



International Astronomical Union
Union Astronomique Internationale

POST MEETING REPORT FORM

Deadline for Submission: within 1 month after the meeting

*The chair of the SOC of any IAU scientific meeting is responsible for preparing the [Post Meeting Report](#) using the standard form available on-line **within 1 month after the Meeting**. **The proposal must include a written commitment to abide by this requirement.***

For Symposia and Focus Meetings the following documents should be attached:

Scientific Programme

(i) Final scientific programme, list of invited review speakers and session chairs, to be published in the IAU website; in addition, should also provide the number of:

- female/male/non-specified speakers invited talks*
- female/male/non-specified invited speakers accepted*
- female/male/non-specified speakers contributed talks*

The final scientific programmes for the in-person Symposium in 2022 and the Virtual Preview meeting are attached to this report as a PDF document. The programme was severely disrupted by COVID in a number of ways that strongly affected the programme.

- We had to postpone the meeting from May 2020. It was challenging to deal with participants in March 2020 as the IAU had informed the membership of possible cancellations around the same time as asking the organisers to consider cancellations. As many costs had already been made/committed this was not very helpful.
- We held a Virtual Preview Meeting in May 2021, to give the early-career researchers the opportunity to present their work to their peers and to promote their careers.
- During 2021 we were asked to host the meeting before Feb 2022, but because of the special nature of in person meetings we felt another virtual meeting would not fulfill the aims of the meeting. We suspected that we would be able to host a “face-to-face” meeting by May 2022, and this assessment was correct.
- In May 2022 we were finally able to hold the much-awaited face-to-face meeting. Only a few of the original speakers couldn't make it at the new dates due to other commitments and a few more dropped out on shorter notice.
- The short-notice dropouts were slightly more challenging to replace. We tried hard to make sure the replacements were gender-balanced and from diverse geographical locations, but it was hard for people to plan inter-continental travel at short notice. This also meant that female replacement invitees were less likely free to travel, and as a result the replacement speakers were mostly males and from Europe.

- Thanks to the negotiated low price for shared rooms (at 55 Eur pp for Bed & Breakfast) with the Hotel many Early Career Researchers, as well as those from under-developed countries were able to afford to attend their first in-person meeting in over 2 years.
- Thanks to the IAU grant another 36 people from under-developed countries or young researchers who did not have travel funds were able to attend the meeting.

Note that we did not ask participants their gender on the registration form, and so we do not necessarily have information about persons who prefer not to specify their gender or identify as non-binary. We produced the gender breakdown as best we could based on our knowledge of the participants.

Invited Overview Speakers:

Norbert Langer, Stanley Owocki, Selma de Mink, Raphael Hirschi, Roberta Humphreys, Raffaella Schneider, Marica Branchesi, Danny Lennon (**8 total: 4 male, 4 female**)

Replacements who accepted: Alex de Koter, Volker Bromm, Nathan Smith, Stephen Smartt, Ralf Klessen

List of Invited Overview Talks:

Norbert Langer, Stanley Owocki, Selma de Mink, Raphael Hirschi, Alex de Koter, Nathan Smith, Stephen Smartt, Ralf Klessen (**8 total: 7 male, 1 female**)

List of Session Chairs: Jorick Vink, Nicole St-Louis, Dany Vanbeveren, Alceste Bonanos, Francisco Najarro, Lidia Oskinova, Morgan Fraser, Raman Prinja, Asif Ud-Doula, Heloise Stevance, Jonathan Mackey

Invited speakers (including replacement speakers, including virtual preview meeting):

Emma Beasor, Danielle Berg, Marica Branchesi, Volker Bromm, Paul Crowther, Alex de Koter, Selma de Mink, JJ Eldridge, Dawn Erb, Miriam Garcia, Ana Gomez de Castro, Lionel Haemmerlé, John Hillier, Raphael Hirschi, Roberta Humphreys, Yuri Izotov, Ralf Klessen, Norbert Langer, Danny Lennon, Ragnhild Lunnan, Joe Lyman, Raffaella Margutti, Andrea Mehner, Maryam Modjaz, Kathryn Neugent, Kazuyuki Omukai, Stanley Owocki, John Regan, Michel Rieutord, Gwen Rudie, Raffaella Schneider, Tomer Shenar, Stephen Smartt, Nathan Smith, Elizabeth Stanway, Allison Strom, Nial Tanvir, Tyrone Woods, Sung-Chul Yoon (**39 total, 17 Female, 21 Male, 1 diverse**)

Accepted invited Talks:

Emma Beasor, Danielle Berg, Paul Crowther, Alex de Koter, Selma de Mink, Miriam Garcia, Ana Gomez de Castro, John Hillier, Raphael Hirschi, Ralf Klessen, Norbert Langer, Joe Lyman, Andrea Mehner, Kazuyuki Omukai, Stanley Owocki, John Regan, Michel Rieutord, Tomer Shenar, Stephen Smartt, Nathan Smith, Elizabeth Stanway, Allison Strom, Tyrone Woods, Sung-Chul Yoon (**24 total, 8 Female, 16 Male**)

Contributed talks (including virtual preview meeting):

