# Implementing Jets from Sink Particles in AREPO

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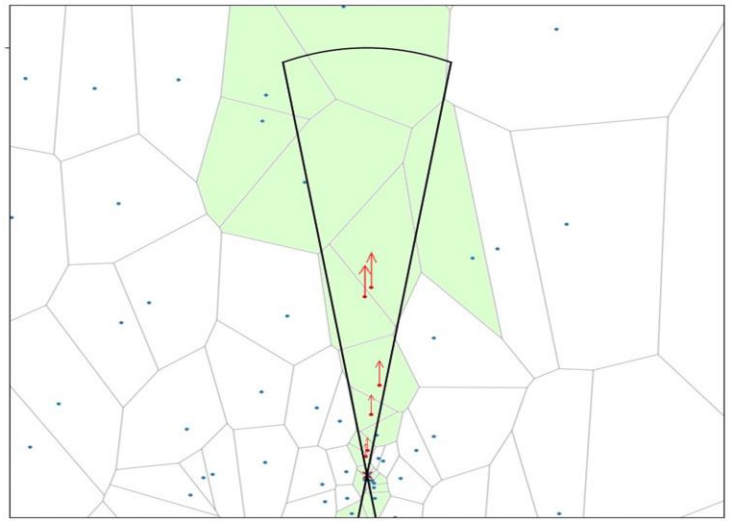
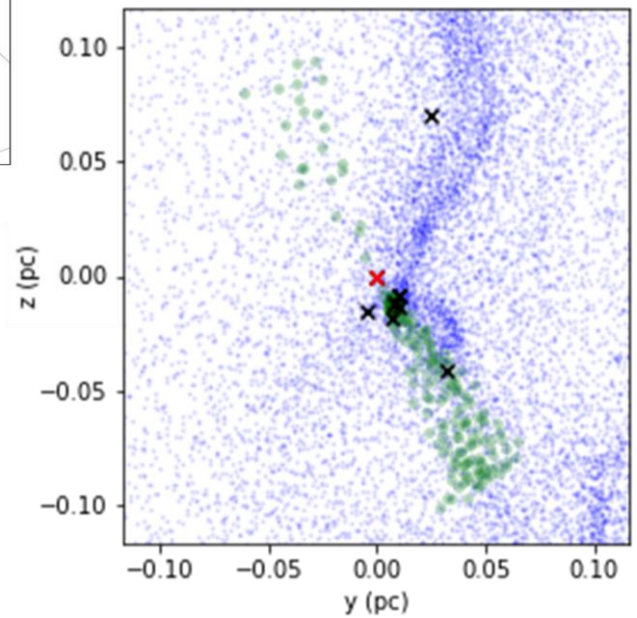
- A module for AREPO that includes feedback from jets
- Ejects matter from sink particles based on accretion rate
  - *Where a sink particle represent a star forming regions*
- Extra refinement conditions in 2 cones around each sink
  - *To ensure there are always cells within this region*
- Inject momentum into cells within these cones



*(Left)* A diagram of the cell mesh near the sink. Green cells have extra refinement criteria.

*(Right)* The actual cells that are within the injection region of the central sink.

