMES and ESO-VLT-UVES spectrographs*.
- **Mr. M. Laverick:** co-advisor (2015-2019) of BRAIN-be BRASS PhD student of Univ. Leuven and ROB supported by the BRAIN-be BRASS project. PhD awarded by Univ. Leuven 10/09/2019: *Fundamental Atomic Deduced using Stellar Spectroscopy*.
- **Mr. A. Gormaz:** supervision of PhD student of Univ. Valparaíso (Chile) from 03/03/2019 to 06/05/2019 supported by EC-POEMS project at ROB. PhD awarded by Univ. Valparaíso 25/11/2019. *Modeling of Mercator-HERMES spectra of late O-type stars*.
- **Prof. Dr. M. Curé:** research collaboration with Univ. Valparaíso (Chile) supported by EC-POEMS project at ROB, 24/01/2020 – 17/03/2020: *Modeling of winds of late O-type stars*; and 18/09/2023 – 27/09/2023: *Modeling of winds of massive stars*.
- **Prof. Dr. A. Christen:** research collaboration with Univ. Valparaíso (Chile) supported by EC-POEMS project at ROB, 31/01/2019 – 17/03/2020: *Calculation of periods of irregular time series with the wavelet Z-transformation*; and 18/09/2023 – 27/09/2023: *Wavelet periods from ESA-Gaia photometric time series of massive stars*.
- **Ms. D. Turis:** co-advisor of PhD student of Univ. Valparaíso (Chile), 18/09/2023 – 11/10/2023 supported by EC-POEMS project at ROB. *Calculation of stellar parameters and inclination angle of fast-rotating massive stars*.

- **Ms. N. Machuca:** co-advisor of PhD student of Univ. Valparaíso (Chile), 30/10/2023 – 29/11/2023 supported by EC-POEMS project at ROB. *Winds of massive stars: calibration of the wind momentum-luminosity and flux-weighted luminosity relations in massive stars.*
- **Mr. J. Toalá Sáenz:** visiting PhD student of Univ. Mexico (UNAM), 07/05/2009 – 31/07/2009 at ROB. *3-D modeling of the internal structure of winds of massive stars.* PhD awarded by Univ. Mexico 15/10/2014.

#### 4.4 Organizer of International Scientific Conferences

- Member of SOC and reviewer at Int. Conference: *Physics of Extreme Massive Stars*, 24–28/07/2024, Rio de Janeiro, Brazil. [stelweb.asu.cas.cz](http://stelweb.asu.cas.cz).
- Member of SOC and lecturer at Int. Summer School: *Stellar Winds and Outflows*, 3–15/09/2023, Harrachov, Czech Republic. [stelweb.asu.cas.cz](http://stelweb.asu.cas.cz).
- Member of SOC and reviewer of Int. Conference: *Hot Stars 2024: Life with Circumstellar Matter*, Almaty, Kazakhstan, 14–19/10/2024. [conf.astrokaznu.kz](http://conf.astrokaznu.kz)
- Co-organizer of Plenary Meeting No. 19 of the ESA-Gaia Data Processing and Analysis Consortium, Coordination Unit CU8: *Astrophysical Parameters* at ROB, 08–09/10/2019, with participation of 28 int. scientists.
- Co-organizer of GREAT-ESF Workshop: *Massive Stars and the Gaia-ESO Survey* at ROB, 05–07/05/2015.
- Chair and co-organizer of Plenary Meeting No. 11 of the ESA-Gaia Data Processing and Analysis Consortium, Coordination Unit CU8: *Astrophysical Parameters* at ROB, 15–16/04/2013, with participation of 34 int. scientists.
- Chair, organizer, and editor of proceedings of the GREAT-ESF Workshop *Stellar Atmospheres in the Gaia Era*, at Univ. of Brussel, 23–24/06/2011, with participation of 47 int. scientists and students. [spectre.freeshell.org/great-esf/](http://spectre.freeshell.org/great-esf/)

