

Survival of Dense Star Clusters in the Milky Way System

Haus der Astronomie, Heidelberg

19th - 23rd November 2018

Monday 19th

GC systems, satellites and streams in the MW system

Morning Chair: Sophia Milanov

8.15 / 8.30 Bus from Crowne Plaza / Peterskirche

9:00 - 9:45 Registration and welcome

9:45 - 10:25 **Ana Bonaca:** What are the cold tidal streams telling us?

10:25 - 10:30 **Nicolas Longeard:** Characterizing the nature of the faintest Milky Way satellites with the Pristine survey

10:30 - 11:00 Coffee

11:00 - 11.25 **Eric Andersson:** Tidal stripping as a mechanism for placing globular clusters on wide orbits

11:25 - 11:50 **Raymond Carlberg:** Globular cluster streams in cosmological simulations

11:50 - 12:05 **Hosein Haghi:** The Metallicity- and Density-Dependent IMF in the Globular Clusters in M31

12:05 - 12:30 **Alison Sills:** The Dynamics of Accreted Globular Clusters

12:30 - 13:45 Lunch

Afternoon Chair: Francisco Aros

13.45 - 14:25 **Rodrigo Ibata:** Stellar streams of the inner Galaxy as seen by Gaia

14:25 - 14:50 **David Martinez-Delgado:** A search for globular clusters embedded in stellar tidal streams around nearby Milky Way-like galaxies

14:50 - 15:15 **Sebastian Trujillo Gomez:** The kinematics of globular cluster systems around MW-type galaxies in E-MOSAICS

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- 15:15 - 15:40 **Matteo Mazzarini:** A numerical study on the distribution of the stripped matter of the Milky Way satellites
- 15:40 - 16:10 **Coffee**
- 16:10 - 16:35 **Meghan Hughes:** Fossil stellar streams and their GC populations in E-MOSAICS
- 16:35 - 17:00 **Thomas de Boer:** A new view of the GD-1 stream using Gaia DR2
- 17:00 - 17:25 **Chris Usher:** Exploring the Milky Way's Globular Cluster system with WAGGS
- 17:25 - 17:50 **Florent Renaud:** What happens when you get fat? The physics of star cluster accretion in the Milky Way
- 17:50 - 19:15 **Welcome reception**
- 19:15 - 19:45 **Planetarium show: Felix Bosco**
- 20:00 **Bus to town**

Tuesday 20th

Internal GC effects altering evolution

Morning Chair: Karina Voggel

- 8.00 / 8.15 **Bus from Crowne Plaza / Peterskirche**
- 9:00 - 9:40 **Jeremy Webb:** A theoretical look at internal mechanisms that alter globular cluster evolution
- 9:40 - 10:05 **Paolo Bianchini:** A three-dimensional view of the internal kinematics of globular clusters
- 10:05 - 10:30 **Anna Lisa Varri:** The kinematic richness of star clusters
- 10:30 - 11:00 **Coffee**
- 11:00 - 11.40 **Laura Watkins:** Imprints of evolution in the internal kinematics of globular clusters
- 11:40 - 12:05 **Sebastian Kamann:** Dynamical constraints on the evolution of globular clusters
- 12:05 - 12:30 **Mario Pasquato:** Seeing in the dark: spotting dark remnant subsystems and intermediate mass black holes in star clusters with machine learning
- 12:30 - 13:45 **Lunch**

Afternoon Chair: Sara Rastello

- 13.45 - 14:10 **Bence Kocsis:** Gravitational waves and high energy electromagnetic waves from disrupted globular clusters
- 14:10 - 14:15 **Francisco Aros:** How to fake an intermediate mass black hole

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- 14:15 - 14:40 **Ladislav Subr:** Intermediate-mass black holes in binary rich star clusters
- 14:40 - 15:05 **Abbas Askar:** How black holes can influence the evolution of a globular cluster
- 15:05 - 15:10 **Ghasem Safei:** Survival rate of star clusters starting with top-heavy IMF
- 15:10 - 16:00 **Coffee and group picture**
- 16:00 - 16:25 **Alice Zocchi:** Rotating globular clusters in the Gaia era
- 16:25 - 16:50 **Akram Hassani Zonoozi:** Outer halo globular clusters on extreme eccentric orbits
- 16:50 - 17:05 **Anna Sippel:** Binary black holes as stellar ejection engines
- 17:20 **Bus to town**

