

EXWINGS Workshop

May 31st – June 2nd 2023
Uppsala, Sweden



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Timetable

OT: Overview Talk, CT: Contributed Talk.

Wednesday, 31st of May

11:00–11:10		Welcome remarks	
11:10–11:50		Participants introduce themselves	
11:50–12:10	OT	Susanne Höfner Uppsala University	Project EXWINGS: a short overview
12:10–14:00		Catered lunch	
Session 1		Inner region	
14:00–14:20	OT	Bernd Freytag Uppsala University	Inner region - Overview
14:20–14:35	CT	Mats André Swedish Institute of Space Physics	Winds from Red Supergiants: The Importance of Plasma Physics
14:35–14:50	CT	Bernd Freytag Uppsala University	The dimming of Betelgeuse in the light of CO5BOLD models
14:50–15:30		Fika	
15:30–15:45	CT	Arief Ahmad Uppsala University	Characterising dusty clouds within the inner wind region of AGB stars: insights from global 3D models
15:45–16:00	CT	Joachim Wiegert Uppsala University	Radiative transfer simulations of CO5BOLD results
16:00–17:00		Discussion	

Thursday, 1st of June

Session 2		Resolved structures	
09:10–09:30	OT	Claudia Paladini ESO	Resolved structures - Overview
09:30–09:45	CT	Claudia Paladini ESO	Status report of the VLT/MATISSE AGB Large Program
09:45–10:00	CT	Josef Hron/Vlad Răstău University of Vienna	Carbon Stars as seen with MATISSE
10:00–10:15	CT	Gemma Gonzalez-Tora ESO	Modelling the effect of winds on atmospheric layers of RSG with VLT/GRAVITY and MATISSE interferometric data
10:15–10:45		Fika	

10:45–11:00	CT	Theo Khouri Chalmers University	High-angular resolution of AGB stars with SPHERE and ALMA
11:00–11:15	CT	Ka Tat Wong Uppsala University	Vibrationally excited lines in the inner winds
11:15–12:15	Discussion		
12:15–14:00	Lunch		

Session 3	Microphysics		
14:00–15:00	UU seminar - David Gobrecht¹		
	OT	David Gobrecht Gothenburg University	On the formation of stardust grains
15:00–15:25	Seminar fika		
15:30–15:45	CT	Bernhard Aringer University of Vienna	Molecular Opacities & Spectra
15:45–16:45	Discussion		
18:30–21:00	Workshop dinner		

Friday, 2nd of June

Session 4	Circumstellar environment		
09:10–09:30	OT	Elvire De Beck Chalmers University	Properties of the CSE - Overview
09:30–09:45	CT	Emelie Siderud Uppsala University	Effects of dust opacities on winds and photometric properties
09:45–10:00	CT	Miora Andriantsaralaza Uppsala University	An update on the DEATHSTAR project
10:00–10:15	CT	Shazrene Mohamed University of Miami	AGB stars in binaries
10:15–10:45	Fika		
10:45–11:00	CT	Hans Olofsson Chalmers University	Mass-loss characteristics at the tip of, and (slightly) beyond, the AGB
11:00–11:15	CT	Elvire De Beck Chalmers University	Mass loss from red supergiants: NML Cyg and other monsters
11:15–12:15	Discussion		
12:15–14:00	Lunch		
Session 5	General discussion		
14:00–15:30	Parallel sessions/Open discussions		
15:30–15:50	Fika		
15:50–16:00	Closing remarks		

¹The abstract and the details of the seminar are available here: <https://indico.uu.se/event/1388/>

Suggested topics of discussion

Here is a list of the topics that were suggested by the participants which can serve as starting points for the various discussion sessions.

- Convection and pulsation:
 - e.g. How non-linear should we model such an interaction?
 - Excitation of AGB pulsations
- Dust:
 - Nucleation
 - Formation and composition
 - Dynamics
 - Structure: distribution, morphology, clumpiness
- Coupling of radiation and chemistry
- Implementation of SiC condensation
- Radiative transfer – particularly for dust (e.g. 1D VS 3D)
- Mass loss for RSG: where do we stand on episodic mass loss ?
- Binary systems

List of Participants

Name	Affiliation and country
Arief Ahmad	Uppsala University, Sweden
Mats André	Swedish Institute of Space Physics, Sweden
Miora Andriantsaralaza	Uppsala University, Sweden
Bernhard Aringer	University of Vienna, Austria
Behzad Bojnordi Arbab	Chalmers University of Technology, Sweden
Elvire De Beck	Chalmers University of Technology, Sweden
Kjell Eriksson	Uppsala University, Sweden
Bernd Freytag	Uppsala University, Sweden
David Gobrecht	Göteborg University, Sweden
Gemma Gonzalez-Tora	ESO, Germany
Susanne Höfner	Uppsala University, Sweden
Josef Hron	University of Vienna, Austria
Theo Khouri	Chalmers University of Technology, Sweden
Matthias Maercker	Chalmers University of Technology, Sweden
Shazrene Mohamed	University of Miami, USA
Hans Olofsson	Chalmers University of Technology, Sweden
Claudia Paladini	ESO, Chile
Vlad Răstău	University of Vienna, Austria
Thiebaut Schirmer	Chalmers University of Technology, Sweden
Emelie Siderud	Uppsala University, Sweden
Ramlal Unnikrishnan	Chalmers University of Technology, Sweden
Joachim Wiegert	Uppsala University, Sweden
Ka Tat Wong	Uppsala University, Sweden

Useful Information - updated

The workshop will be held at the [Ångström laboratory](#), in Uppsala, Sweden. The meeting will take place in **house 9, room 90101** on Wednesday and Thursday, and in room **90103** on Friday. Both rooms are on the ground floor of house 9 and are close to each other. Click [here](#) to view the Campus map showing the location of the meeting rooms. A sign will be put at the door.

All fika breaks, the catered lunch on Wednesday, and the workshop dinner will be offered. Lunches on Thursday and Friday can be purchased from one of the two restaurants on Campus, namely Rullan and Café Ångström. We recommend eating at Rullan, which is located on the ground floor of the main building (house 10). Seats will be reserved in the lunch area of Rullan.

The UU seminar given by David Gobrecht is part of this EXWINGS workshop. The seminar will take place in room **90103** (same as the meeting room on Friday). The **seminar fika** will be offered in the [corridor of the Astronomy division](#), on the 5th floor of house 9.

We will have the **workshop dinner** on Thursday, June 1st from 18:30 at the restaurant [Stationen](#), which is just next to the Central Station.

Wi-Fi will be available during the workshop through the Eduroam network.

How to get to Uppsala?

Uppsala is conveniently located just north of the Stockholm Arlanda Airport from where you can take a direct train to Uppsala Central Station (ca 17 min). If you travel from within Sweden or neighboring countries, we recommend taking the train to Uppsala. The trains between Stockholm and Uppsala take ca 35 min.

How to get to the Ångström laboratory?

The Ångström laboratory is located in the south of central Uppsala (see map below). Buses are the main mode of public transport within Uppsala. Tickets can be bought via the [UL app](#) or on buses by credit or debit card only; cash is not accepted. From the central station, you can take **bus line 4** until the stop **Polacksbacken**, which is right outside the Ångström lab. Alternatively, a number of buses (lines 1, 3, 8, 11) can take you within walking distance from the Ångström lab (see bus stops in the map below). If you enjoy walking, the Ångström Laboratory is about 3 km away from the train station. You can walk mostly in the park along the river Fyrisån, and it takes ca 45 min.