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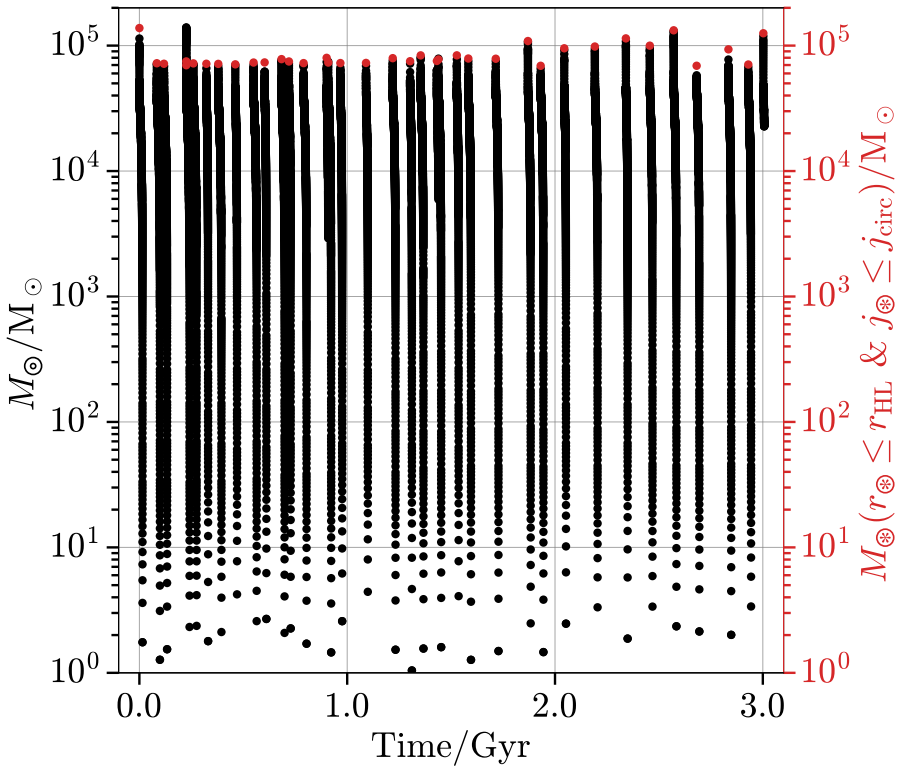
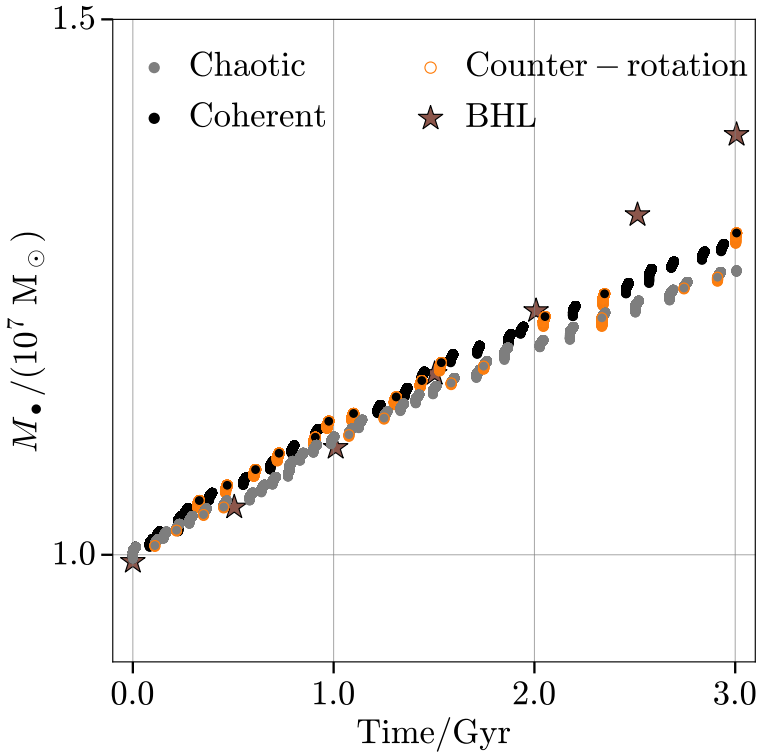
# Modelling relativistic accretion discs around spinning SMBHs

Dimitrios Irodotou

**At each time-step** of the simulation, we follow the **evolution of accretion discs** which allows us to accurately **follow black hole properties**.

We are able to extract detailed **photometric properties** and **AGN spectra**.