Wednesday 21st

The Galactic disk/bulge and its GCs

Morning Chair: Akram Hasani Zonoozi

- 8.00 / 8.15 **Bus from Crowne Plaza / Peterskirche**
- 9:00 - 9:40 **Annalisa Calamida:** The Galactic bulge and its globulars: what we learn from observations
- 9:40 - 10:20 **Paola Di Matteo:** The bulge of our Galaxy: field stars and globular clusters
- 10:20 - 10:35 **Maria Gabriela Navarro:** Microlensing events and RR Lyrae population in the galactic bulge
- 10:35 - 11:05 **Coffee**
- 11:05 - 12.30 **Group discussion sessions**

Option 1 **The MW system: streams, halo, satellites** (Auditorium)
Co-chairs: Chiara Battistini, Glenn van de Ven, Marta Reina Campos, Prashin Jethwa

Option 2 **Internal GC evolution** (Seminarraum 1)
Co-chairs: Abbas Askar, Alice Zocchi, Alison Sills, Paolo Bianchini

Option 3 **Central MW: Disk, bulge, NSC** (Seminarraum 2)
Co-chairs: David Nataf, Mark Norris, Maryam Habibi, Nadine Neumayer

12:30 - 13:45 **Lunch**

Afternoon Chair: Paolo Bianchini

13.45 - 14:10 **Diederik Kruijssen:** Globular clusters revealing the formation and assembly history of the Milky Way

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- 14:10 - 14:35 **Bekdaulet Shukirgaliyev:** The life of star clusters from formation to dissolution: a novel approach
- 14:35 - 14:40 **Jeffrey Simpson:** A very nitrogen-rich star in the very low-mass, very metal-poor cluster ESO280-SC06
- 14:40 - 15:45 **Outcomes of group discussion**
- 15:45 - 16:15 **Coffee**
- 16:15 - 16:40 **Mark Norris:** New Approaches to Untangle the Accretion Histories of Galaxies
- 16:40 - 17:05 **Andres Piatti:** On the physical nature of globular cluster candidates in the Milky Way bulge
- 17:05 - 17:30 **Ricardo Salinas:** GLIMPSE-C01: the most massive intermediate-age star cluster in the Galaxy
- 17:30 - 17:45 **Jana Eisermann:** Globular clusters in the nanoworld: formation of ionic clusters in solution based on molecular self-assembly
- 17:45 - 17:50 **Peter Berczik:** Numerical modeling of star clusters and black holes in galaxies with Post Newtonian N -body codes
- 17:50 - 18:15 **Long Wang:** The impact of initial mass function on the globular cluster evolution
- 18:30 **Bus to dinner**
- 19:00 **Conference dinner (Restaurant: Prinz Carl. Address: Kornmarkt 1)**
- 20.00 **Alessandra Mastrobuono-Battisti:** Graphics processing units and computational advances helping star cluster studies
- 21.00 **Anna Sippel:** Recent results thanks to new high-end computing technology
- 22:30 **One bus from Neckarmünzplatz to Crowne Plaza (depart restaurant approx. 22.20)**

Thursday 22nd

The contribution of GCs to the build up of the MW halo

- Morning** **Chair:** Nicolas Longeard
- 8.30 / 8.45 **Bus from Crowne Plaza / Peterskirche**
- 9:30 - 10:10 **Sarah Martell:** Using chemical tagging and kinematics to identify and confirm globular cluster stars in the halo field
- 10:10 - 10:35 **David Nataf:** Comparative chemical evolution study of current and former globular cluster stars
- 10:35 - 11:05 **Coffee**
- 11:05 - 11.30 **Eva Grebel:** Quantifying the globular cluster contribution to the build-up of halo field star populations