Michael Abdul-Masih, Mojgan Aghakhanloo, Claudia Agliozzo, David R. Aguilera-Dena, Andrew Allan, Gareth Banyard, Emma Beasor, Joachim Bestenlehner, Robin Björklund, Peter Blanchard, Alceste Bonanos, Emma Bordier, Dominic Bowman, Sarah Brands, Floor Broekgaarden, Siemen Burssens, Emily Cannon, Jeff Cooke, Ricardo Dorda, Maria Drout,

Matthias Fabry, Eoin Farrell, Damien Gagnier, Avishai Gilkis, Ylva Goetberg, Jared Goldberg, Gemma González-Torà, Kathryn Gordon, Luca Grassitelli, Goetz Graefener, Samuel Green, Maude Gull, Lionel Haemmerle, Wolf-Rainer Hamann, Calum Hawcroft, Sara (Sally) Heap, Nicholas Herrington, Erin Higgins, Anna Ho, Gonzalo Holgado, Griffin Hosseinzadeh, Wynn Jacobson-Galan, N Dylan Kee, Carolina Kehrig, Zsolt Keszthelyi, Robert Klement, Jakub Klencki, Jonathan Labadie-Bartz, Eva Laplace, Claus Leitherer, Marta Lorenzo, Thomas Madura, Laurent Mahy, Jesús Maíz Apellániz, Grigoris Maravelias, Pablo Marchant, Sébastien Martinet, Derck Massa, Sarah McDonald, Kristen McQuinn, Takashi Moriya, Laura Murphy, Ignacio Negueruela, Kathryn Neugent, Sally Oey, G. Andre Oliva, Grace Olivier, Lidia Oskinova, Rene Oudmaijer, Michelangelo Pantaleoni, Lee Patrick, Joanne Pledger, Simon Prentice, Yi Ren, Mathieu Renzo, Paul Ricker, Federico Rizzuti, Lorenzo Roberti, Anna Rosen, Sophie Rosu, Gautham Sabhahit, Andreas Sander, Fabian Schneider, Abel Schootemeijer, William Schultz, Peter Senchyna, Tomer Shenar, Heloise Stevance, Kei Tanaka, Grace Telford, Samaporn Tinyanont, Lieke van Son, Gregg Wade, Chen Wang, Aida Wofford. **(95 total including : 34 Female, 61 Male)**

Summary of Scientific Highlights

(1 page, to be published on the IAU website)

“Massive stars: Near & Far” offered the opportunity for Massive star researchers working on massive stars in the Local Universe to interact with those working on Massive stars at cosmological distances. After an opening by Prof Langer on the key outstanding questions from the birth to death of massive stars, Paul Crowther discussed the HST UV Legacy Project ULLYSES that targets Local massive stars in nearby low metallicity galaxies, such as the LMC and the SMC.

After this introduction on massive stars nearby, we moved up in redshift, where the rest-frame UV is shifted towards higher wavelengths. Allison Strom started her talk explaining the relevance of “Cosmic Noon” where star formation in the Universe peaked, and massive stars look very differently from those nearby. The Speakers on the remainder of the First day intermittently discussed observations Near & Far. The final Discussion was very lively, as it became clear that the combination of projects such as ULLYSES and CLASSY will be critical for understanding the data from the first generations of massive stars with JWST later this year.

The second & third day focussed on the physics and evolution of single & binary massive stars nearby and one Highlight was the discovery of a huge Mega-Gauss interior magnetic field at the core-envelope boundary by Dominic Bowman and collaborators from asteroseismology. It is clear that multi-dimensional simulations are helping to progress our understanding of stellar interiors and surface layers, and promise significant advances in this decade. For studying populations of massive stars and identifying unusual objects, new surveys producing huge quantities of data, together with machine learning and other analysis tools, are rapidly expanding our knowledge of stellar diversity.

On Thursday the focus shifted to the formation of massive stars, both locally and in the early Universe, including a very informative Overview talk by replacement Speaker Ralf Klessen on the First Stars. As if massive stars and very massive stars (VMS), with masses over 100 solar masses, are not sufficiently spectacular, the discussion moved on to the formation and existence of Supermassive stars of order 100,000 Solar masses, which seem to be required to explain the formation of Supermassive Black Holes already at very Early times in the Universe.

