

Offer for a **M.Sc. thesis** research project @MPA on:

# What are Spiral Arms?

**Official title:** “Orbital action-angle signatures of spiral arms in cosmological galaxy simulations”

**When:** autumn 2021 - autumn 2022

**Where:** Max Planck Institute for Astrophysics (MPA), Garching/Munich



orbits in a galaxy  
with central bar:



orbits in a galaxy  
with spiral arms?

Let's compare!

“Auriga Superstars”:



brand-new, super-high resolution galaxy  
simulations with full cosmology!



Hot stuff! Help us dig in!

Spiral arm “definition”:



“You know when you see one...”  
Yep, that's the state-of-the-art!



Can we do better?

That's us:

- your day-to-day advisor:  
Dr. **Wilma Trick**
- your team of experts:  
Drs. Francesca Fragkoudi, Rob Grand,  
Rüdiger Pakmor & the whole  
“**Superstars**” team
- your thesis referee Prof. **V. Springel**  
& the Computational Astrophysics  
group @MPA

That's you:

- M.Sc. **Physics/Astro** student @ LMU
- experienced with **Python** programming
- **enthusiasm** for galaxy dynamics, coding  
and doing scientific research

Contact:

- Interested? Questions? Write me!
- Email: [trick@MPA-Garching.MPG.de](mailto:trick@MPA-Garching.MPG.de)