#### 4.5 Membership in International Research Networks

- Belgian partner of the EC Horizon 2020 MC-RISE Project: *Physics of Extreme Massive Stars – POEMS* (2019–2024). Responsible for work packages 1, 3 & 5 for contractual scientific collaboration with research institutions in non-EU countries (Chile) for doctoral and postdoctoral research.
- Responsible for work package of the ESA-Gaia Data Processing and Analysis Consortium in Coordination Unit CU6: *Spectroscopic Processing* (2017– ). Development of Java algorithms for the detection of variable stars within the ESA-Prodex program at ROB.
- Collaborator in the ESA-Gaia Data Processing and Analysis Consortium in Coordination Unit CU8: *Astrophysical Parameters* (2009– ). Development of Java algorithms for the classification of stars within the ESA-Prodex program at ROB.
- Collaborator in the ESA-Gaia Data Processing and Analysis Consortium in Coordination Unit CU8: *Gaia Archive Beta Testers Group* (2015– ). Testing of Gaia Data Archive within the ESA-Prodex program at ROB.

- Member of The Belgo-Indian Network for Astronomy and Astrophysics (BINA), a collaboration of Indian and Belgian research institutions for use of the Indo-Belgian 4.0-m ILMT and 3.6-m DOT telescopes.
- Coordinator and chair of The BRASS Team for the BRAIN-be BRASS networking project of Belspo (2014–2019). Research collaboration of ROB, Univ. Leuven, Univ. Antwerp, Univ. Libre Bruxelles, European Southern Obs. and Vereniging voor Sterrenkunde.
- Collaborator in the Gaia-ESO Survey Working Group GesWG13: *OBA Star Spectrum Analyses* (2011–2018). Data processing of the ESO-Gaia Public Spectroscopic Survey.
- Chair of working group B4: *Stellar Atmospheres* in the Gaia Research for European Astronomy Training (GREAT) network of the European Science Foundation (2009–2014).

## 4.6 Referee for Scientific Research Proposals and Publications

### Reports for research proposals submitted to foreign government institutions

- Preparation of evaluation report as external referee for a foreign scientific research proposal for funding by the Czech Science Foundation (June–Sep 2021). GAČR Project proposal No. 22-12653S. [review.gris.cz](http://review.gris.cz)
- Preparation of evaluation report as external referee for a foreign scientific research proposal for funding by the Agence Nationale de la Recherche, France, ANR - Programme Blanc, Edition 2011. [anr.fr](http://anr.fr)

### Selection of observing proposals for ESA XMM-Newton

- Preparation and discussion of 10 evaluation reports of observing proposals as member of the ESA XMM-Newton Time Allocation Committee, AO-17 Commission 10, chaired by Dr. L. Oskinova of Univ. Potsdam. Participation in the selection TAC meeting of 1–3/11/2017 in Potsdam, Germany.
- Preparation and discussion of 12 evaluation reports of observing proposals as member of the ESA XMM-Newton Time Allocation Committee, AO-16 Commission 10, chaired by Dr. M. Giusi of INAF. Participation in the TAC selection meeting of 7–9/11/2016 in Palermo, Italy.

### Peer review of manuscripts submitted to international scientific journals

Abbreviations (number; year):

ApJ (1; 2003), ApJ (1; 2004), ApJL (1; 2005), ApJ (2; 2006), PASJ (1; 2006), AJ (2; 2006), ApJ (2; 2007), JPCS Vol. 328, 2011 (editor), ApJ (1; 2012), A&A (1; 2013), A&A (1; 2014), MNRAS (1; 2014), A&A (2; 2016), Can. J. Phys (1; 2016), A&A (1; 2020), MDPI Atoms (1; 2020), MNRAS (1; 2022), A&A (1; 2023), A&A (1; 2024), Nature Science Rep. (1; 2024)

## 4.7 Development of Scientific Open Access Databases

- *The Belgian Repository of fundamental Atomic Data and Stellar Spectra* – BRASS. Regularly updated since 2016. [brass.sdf.org](http://brass.sdf.org)
- *SpectroWeb – The Interactive Database of Spectral Standard Star Atlases*. Regularly updated since 2005. [spectra.freeshell.org](http://spectra.freeshell.org)

## 4.8 Experience with Academic Teaching

Assistant for weekly exercise sessions for MSc students, Physics Exercises, Free Univ. Brussels, 10/1993 – 10/1995.