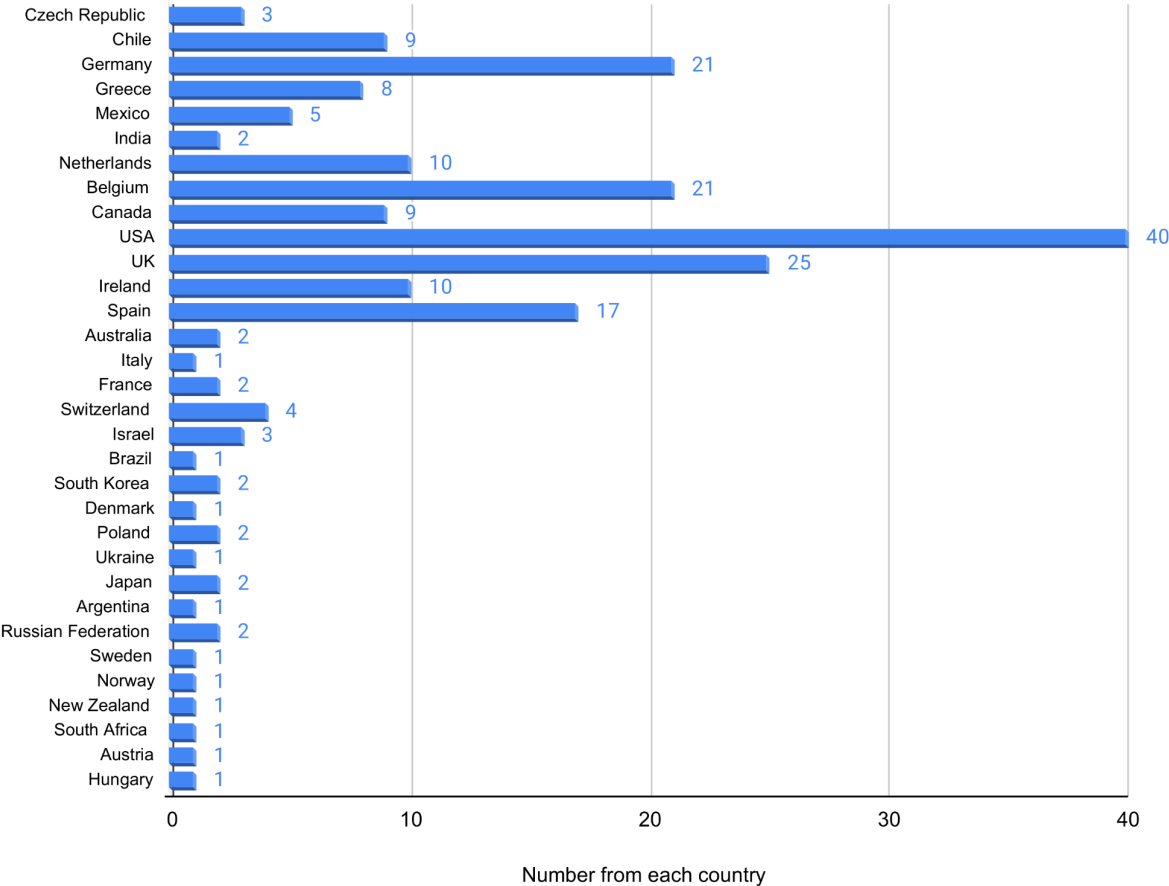
It is an exciting time for transient surveys, with new discoveries from ongoing surveys and new facilities coming online in the next few years. Strategies for dealing with the deluge of data so that they can be dealt with by humans was a recurring theme of the session on stellar end-points and gravitational waves on Thursday. On Friday morning Ana Gomez de Castro told us about the planned future UV observatories, a key waveband for observations of massive stars and currently covered only by HST.

The week ended, like the life of a massive star, but this time not as a supernova or direct collapse to a Black Hole but with a golf analogy by Alex de Koter. The Summary was both informative and entertaining and participants departed in good spirits with huge amounts of energy and new ideas, after talking to old and new colleagues and friends after a 2 year delay.

List of participants

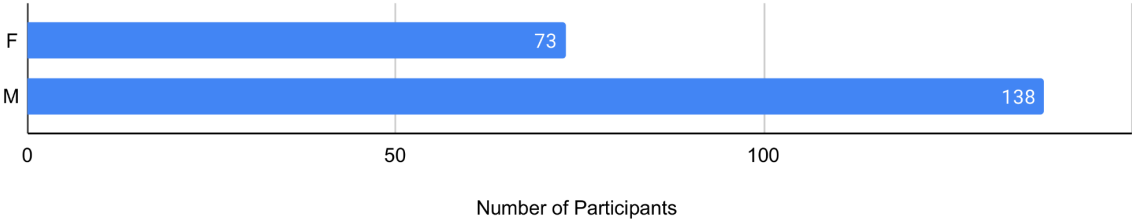
including their distribution by country and gender (double bar chart)

Participants by Country of Work



Participants by Gender

F = Female, M = Male



Note that we did not ask participants their gender on the registration form, and so we do not necessarily have information about persons who prefer not to specify their gender or identify as non-binary. We produced the gender breakdown as best we could based on our knowledge of the participants.

Executive Summary of the Meeting

IAU Symposium 361: “Massive Stars Near and Far” was originally scheduled for May 2020 but was among the first wave of meetings that had to be postponed indefinitely because of COVID-19. At the time we couldn’t imagine that all of our lives would be so fundamentally changed in the intervening period, or that it would take so long just to reschedule an international conference! During this time the LOC had two PhD graduations, one retirement, babies born and many career paths changed.

As it became clear that the pandemic would continue for some time, we decided to host a Virtual Preview Meeting in the week of 3-7 May 2021, so that the early career researchers with invited and contributed talks could finally present their research to the community. This virtual meeting was a great success, regularly having 180-200 participants logged-on for the talks, with an archive of talks on a private youtube channel for those in timezones that prevented live participation. A standout memory is Dylan Kee giving his talk live from Hawaii in the small hours of the morning, and still being awake enough to ask questions to the other speakers in the session.

