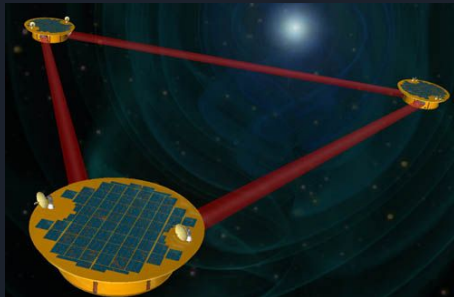


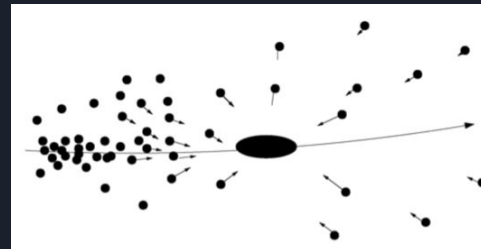
# Project Overview

**Goal:** How to model dynamics of massive black holes in cosmological simulations.

- **Background:** Gravitational Waves can reveal details about formation, evolution, and dynamics of these Black Hole (BH) systems and help us understand Massive BHs and their binaries.
- We start with trying to understand Dynamical Friction in these types of systems since we know that it's a key process that enables BHs to merge.



NASA



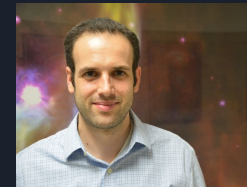
Schneider, Peter, "Extragalactic Astronomy and Cosmology. Pg 250-51



Luke Zoltan Kelley



Claude-André Faucher-Giguère



# Work and Future Goals

- **Work:** I'm using a small dynamical friction simulation of 10 small particles moving past a more massive object.
- **Future Work:**
  - Shift to a more accurate form of integration in the code.
  - Create a simpler numerical prescription to place into larger simulations.
  - Model collective effects of small particle scattering

Scattering Experiment