## 4.9 Supervision of Astronomy Student Internships

Supervision of internships for domestic and foreign university (pre-doctoral) students:

<b>Student's affiliation</b>	<b>Year</b>	<b>Name</b>	<b>Host Inst.</b>
MSc Univ. Athens, GR	1997	Ms. A. Mavrogiorgou	VUB, Erasmus prog.
MSc Queen's Univ. Belfast, UK	1998	Mr. C. Power	Armagh Obs., UK
MSc Harvard Univ., USA	2004	Mr. M. Povich	SAO-CfA, USA
Summer student ROB	2007	Mr. P. De Poorter	ROB
MSc Univ. Mexico, MX	2009	Mr. J. A. Toalá-Sánz	ROB
MSc Univ. Leuven, B	2010	Mr. T. Hendrix	ROB
BSc Univ. Liège, B	2012	Ms. A. Schillings	ROB
MSc Univ. Ghent, B	2013	Ms. T. Geldof	ROB

## 4.10 Secondments and Research Visits at International Research Institutions

- From ROB, 1 month secondment and lectures at Univ. of Valparaíso, CL, for collaboration with Prof. M. Curé on *Modelling of Hot Star Winds*, and with Prof. A. Christen on *Periods of O-type supergiant Stars* in the framework of EC-POEMS project, 02/05/2024–02/06/2024.
- From ROB, research visit at Univ. College London – Mullard Space Science Laboratory, Dorking, UK, for collaboration with Drs. K. Benson and G. Seabroke of ESA-Gaia DPAC on *CU6-Multi Transit Analysis – Non Constancy Detection*, 19–21/03/2018.
- From ROB, research visit and seminar at Univ. of Potsdam, D, for collaboration with Dr. L. Oskinova on *High-mass X-ray Binaries*, 01–03/11/2017.
- From ROB, research visit and seminar at Tartu Obs., EE, in preparation for EC MC-RISE *Physics of Extreme Massive Stars* int. collaboration project, 10–16/09/2017.
- From ROB, research visit at Univ. of Leiden, NL, for collaboration with Prof. Dr. A. Van Genderen on *Long-term Monitoring of Four Yellow Hypergiants*, 18/11/2015.
- From ROB, research visit and seminar at Univ. of Florida, USA, for collaboration with Dr. N. Gorlova on *Near-IR Observations of Yellow Hypergiants*, 16–23/11/2008.
- From Armagh Obs., research visit and seminar at Vienna Obs., Vienna, AT, for collaboration with Dr. S. Bagnulo on *Modelling the Circumstellar Environments of Evolved Stars*, 10–15/06/1998.
- From Free Univ. Brussels, research visit at Nicolaus Copernicus Astronomical Center, Toruń, PL, for collaboration with Mr. M. Smidt on *Spectroscopy of Yellow Hypergiants*, 17–22/11/1995.

## 4.11 Experience with Observing Missions

- Mercator Telescope, La Palma, Spain. Responsible for observations by ROB with the HERMES spectrograph, 12–22/11/2012.

- Nordic Optical Telescope, La Palma, Spain. Responsible for observations with the SOFIN spectrograph, 01–11/10/1998 and 24/05–04/06/1999.

#### 4.12 Membership in International Scientific Organizations

- European Astronomical Society, EAS, Versoix, CH
- International Astronomical Union, IAU, Paris, FR
- American Astronomical Society, AAS, Washington DC, USA
- Royal Dutch Astronomical Society, KNA, Utrecht, NL

### 5. Science Prize

- The Gaia Collaboration received the 2023 Lancelot M. Berkeley Prize on 12/01/2023 during the annual meeting of the American Astronomical Society in Seattle, USA.  
Award citation: *"Gaia's three data releases will long be regarded as major events in the history of astronomy, triggering a global partnership to better understand the origin, structure, and destiny of our home galaxy."* [www.cosmos.esa.int](http://www.cosmos.esa.int)