The organisers are grateful to the IAU for allowing us to schedule the in-person meeting for 8-13 May 2022 and renewing the travel grant offers, enabling 35 researchers from 19 countries to come to the meeting in-person who otherwise would not have had the resources to participate. In total we had 211 participants from 32 countries representing all continents except Antarctica. The meeting was held at the Slieve Russell Hotel in Ballyconnell, Co. Cavan, Ireland, in a rural setting with almost all participants staying at the meeting hotel. The excellent conference facilities helped with social distancing and ventilation - high ceilings and a room that holds over 500 allowed us to seat everyone classroom style with generous spacing between tables. We had a large space for posters at the back of the hall, and a separate lobby area for coffee breaks and small-group discussions.

The Symposium brought together observational and theoretical astrophysicists to discuss all aspects of massive stars: their formation, evolution, demise as supernovae and GRBs, and (for the first time in this series of Massive Stars Symposia!) gravitational waves from mergers of stellar-remnant neutron stars and black holes. The special focus for this meeting was on massive stars in the early Universe, how they were born, lived and died, how they compare with massive stars in our Galaxy, how we can observe them and their imprint on the cosmos, and what we can learn from very low-metallicity galaxies in the local Universe.

The scientific sessions were:

1. Observations of massive stars near and far (Chair: Jorick Vink)
2. Stellar Atmospheres and Winds (Chair: Nicole St Louis)
3. Physical Processes in Massive Stars (Chair: Dany Vanbeveren)
4. Stellar Multiplicity (Chair: Alceste Bonanos)
5. Stellar Structure and Evolution of Single Stars (Chair: Paco Najarro)
6. Cool Supergiants (Chair: Lidia Oskinova)
7. Unsteady Mass Loss (Chair: Morgan Fraser)
8. Wolf-Rayet Stars and Stellar Feedback (Chair: Raman Prinja)
9. Massive Star Formation Near and Far (Chair: Asif Ud-Doula)
10. Stellar End-Points and Gravitational Waves (Chair: Heloise Stevance)
11. Future Instrumentation and Facilities (Chair: Jonathan Mackey)

A constant theme through the meeting was how new observing facilities are pushing the study of individual massive stars to larger distances, bringing stars in ever lower metallicity galaxies within the reach of photometric and spectroscopic studies. This raises hopes that we may not have to actually observe the first stars that formed in the Universe in order to understand how they lived and died. It was especially impressive to see great strides being made in time-domain astronomy, giving us insights that would not have been imagined even 15 years ago.

Despite the limitations imposed on us by covid, we still were able to run some of our planned public engagement and education activities related to massive stars. Deirdre Kelleghan (artist, amateur astronomer and educator) visited 4 primary schools in the Cavan area on the 9th and 10th of May, talked to them about astronomy, stars, telescopes including JWST, and the beauty of our Universe through painting and drawings. The Armagh Observatory and Planetarium generously donated their mobile planetarium and staff time for school visits on the 11th of May, a fabulous experience for the students.

There were two conference excursions, one to the Marble Arch Caves and the Cuilcagh Lakelands UNESCO Global Geopark, and the other to the seaside surfing town of Bundoran on the Wild Atlantic Way. The organisers got great feedback on both tours. The weather had not been great for the first two days, and so everyone appreciated a fresh and windy outdoor afternoon with a good walk in the hills or along the coastal cliffs, and even (for a brave few) sea swimming and surfing lessons.

During and after the meeting we received a lot of mostly positive feedback, mainly about how great it was for people to finally meet up again in-person with colleagues and friends from around the world. The conference facilities of the Slieve Russell Hotel were excellent and many people expressed surprise and delight that the B&B room rates were so reasonable for such facilities. Despite the Covid-precautions we took, we could not escape it completely with so many participants from many different countries at different levels, and as result quite a few of the participants reported to have tested positive for covid; thankfully most people had mild symptoms and as far as we know all made a complete recovery. There is no doubt that the meeting benefited from the feel-good factor of people being at a face-to-face meeting for the first time in more than 2 years, and this was reflected in the overwhelmingly positive spirit pervading the discussions, questions and answers, and social interaction throughout the week. The secluded location with a large residential conference hotel also contributed to this.

We are especially grateful to the long-serving SOC and LOC who in the end planned two in-person meetings and one virtual meeting. The SOC went through nearly 500 abstracts over the 3 years of their service for the original meeting, the virtual preview, and the rescheduled meeting. Significant in-kind support for administration and finances from the Dublin Institute for Advanced Studies (DIAS) is also greatly appreciated. Local organization was a marathon team effort from researchers and students at DIAS, Armagh Observatory and Planetarium, University College Dublin, Maynooth University and Trinity College Dublin.

Scientific Organising Committee: Paula Benaglia, Alceste Bonanos, Alex Carciofi, Sylvia Ekström, Ana Gómez de Castro, Jose Groh, Claus Leitherer, Emily Levesque, Jonathan Mackey (co-chair), Fabrice Martins, Elena Rossi, Nicole St-Louis, Jorick Vink (co-chair), Daniel Whalen, Naoki Yoshida

Local Organising Committee: Ioana Boian, Seán Brennan, Morgan Fraser, Anne Grace, Sam Green, Erin Higgins, Jonathan Mackey, Kate Maguire, Maria Moutzouri, Sophie Murray, John Regan, Gautham Sabhahit, Jorick Vink