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- 11:30 - 11:35 **Andreas Koch:** Kinematics of outer halo clusters
- 11:35 - 12:00 **Sang-Hyun Chun:** Search for extra-tidal stars around metal-poor globular clusters NGC 5024 (M53) and NGC 5053 and their spectroscopic features
- 12:00 - 12:25 **Charli Sakari:** R-process-enhanced metal-poor stars in the Milky Way halo: signatures of accretion from dwarf galaxies and globular clusters
- 12:25 - 12:30 **Manuel Bayer:** Star clusters and candidate stripped nuclei revealing the formation past of the massive S0 UGC12591
- 12:30 - 13:45 **Lunch**
- Afternoon** **Chair:** Alice Zocchi
- 13:45 - 14:25 **Eduardo Balbinot** Dissolving globular clusters in the Milky Way halo
- 14:25 - 14:50 **Prashin Jethwa:** An integral role for globular clusters in constraining galaxy assembly
- 14:50 - 15:15 **Marta Reina-Campos:** Dynamical evolution of stellar clusters in the E-MOSAICS simulations
- 15:15 - 15:30 **Ivan Cabrera-Ziri:** Current challenges in globular cluster formation
- 15:30 - 15:35 **Nazanin Davari:** Studying Dynamical Properties of Binary Stars with Planets Passing by Sgr A* Black Hole
- 15:35 - 16:10 **Coffee**
- 16:10 - 16:15 **Fabian Scheuermann:** Enrichment history in feedback regulated clusters
- 16:15 - 16:40 **Helmer Koppelman:** Exploration and characterization of streams in the halo near the sun
- 16:40 - 16:55 **Sophia Milanov:** The Milky Way and its globular clusters as a test of adaptive dynamics
- 16:55 - 17:00 **Alexander Rasskazov:** Hypervelocity stars from a supermassive black hole-intermediate mass black hole binary
- 17:15 **Bus to town**

Friday 23rd

The Galactic center and its NSC

- Morning** **Chair:** Sebastian Trujillo Gomez
- 8.00 / 8.15 **Bus from Crowne Plaza / Peterskirche**
- 9:00 - 9:40 **Tuan Do:** Observational constraints on the origin and evolution of the Milky Way Nuclear Star Cluster
- 9:40 - 10:05 **Mayte Alfaro:** Deep into the heart of the Sagittarius dwarf spheroidal galaxy: M54

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- 10:05 - 10:10 **Alina Böcker:** Stellar Populations from Integrated Light Spectroscopy - M54
- 10:10 - 10:35 **Renuka Pechetti:** Masses and densities of nuclear star clusters in the nearest galaxies
- 10:35 - 11:00 **Coffee**
- 11:00 - 11.40 **Eugene Vasiliev:** Structure and evolution of the Milky Way nuclear star cluster: theoretical input
- 11:40 - 12:05 **Alessandra Mastrobuono-Battisti:** Surviving till the end: the link between globular and nuclear star clusters
- 12:05 - 12:30 **Manuel Arca Sedda:** A spot of light in the dark night: nuclear cluster formation and its implication for the Galactic gamma and X-ray central emission
- 12:30 - 13:45 **Lunch**
- Afternoon** **Chair:** Jeffrey Simpson
- 13:45 - 14:10 **Katja Fahrion:** Globular cluster systems and the connection to nuclear star cluster formation beyond the Milky Way
- 14:10 - 14:35 **Iskren Georgiev:** Digging into the structure and population of nuclei with high spatial resolution data
- 14:35 - 14:50 **Maryam Habibi:** Late-type stars around the central black hole
- 14:50 - 14:55 **Brian Thorsbro:** Abundances in the nuclear star cluster
- 14:55 - 15:20 **Nikolay Kacharov:** Nuclear star clusters in nearby galaxies
- 15:20 - 15:25 **Hirofumi Tagawa:** Formation and evolution of compact object binaries in active galactic nuclei
- 15:25 - 15:30 **Sara Rastello:** The secular evolution of the nuclear star cluster of the Milky Way
- 15:30 - 16:00 **Coffee**
- 16:00 - 16:25 **Roberto Capuzzo-Dolcetta:** The globular cluster - nuclear star cluster - supermassive black hole correlation
- 16:25 - 16:50 **Karina Voggel:** Tracing the assembly history of galaxies and clusters by uncovering the surviving nuclear clusters of stripped galaxies
- 16:50 - 17:00 **Wrap up & goodbye**
- 17:15 **Bus to town**