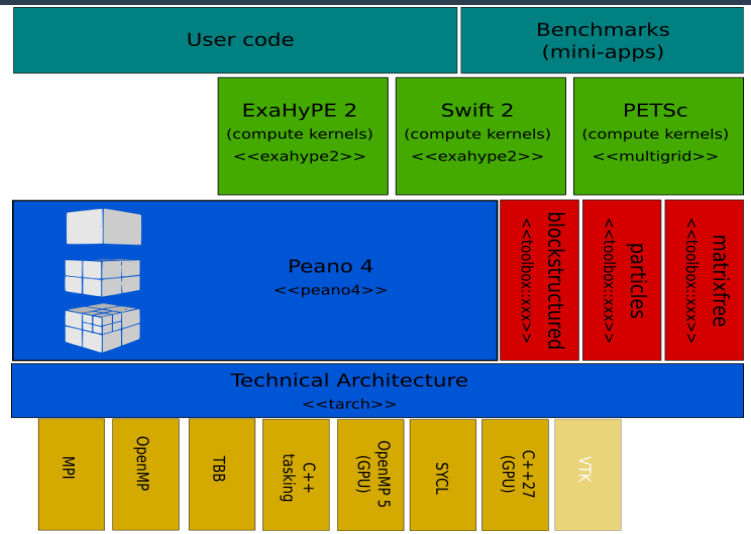




Paper to be out soon, code will be available on GitHub!

# SWIFT 2: Keeping the Good, Discussing the Bad, Removing the Ugly

*Mladen Ivkovic, Durham University*

- **The Good:**
  - **Task-based parallelism** strategy is proven successful
- **The Bad and The Ugly:**
  - Tasking system is **deeply embedded** into SWIFT.
    Development is tricky, convoluted, and very time consuming.
  - Current tasking system is **not future-proof**:
    Only supports CPUs, no GPUs (yet).
- **How do we fix that?**
  - Replace engine with Peano 4.
  - Peano4 provides parallelisation, domain decomposition, optimization



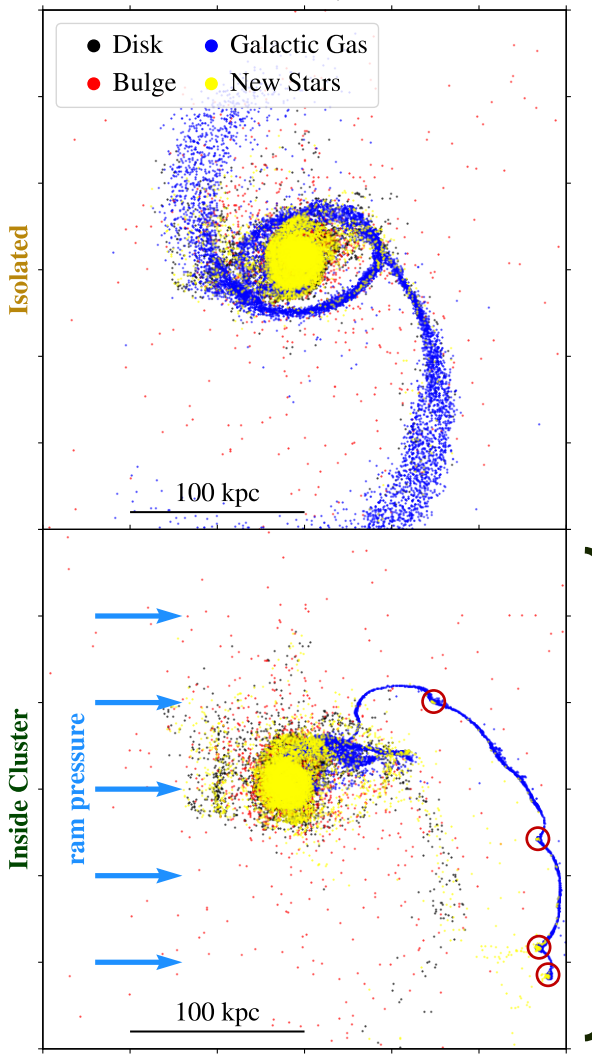

- Keep fine grained tasking
- **Generate** task dependency graphs, don't write them
- Investigate **optimization strategies** along the way
  - Scheduling strategies, communication strategies, memory management strategies, data compression