Further information

1. Meeting Identification Number: Symposium 361
2. Meeting Title: Massive Stars Near and Far
3. Coordinating Division: G
4. Dedication of meeting (if any): we commemorated 7 respected colleagues who recently passed away
5. Location (city, country): Ballyconnell, Ireland
6. Dates of meeting: 3-7 May 2021 (virtual), 8-13 May 2022 (in-person)
7. Number of participants: 211 (in-person), 180-200 (virtual)
8. Total Amount of IAU Grant funds received (in euros): €19,300
9. Number of IAU Grant recipients:
10. List of represented countries: Germany, Switzerland, USA, UK, Australia, Ireland, Japan, Austria, France, Chile, New Zealand, Belgium, Czech Republic, Canada, Spain, Poland, Mexico, South Korea, India, Greece, Russian Federation, Argentina, Brazil, Netherlands, Hungary, Sweden, Israel, Ukraine, South Africa, Denmark, Italy, Norway.
11. Anticipated number of separate papers in the proceedings: 100
12. Report submitted by: Jorick Vink, Jonathan Mackey
13. Date and place: Armagh and Dublin, 16 June 2022
14. Signature of SOC Chairperson:



Jorick Vink



Jonathan Mackey

DAY 0: SUNDAY 8 MAY 2022			
18:30-20:00		WELCOME RECEPTION AND REGISTRATION	
DAY 1: MONDAY 9 MAY 2022			
	09:00-09:15	Organising Committee	Welcome
O	09:15-09:45	Norbert Langer	Opening talk: Key Open Questions
SESSION 1: OBSERVATIONS OF MASSIVE STARS NEAR AND FAR (Chair: Jorick Vink)			
I	09:45-10:05	Paul Crowther	ULLYSES project and complementary surveys of massive stars
I	10:05-10:25	Allison Strom	Observations of Massive Stars in High-redshift Galaxies
I	10:25-10:45	Danielle Berg	Massive stars in low-metallicity galaxies
10:45-11:30		TEA/COFFEE BREAK	
I	11:30-11:50	Miriam Garcia	Observations of low-metallicity massive stars: realistic expectations for the present and future prospects
C	11:50-12:05	Claus Leitherer	Global Properties of Star-Forming Galaxies from Ultraviolet Spectroscopy
I	12:05-12:25	Elizabeth Stanway	The Impact and Modelling of Massive Stars in Stellar Populations
C	12:25-12:40	Grace Telford	The Ionizing Spectrum of an Extremely Metal-Poor O Star Powering an HII Region
C	12:40-12:55	Marta Lorenzo	One Step closer to the First Stars: 100 OB stars in the metal-poor galaxy Sextans A
12:55-14:30		LUNCH	
C	14:30-14:45	Maude Gull	A Panchromatic Study of Massive Stars in Extremely Metal-Poor Local Group Dwarf Galaxy LeoA
C	14:45-15:00	Aida Wofford	The extreme He II emission of NGC 3125-A1 revisited at higher spectral resolution
C	15:00-15:15	Abel Schootemeijer	A census of Be stars in the Magellanic Clouds and Sextans A reveals a high fraction of extreme rotators
C	15:15-15:30	Emma Bordier	Constraining the behaviour of the youngest massive stars through interferometry
C	15:30-15:45	Jesús Maíz Apellániz	The Gaia View of Massive Stars
C	15:45-16:00	Sally Oey	Dynamical vs Supernova Acceleration of Runaway OB Stars in the Small Magellanic Cloud
16:00-16:30		TEA/COFFEE BREAK	
SESSION 2: STELLAR ATMOSPHERES AND WINDS (Chair: Nicole St Louis)			
I	16:30-16:50	John Hillier	Stellar Atmospheres and Supernovae
C	16:50-17:05	Wolf-Rainer Hamann	Spectroscopic analyses of massive stars at different metallicities
C	17:05-17:20	Joachim Bestenlehner	Next generation spectroscopic analysis for large sample of massive stars
C	17:20-17:35	Gemma González-Torà	MUSE crowded field 3D spectroscopy in NGC 300 II. Quantitative spectroscopy of BA-type supergiants
	17:35-18:05	DISCUSSION: Claus Leitherer	Open discussion on Massive Star Observations Near versus Far
18:05-19:30		POSTER SESSION	
DAY 2: TUESDAY 10 MAY 2022			
SESSION 3: PHYSICAL PROCESSES IN MASSIVE STARS (Chair: Dany Vanbeveren)			
O	09:00-09:30	Stanley Owocki	Overview of physical processes: mass loss, pulsations and magnetism
C	09:30-09:45	Derck Massa	Wind line variability and intrinsic errors in observational mass loss rates
C	09:45-10:00	Matteo Cantiello	Turbulent Phenomena at the Surface of Massive Stars
C	10:00-10:15	Jared Goldberg	Convective Properties of 3D Red Supergiant Envelopes and the Imprint on Supernova Shock Breakout
C	10:15-10:30	Siemen Burssens	Asteroseismology of the high-mass pulsator HD192575: an important anchor of angular momentum transport in massive star evolution
C	10:30-10:45	Fabian Schneider	Stellar mergers as the origin of magnetic massive stars
10:45-11:15		TEA/COFFEE BREAK	
C	11:15-11:30	Gregg Wade	The metallicity dependence of stellar magnetism: multitechnique, multiwavelength exploration of hot magnetic stars in the Magellanic Clouds
C	11:30-11:45	Dominic Bowman	Asteroseismology reveals the near-core magnetic field strength in the early-B main-sequence star HD 43317
SESSION 4: STELLAR MULTIPLICITY (Chair: Alceste Bonanos)			
O	11:45-12:15	Selma de Mink	Evolution of massive binary systems
C	12:15-12:30	María Drout	Identification of a Population of Stripped Helium Stars in the Magellanic Clouds
C	12:30-12:45	Hugues Sana	The nature of hidden companions in single-line spectroscopic binaries
C	12:45-13:00	Paul Ricker	Common Envelope Evolution of Massive Binaries
13:00-14:15		LUNCH	
C	14:15-14:30	Gareth Banyard	The multiplicity of the B stars on NGC 6231
C	14:30-14:45	Laurent Mahy	The multiplicity of Galactic Luminous Blue Variables
C	14:45-15:00	Lee Patrick	Hunting for red supergiant binary systems in the ultra-violet
C	15:00-15:15	Mathieu Renzo	Evolution of accretor stars in massive binaries: broader implications from modeling zeta Ophiuchi
C	15:15-15:30	Chen Wang	The impact of binary interaction on the main-sequence morphology of young star clusters
C	15:30-15:45	Gonzalo Holgado	The spin rate properties of Galactic massive O-type stars
15:45-16:15		TEA/COFFEE BREAK	
SESSION 5: STELLAR STRUCTURE AND EVOLUTION OF SINGLE STARS (Chair: Paco Najarro)			
O	16:15-16:45	Raphael Hirschi	Stellar structure and evolution of single stars
C	16:45-17:00	Federico Rizzuti	Entrainment in 3D hydrodynamics simulations of neon burning
I	17:00-17:20	Michel Rieutord	Multi-dimensional stellar structure and mixing processes
C	17:20-17:35	Goetz Grafener	Physics and evolution of the most massive stars
I	17:35-17:55	Sung-Chul Yoon	Evolution of zero and low-metallicity massive stars
C	17:55-18:10	Sébastien Martinet	Very Massive Stars: near and far
21:00-23:00		MUSIC IN KELLS BAR	

