

The Radiative Transfer and Atomic Physics of Kilonovae



Monday, 4 September 2023 - Thursday, 7 September 2023

Wenner-Gren Center

Scientific Programme



With LIGO O4 operations just beginning, kilonova research is entering an exciting next 18 months. With the improved sensitivity of LIGO+KAGRA, the probed volume as well as the expected sky localizations are now significantly improved upon compared to O3. If neutron star mergers are indeed key sources of r-process elements in cosmos, the chances are good that the set of observed events will go from 1 (AT 2017gfo) to several in the very near future. With 6 years of high-paced development of kilonova atomic physics, light curve and spectral models since AT 2017gfo, the community has made huge strides forward in our understanding of how these exotic transients emit their light, what can be learned from which type of observations, and the important role of atomic data and various atomic processes.

The workshop aims to gather global experts on the radiative transfer, atomic physics, hydrodynamics/nucleosynthesis, and observations of kilonovae. Through a 4-day workshop at the Wennergren Centre in central Stockholm (providing conference room, 3-course lunches with a view on all directions of the city, coffee breaks, and evening activities), we will mix invited talks, contributed talks, flash talks, and lots of informal chats and small-group work. Our goal will be to discuss the current status of the field, identify upcoming challenges, and assess where different models and methods stand with respect to each other. By bringing these topics together, we decide how to most effectively tackle the next observed kilonova.

Invited speakers:

Daniel Kasen (confirmed)
Maria Teresa Belmonte (confirmed)
Kenta Hotokezaka
Per Jönsson (confirmed)
Nigel Badnell (confirmed)
Nanae Domoto (confirmed)
Andy Levan (confirmed)
Gabriel Martinez-Pinedo (confirmed)
Chris Fontes (confirmed)
Masaomi Tanaka (confirmed)
Chris Fryer (confirmed)
Camilla Hansen (confirmed)

If you are interested to attend, please click on "Registration" and fill in the form no later than **June 30** (the earlier the better for us to organize the event, and to be able to offer a spot since the venue capacity is limited). If you would like to give a talk please use the "Call for abstracts" form.

Participation comes with a **conference fee of 150 euro**: this includes a lunch every day, coffee with sandwiches/pastries, and a conference dinner (excluding drinks). Payment will be due mid July.

The workshop will start at 9.30 am on Monday Sep 4 and end in the early afternoon (around 3 pm) on Thursday Sep 7.

For questions and inquiries please contact: kilonovastockholm@gmail.com.

We look forward to seeing you in Stockholm!

The **SOC/LOC**:

- Anders Jerkstrand (SOC chair)
- Jennifer Barnes
- Paul Barklem
- Smaranika Banerjee (LOC chair)
- Stephan Rosswog
- Jon Grumer
- Henrik Hartman
- Quentin Pognan