

Symposium Fathoming Stellar Evolution with Laboratory Precision (SYSE)

jointly organized by
 the Mass Spectrometry Division (MS),
 the Atomic Physics Division (A),
 the Extraterrestrial Physics Division (EP),
 the Molecular Physics Division (MO), and
 the Quantum Optics and Photonics Division (Q)

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Precision experiments in different areas of physics have recently become very useful to understand various aspects of stellar evolution from the interstellar medium to neutron-star matter. The rate of generation of molecular hydrogen during the epoch of the formation of the first stars has been determined by associative-detachment reaction studies, stability measurements of molecular anions ameliorate our understanding of interstellar molecular clouds, and experiments with electron beam ion traps give insight into EUV and X-ray spectra from highly excited regions of our Universe. Different theoretical approaches have shown the possible impact of laboratory experiments on modern theory of stellar evolution. Constraining the neutron-matter equation of state and the properties of neutron-rich matter are such examples. With the use of microscopic mass models, precise mass determinations can be used to probe the elemental composition in the outer crust of neutron stars.

Overview of Invited Talks and Sessions

(Lecture room: Audimax)

Invited Talks

SYSE 1.1	Wed	14:00–14:30	Audimax	Addressing open questions of stellar evolution with laboratory experiments — ●ALMUDENA ARCONES
SYSE 1.2	Wed	14:30–15:00	Audimax	Methods and problems of the modern theory of stellar evolution — ●ACHIM WEISS
SYSE 1.3	Wed	15:00–15:30	Audimax	Photoabsorption and opacity in the X-ray region: The role of highly charged ions — ●JOSÉ R. CRESPO LÓPEZ-URRUTIA
SYSE 1.4	Wed	15:30–16:00	Audimax	Neutron-rich matter: From cold atoms to neutron stars — ●ACHIM SCHWENK

Sessions

SYSE 1.1–1.4	Wed	14:00–16:00	Audimax	Fathoming Stellar Evolution with Laboratory Precision
SYSE 2.1–2.5	Wed	16:30–18:15	DO24 1.205	Fathoming Stellar Evolution (Part 2)