DAY 3: WEDNESDAY 11 MAY 2022			
SESSION 6: COOL SUPERGIANTS		(Chair: Lidia Oskinova)	
O	09:00-09:30	Nathan Smith	Luminous post-main-sequence stars and eruptive mass loss
C	09:30-09:45	Rene Oudmaijer	Multiple mass loss events on timescales of hundreds of years of the post-Red Supergiant the Fried Egg
I	09:45-10:05	Emma Beasor	Mass loss from Red supergiants
C	10:05-10:20	Ben Davies	Explosion Imminent: what Red Supergiants look like just before they explode
C	10:20-10:35	N. Dylan Kee	Analytic, Turbulent Pressure Driven Mass Loss from Red Supergiants
C	10:35-10:50	Emily Cannon	The Dimming of Betelgeuse: VLTI/MATISSE observations, another piece of the puzzle
C	10:50-11:05	Ignacio Negueruela	Strong lithium lines in the spectra of red supergiants
11:05-11:35		TEA/COFFEE BREAK	
C	11:35-11:50	Gautham Sabhahit	Mixing and mass loss beyond the main sequence
SESSION 7: UNSTEADY MASS LOSS		(Chair: Morgan Fraser)	
I	11:50-12:10	Andrea Mehner	Luminous blue variable and supergiant B[e] stars
C	12:10-12:25	Thomas Madura	A 3D time-dependent AMR hydrodynamical simulation of Eta Carinae's colliding stellar winds around periastron
C	12:25-12:40	Alceste Bonanos	Introducing the ASSESS project: Episodic Mass Loss in Evolved Massive Stars - Key to Understanding the Explosive Early Universe
C	12:40-12:55	Grigoris Mavelias	Using machine-learning to investigate the populations of dusty evolved stars in various metallicities
AFTERNOON EXCURSION WITH PACKED LUNCH, OR LUNCH AT HOTEL			
FREE AFTERNOON			

DAY 4: THURSDAY 12 MAY 2022			
SESSION 8: WOLF-RAYET STARS and STELLAR FEEDBACK		(Chair: Raman Prinja)	
I	09:00-09:20	Tomer Shenar	Classical Wolf-Rayet stars: new insights and open problems
C	09:20-09:35	Andreas Sander	The enigmatic winds of Wolf-Rayet stars: Results from dynamically consistent atmosphere modelling
C	09:35-09:50	Lidia Oskinova	X-raying massive stars and their feedback near and far
C	09:50-10:05	Sally Heap	How Massive Stars Drive the Evolution of Primitive Galaxies
C	10:05-10:20	Kristen McQuinn	GLOW: Galaxies Losing Oxygen via Winds
10:20-11:00		COFFEE BREAK	
SESSION 9: MASSIVE STAR FORMATION NEAR & FAR		(Chair: Asif Ud-Doula)	
O	11:00-11:30	Ralf Klessen	The First Stars
I	11:30-11:50	Kazuyuki Omukai	Formation of very low-metallicity stars
C	11:50-12:05	Anna Rosen	A Massive Star is Born: How Stellar Feedback Limits Accretion onto Massive Stars
C	12:05-12:20	G. André Oliva	The origin of massive stellar systems via disk fragmentation
C	12:20-12:35	Kei Tanaka	Metallicity Dependences of Massive Star Formation from Theoretical and Observational Perspectives
I	12:35-12:55	Tyrone Woods	The first massive stars in the high-redshift universe
12:55-14:30		LUNCH	
I	14:30-14:50	John Regan	Formation of supermassive stars and direct collapse to black holes
	14:50-15:20	DISCUSSION: Sylvia Ekström	First Stars and Massive Stars Communities: How to make progress together
15:20-15:50		TEA/COFFEE BREAK	
SESSION 10: STELLAR END-POINTS AND GRAVITATIONAL WAVES		(Chair: Heloise Stevance)	
O	15:50-16:20	Stephen Smartt	Multi-messenger Astrophysics & Transients
C	16:20-16:35	Floor Broekgaard	(How) Can We Really Learn about Massive Stars from Gravitational Wave Observations?
C	16:35-16:50	Pablo Marchant	Inferring black hole birth kicks from quiescent OB+black hole binaries
I	16:50-17:10	Joe Lyman	The diversity of massive stellar transients found in sky-surveys
C	17:10-17:25	Anna Ho	Finding Relativistic Stellar Explosions as Fast Optical Transients
17:30-18:30		POSTER SESSION	
19:00-LATE		CONFERENCE DINNER	