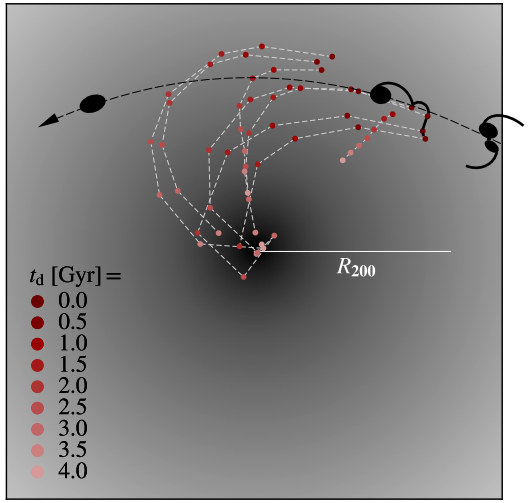
Durham University

# Merge and Strip – Dwarf Galaxies in Clusters Can Be Formed by Galaxy Mergers

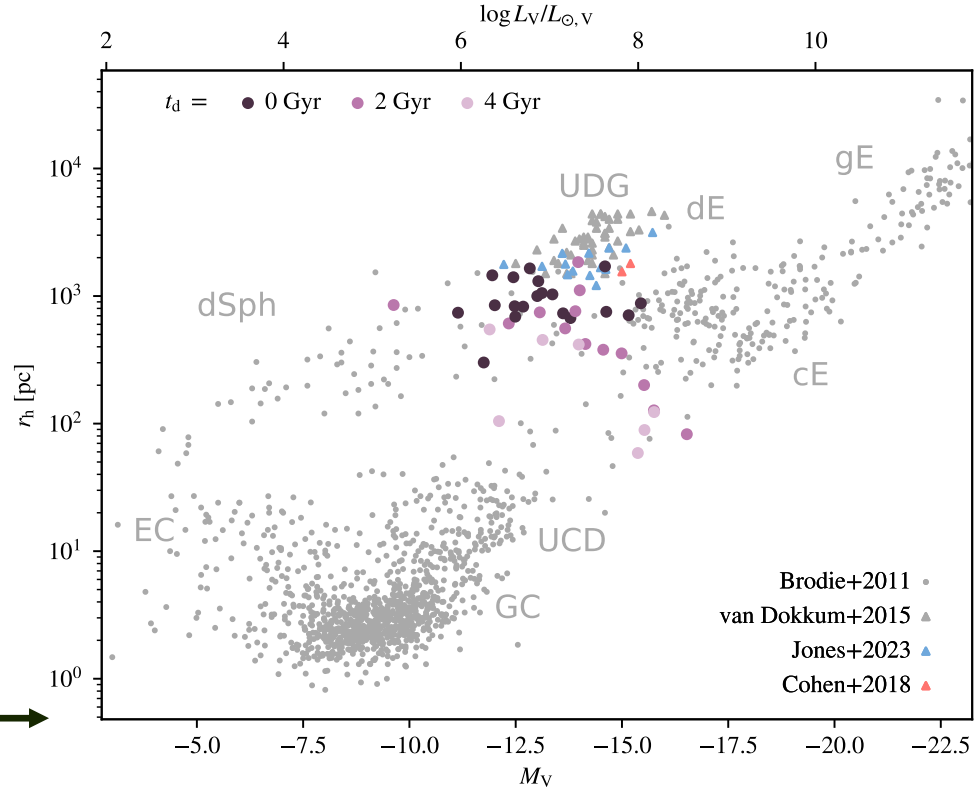
*Anna Ivleva, Rhea-Silvia Remus, Lucas M. Valenzuela, and Klaus Dolag*

**arXiv:2402.09060**




Tracing stripped tidal dwarf galaxies in time




**⇒ Possible formation channel for full variety of dark-matter deficient dwarf galaxies!**

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