## 6. Scientific Outreach

### 6.1 Scientific Expertise Provided to Governmental Institutions

- A. Lobel, preparation of evaluation reporting as external referee for a foreign scientific research proposal for funding by the Czech Science Foundation (June–September 2021). GAČR Project proposal No. 22-12653S. [review.gris.cz](http://review.gris.cz)
- A. Lobel and the BRASS Team, Belspo documentation – description and final report of the BRAIN-be (Belgian Research Action through Interdisciplinary Networks) Project BR/143/A2/BRASS, *The Belgian Repository of fundamental Atomic data and Stellar Spectra* at ROB and Univ. Leuven, 15/12/2014 – 15/03/2019, Publication of the Federal Science Policy Office – Belspo in 2020. [www.belspo.be](http://www.belspo.be)
- A. Lobel, preparation and 2-d discussion sessions of 10 evaluation reports of observing proposals as member of the ESA XMM-Newton Time Allocation Committee, AO-17 Commission 10, chaired by Dr. L. Oskinova of Univ. Potsdam. Participation in the selection TAC meeting of 1–3/11/2017 in Potsdam, Germany.
- A. Lobel, preparation and 2-d discussions of 12 evaluation reports of observing proposals as member of the ESA XMM-Newton Time Allocation Committee, AO-16 Commission 10, chaired by Dr. M. Giusi of INAF. Participation in the TAC selection meeting of 7–9/11/2016 in Palermo, Italy.
- A. Lobel, presentation of a ROB Research Proposal for Sustainable Development: Migration and Sustainable Development of the SpectroWeb Database, at the Cabinet of the Minister of FOD Economy, Brussels on 29/01/2013.

- A. Lobel, preparation of an evaluation report as external referee for a foreign scientific research proposal for funding by the Agence Nationale de la Recherche, France, ANR - Programme Blanc, Edition 2011. [anr.fr](http://anr.fr)
- A. Lobel, ROB Annual Report 2023, Astronomy and Astrophysics, *Gaia observes cosmic clock inside heavenly jewel*, p. 47; *Microturbulence Velocity in Tepid Stars*, p. 51. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2023
- A. Lobel, ROB Annual Report 2019, Astronomy and Astrophysics, POEMS: *Physics Of Extreme Massive Stars*, p. 45; *How yellow hypergiant stars repeatedly cool and heat up*, p. 47. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2019
- R. Blomme, Y. Frémat, A. Lobel, T. Pauwels, ROB Annual Report 2018, Astronomy and Astrophysics, *Gaia's Second Data Release*, p. 23. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2018
- A. Lobel, ROB Annual Report 2017, Astronomy and Astrophysics, *The Belgian Repository of fundamental Atomic Data and Stellar Spectra* (BRASS), p. 32. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2017
- A. Lobel, ROB Annual Report 2016, Astronomy and Astrophysics, *Luminous Blue Variables: an imaging perspective on their binarity and near environment*, and *Long-term spectroscopic monitoring of the Yellow Hypergiant Rho Cas*, p. 35. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2016
- A. Lobel, ROB Annual Report 2015, Astronomy and Astrophysics, *The origin of mysterious blue light near the Yellow Hypergiant HR 5171A*, p. 30.: [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2015
- A. Lobel, ORB-KSB Annual Report 2014, Astronomy and Astrophysics, *The yellow hypergiant HR5171*, p. 27. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2014
- A. Lobel, ORB-KSB Annual Report 2013, Astronomy and Astrophysics, *Winds of massive stars*, p. 32. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2013
- A. Lobel, ORB-KSB Annual Report 2012, Astronomy and Astrophysics, *Evolution of massive and luminous stars*, p. 27. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2012
- A. Lobel, ORB-KSB Annual Report 2010, I.1 *Hot Stars*, 99; *Software and Databases: The SpectroWeb Database*, p. 129; Gaia CU8: *Extended Stellar Parametrizer*, p. 138. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2010
- A. Lobel, ORB-KSB Annual Report 2009, J.1 *Hot Stars*, 104; L.3 *The SpectroWeb Database*, p. 126; M.4 *Extended Stellar Parametrizer* (CU8), p. 134. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2009
- A. Lobel, ORB-KSB Annual Report 2008, N.1 *Hot Stars*, p. 135; R. *Atomic Data for Spectral Standard Stars*, p. 155. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2008
- A. Lobel, ORB-KSB Annual Report 2007, Dep. 3: Astrophysics, A. Research Theme *Stellar Winds and Circumstellar Structures*, p. 145. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2007
- A. Lobel, ORB-KSB Annual Report 2006, Department 3: Astrophysics, A. Science Theme *Stellar Winds and Circumstellar Structures*, p. 155. [www.astro.oma.be](http://www.astro.oma.be) Annual Rep. 2006

## 6.2 Science Information Provided to the General Public

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