DAY 5: FRIDAY 13 MAY 2022			
C	09:30-09:45	Griffin Hosseinzadeh	Mass Loss from the Red Supergiant Progenitor of SN 2021yja
C	09:45-10:00	Takashi Moriya	Constraining massive star mass loss through supernova radio properties
C	10:00-10:15	Jeff Cooke	A new observational method to directly measure the timescales for high redshift massive star cloud collapse, formation, and lifetimes
C	10:15-10:30	Wynn Jacobs-Galán	Watching a Star Explode with the Young Supernova Experiment
C	10:30-10:45	Joanne Pledger	Metallicity distributions of core-collapse supernovae within 30Mpc: Evidence for a lack of single massive Ib progenitors at low metallicities.
C	10:45-11:00	Samaporn Tinyanont	A Local Analog of the Death of First Stars? SN 2020wnt: A Supernova That Defies All Models (Even Magnetars!)
11:00-11:30		TEA/COFFEE BREAK	
SESSION 11: FUTURE INSTRUMENTATION AND FACILITIES		(Chair: Jonathan Mackey)	
I	11:30-11:50	Ana Gomez de Castro	Massive stars UV signatures and the instrumentation to come
SUMMARY			
O	11:50-12:20	Alex de Koter	Closing Summary
	12:20-12:30	Organising Committee	Closing remarks
12:30		LUNCH AND DEPARTURE	

