

# Sophia Lilleengen

# Curriculum Vitae

**Astrophysics PhD Student** at the University of Surrey

Department of Physics, Guildford, GU2 7XH, United Kingdom

✉ s.lilleengen@surrey.ac.uk

🌐 sophialilleengen.me

🆔 [orcid.org/0000-0001-9046-691X](https://orcid.org/0000-0001-9046-691X)

## Education

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**PhD in Astrophysics**, University of Surrey, Guildford, UK **2019 – Present**

*Supervisors:* Denis Erkal, Justin Read

*Topic:* The Effect of Deforming Dark Matter Halos on Stellar Streams.

**Pre-doctoral Research Fellow**, Center for Computational Astrophysics, Flatiron Institute, NYC, US **2022**

*Supervisors:* Adrian Price-Whelan, Kathryn Johnston

*Topic:* The Information Content in Stellar Streams in Time-Dependent Potentials.

**Master of Science (M.Sc.) in Physics**, University of Heidelberg, Germany **2016 – 2019**

*Supervisors:* Wilma Trick, Glenn van de Ven

*Title:* Adaptive Dynamics – can Actions of Globular Clusters constrain the Gravitational Potential of Galaxies?

*Thesis carried out at the European Southern Observatory (ESO), Garching bei München, Germany*

**Bachelor of Science (B.Sc.) in Physics**, University of Heidelberg, Germany **2012 – 2016**

*Supervisors:* Wilma Trick, Paolo Bianchini, Glenn van de Ven

*Title:* Hunting for Intermediate-Mass Black Holes in simulated Globular Clusters using Integrals of Motion.

*Thesis carried out at the Max Planck Institute for Astronomy (MPIA), Heidelberg, Germany*

## Research Internships

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**Pre-doctoral Research Fellow**, ICRAR / UWA, Perth, Australia **March 2019 – May 2019**

*Supervisors:* Chris Power, Peter Quinn

*Topic:* The impact of lumpiness in a dark matter halo on the diffusion in orbits.

**Trainee**, European Space Astronomy Center, Madrid, Spain **May 2017 – October 2017**

*Supervisors:* Ricardo Pérez Martínez, Ana Perez Garcia, Bruno Altieri

*Topic:* Characterising galaxy evolution in nearby galaxy clusters.

## Publications

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### Publications

4. How do the dynamics of the Milky Way - Large Magellanic Cloud system affect gamma-ray constraints on particle dark matter?  
C. Eckner et al. (including **S. Lilleengen**), 2022 (arXiv:2208.03312)
3. Streams on FIRE: Populations of Detectable Stellar Streams in the Milky Way and FIRE  
N. Shipp et al. (including **S. Lilleengen**), 2022 (arXiv:2208.02255)

2. The effect of the deforming dark matter haloes of the Milky Way and the Large Magellanic Cloud on the Orphan-Chenab stream  
**S. Lilleengen** et al., 2022 (arXiv:2205.01688)
1. Measuring the Mass of the Large Magellanic Cloud with Stellar Streams Observed by *S<sup>5</sup>*  
N. Shipp et al. (including **S. Lilleengen**), 2021 (doi:10.3847/1538-4357/ac2e93)

## Conference Proceedings

1. Accreted Globular Clusters in external galaxies: Why adaptive dynamics is not the solution  
**S. Lilleengen**; W.H. Trick; G. van de Ven  
2020, IAUS353 "Galactic Dynamics in the Era of Large Surveys"

## Talks, Conferences & Schools

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- **Invited Talk** at "Towards Real-Time Galactic Dynamics" Lorentz Center Workshop, Leiden, Netherlands, 07/2022
- **Pre-Doc Symposium** at Flatiron Institute, NYC, USA, 06/2022
- **CCA Lunch Talk** at Flatiron Institute, NYC, USA, 06/2022
- **Special KICP Seminar** at University of Chicago, USA, 06/2022
- **Brown Bag Lunch Talk** at MIT, USA, 05/2022
- **Invited Seminar** at Institute of Astronomy (Cambridge) Dynamics Group, virtual / Cambridge, UK, 12/2021
- **Contributed Talk** at "A holistic view of the Milky Way: linking ages, chemistry and kinematics" (Symposium at EAS 2021 Conference), virtual / hosted by Leiden Observatory, Netherlands, 06/2021
- **Contributed Talk** at "Streams21: Constraints on Dark Matter" (Workshop), virtual / hosted by Flatiron Institute, NYC, USA, 02/2021
- **Contributed Talk** at "IAUS353: Galactic Dynamics in the Era of Large Surveys" (Conference & Summer School), Shanghai, China, 07/2019
- **Participant** at "The Milky Way in the Gaia Era" (Winter School), Saas-Fee, Switzerland, 01/2019
- **Contributed Talk** at "Survival of Dense Star Clusters in the Milky Way System" (Conference), Heidelberg, Germany, 11/2018
- **Volunteer** at "IAUS 344: Dwarf Galaxies" (Symposium at IAU 2018 General Assembly), Vienna, Austria, 08/2018
- **Poster with Flash Talk** at "The formation of globular clusters at high and low redshift" (Conference), Sexten, Italy, 07/2018
- **Participant** at "Schwarzschild modeling" (Workshop), Heidelberg, Germany, 04/2018
- **Participant** at "Astro Hack Week" (Workshop), Berkeley, USA, 08/2016
- **Talk** at "SFB Workshop: Star Clusters - Dynamics and Observations" (Conference), Heidelberg, Germany, 06/2016

## Conference & Workshop Organisation

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**Co-Organiser**, REACH Research Culture Week, virtual / hosted by University of Surrey, 11/2020

**Co-Organiser**, New Horizons Doctoral College Conference, virtual / hosted by University of Surrey, 06/2020

**Principal Organiser**, Population Dynamics Collaboration Workshop, Riquewihr, France, 10/2018

## Teaching & Mentoring

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**Mentor** to first year Electronic Engineering PhD student, 2020 – 2021

**Teaching Assistant**, Mathematical & Computational Physics, University of Surrey, Guildford, UK, 2020

## Public Outreach

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**Volunteer** at astronomy evenings, University of Surrey, Guildford, UK, 2019

**Planetarium Presenter** at ESO Supernova, Garching bei München, Germany, 06/2018 - 02/2019

**Outreach Talks** at secondary schools, 12/2017 - 02/2019

## Prizes and Awards

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**Physics Postgraduate Research Student of the Year**, University of Surrey, 2022

**Excellence Award** of the German Association for Physics, 07/2012