Time (CEST)	Speaker	Day 1 Monday 2021-05-03 - Session 1 Chair: Fabrice Martins
15:00-15:15	OC	WELCOME, OPENING REMARKS
15:15-15:30	Michael Abdul-Masih	A New 3D Spectroscopic Analysis Technique to Study Non-spherically Symmetric Massive Stars
15:30-15:45	Claudia Agliozzo	The puzzle of dusty LBV nebulae
15:45-16:00	Joachim Bestenlehner	Mass loss and the Eddington parameter: a new mass-loss recipe for hot and massive stars
16:00-16:15	Robin Björklund	New predictions for O-star mass-loss rates in different galactic environments
16:15-16:30	COFFEE BREAK	COFFEE BREAK
Time (CEST)	Speaker	Day 1 Monday 2021-05-03 - Session 2 Chair: Sylvia Ekström
16:30-16:45	Peter Blanchard	Constraints on the Massive Star Progenitors of Hydrogen-Poor Superluminous Supernovae
16:45-17:00	Dominic Bowman	Massive star interiors revealed by gravity wave asteroseismology and high-resolution spectroscopy
17:00-17:15	Ricardo Dorda	The binary fraction of the cool supergiants in the Magellanic Clouds
17:15-17:30	Eoin Farrell	Connections Between Internal and Surface Properties of Massive Stars at different Evolutionary Stages and the Uncertain Masses of SN Progenitors
17:30-17:45	Emma Beasor	The Age of Westerlund 1 Revisited
17:45-18:00	DISCUSSION	DISCUSSION Moderator: Jorick Vink
18:00	SOCIAL	Virtual Drinks
Time (CEST)	Speaker	Day 2 Tuesday 2021-05-04 - Session 3 Chair: Jonathan Mackey
15:00-15:15	Carolina Kehrig	Dissecting the extremely metal-poor galaxy SBS0335-052E with MUSE: massive stars versus nebular H α emission
15:15-15:30	Damien Gagnier	A 2D-view of anisotropic mass-loss: impact on the evolution of rotating massive stars
15:30-15:45	Ylva Goetberg	Stars stripped in binaries: ionizing sources over cosmic time
15:45-16:00	Kathryn Gordon	Angular Diameters and Effective Temperatures of O and B stars with Optical Interferometry
16:00-16:15	Luca Grassitelli	Wind-envelope interaction as the origin of the slow cyclic brightness variations of the most luminous blue stars
16:15-16:30	COFFEE BREAK	COFFEE BREAK
Time (CEST)	Speaker	Day 2 Tuesday 2021-05-04 - Session 4 Chair: Alceste Bonanos
16:30-16:45	Samuel Green	Thermal emission from bow shocks: Multi-dimensional Simulations of the Bubble Nebula
16:45-17:00	Lionel Haemmerle	Evolution of supermassive Pop III stars
17:00-17:15	Erin Higgins	Constraining physical processes in the early stages of massive star evolution
17:15-17:30	Nathaniel Dylan Kee	Constraints on the stellar upper mass limit from simulations of UV disk ablation
17:30-17:45	Zsolt Keszthelyi	The effects of surface fossil magnetic fields on massive star evolution
17:45-18:00	DISCUSSION	DISCUSSION Moderator: Emily Levesque
18:00	SOCIAL	Virtual Drinks
Time (CEST)	Speaker	Day 3 Wednesday 2021-05-05 - Session 5 Chair: Paula Benaglia
15:00-15:15	Robert Klement	Prevalence of SED turnover among classical Be stars: Are all Be stars close binaries?
15:15-15:30	jonathan Labadie-Bartz	Pulsation driven mass loss observed in action from ground and space
15:30-15:45	Eva Laplace	The evolution of massive stripped-envelope stars: consequences for supernovae and gravitational-wave events
15:45-16:00	Laura Murphy	The Effects of Rotation on the evolution and observable signatures of Population-III stars
16:00-16:15	Kathryn Neugent	The Binary Fraction of Red Supergiants
16:15-16:30	COFFEE BREAK	COFFEE BREAK
Time (CEST)	Speaker	Day 3 Wednesday 2021-05-05 - Session 6 Chair: Claus Leitherer
16:30-16:45	Simon Prentice	The emerging class of weird but normal transients, and the challenge they present.
16:45-17:00	Yi Ren	On granulation and the irregular variation of red supergiants in local galaxies
17:00-17:15	Peter Senchyna	Towards empirical constraints on the ionizing spectra and winds of extremely metal-poor massive stars with HST/COS
17:15-17:30	Tomer Shenar	Winds or binaries? The production of classical Wolf-Rayet stars at low metallicity
17:30-17:45	Heloise Stevance	HII regions: young or younger?
17:45-18:00	DISCUSSION	DISCUSSION Moderator: Claus Leitherer
18:00	SOCIAL	Virtual Drinks
Time (CEST)	Speaker	Day 4 Thursday 2021-05-06 - Session 7 Chair: Jose Groh
15:00-15:15	Mojgan Aghakhanloo	Unraveling the Evolutionary History of Luminous Blue Variables
15:15-15:30	David R. Aguilera-Dena	Evolution of helium stars at different metallicities: populations, supernovae and compact remnants
15:30-15:45	Andrew Allan	The possible disappearance of a massive star in the low metallicity galaxy PHL 293B
15:45-16:00	Sarah Brands	The clumped winds of the most massive stars
16:00-16:15	Avishai Gilkis	To understand merging black holes we first need to explain the Humphreys-Davidson Limit
16:15-16:30	COFFEE BREAK	COFFEE BREAK
Time (CEST)	Speaker	Day 4 Thursday 2021-05-06 - Session 8 Chair: Dan Whalen
16:30-16:45	Calum Hawcroft	New empirical mass-loss rates and clumping properties of massive stars
16:45-17:00	Nicholas Herrington	Modeling Supermassive Primordial Stars with MESA
17:00-17:15	Gonzalo Holgado	On the elusive detection of O-type stars close to the ZAMS: new empirical clues about the empirical birthline of massive stars
17:15-17:30	Jakub Klencki	Slow and steady: Mass transfer evolution in low-metallicity massive binaries
17:30-17:45	Sébastien Martinet	Rotating (P)PISNe at very low and solar metallicity
17:45-18:00	DISCUSSION	DISCUSSION Moderator John Regan
18:00	SOCIAL	Virtual Drinks
Time (CEST)	Speaker	Day 5 Friday 2021-05-07 - Session 9 Chair: Nicole St. Louis
15:00-15:15	Sarah McDonald	Red Supergiants in M31: The Humphreys-Davidson Limit at high metallicity
15:15-15:30	Grace Olivier	A Self Consistent Model for the Ionizing Spectrum of Extreme Emission Line Galaxies
15:30-15:45	Michelangelo Pantaleoni	A 3D map of the solar neighbourhood using OB stars and Gaia
15:45-16:00	Lorenzo Roberti	Presupernova evolution and nucleosynthesis of zero and very low metallicity massive stars
16:00-16:15	Sophie Rosu	Apsidal motion in NGC 6231: sounding the internal structure of massive stars
16:15-16:30	COFFEE BREAK	COFFEE BREAK
Time (CEST)	Speaker	Day 5 Friday 2021-05-07 - Session 10 Chair: John Regan
16:30-16:45	Abel Schootemeijer	A dearth of young and bright massive stars in the Small Magellanic Cloud
16:45-17:00	William Schultz	Photometric Variability from 3D Models of Massive Star Envelopes
17:00-17:15	Lieke van Son	Which way did the wind blow? Probing stellar winds and cosmic star formation with BBH merges.
17:15-17:30	Grace Telford	Far-Ultraviolet Spectra of Main-Sequence O Stars at Extremely Low Metallicity
17:30-17:45	DISCUSSION	DISCUSSION
17:45-18:00	OC	FINAL WORDS