

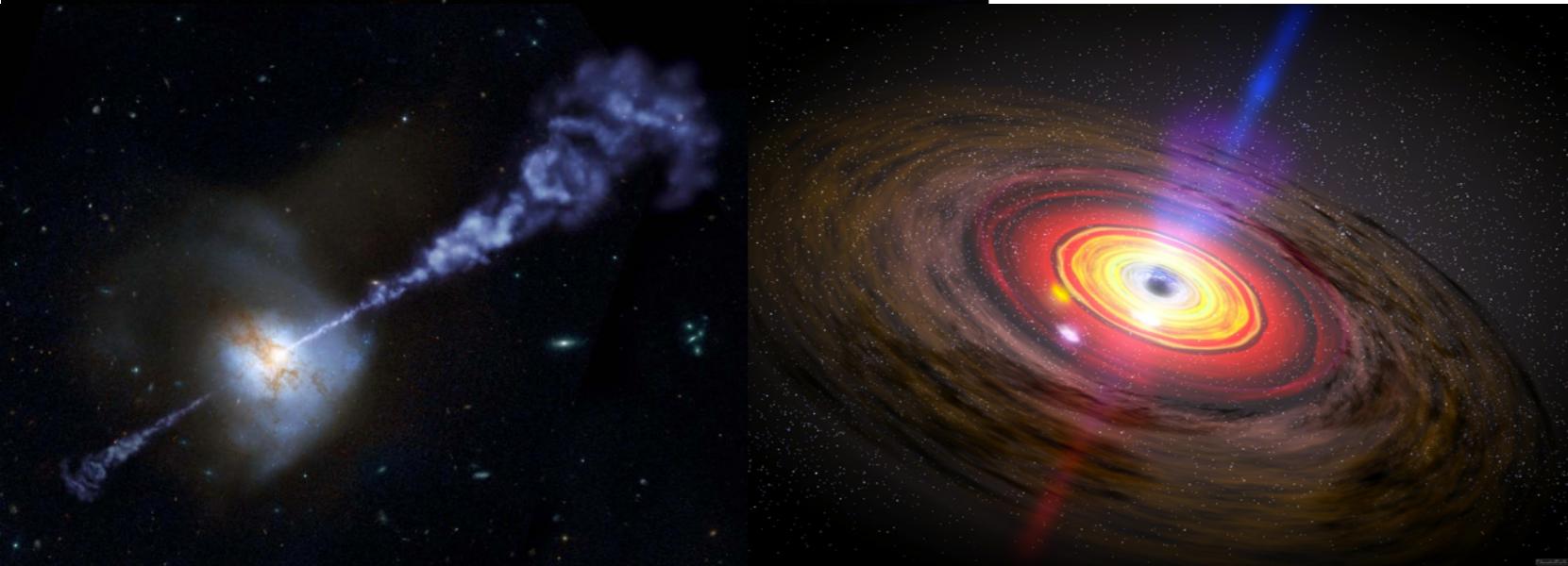
The Growth of Supermassive Black Holes (SMBH) in Galaxy Mergers

Pre-MAP Fall 2014



Advisers:

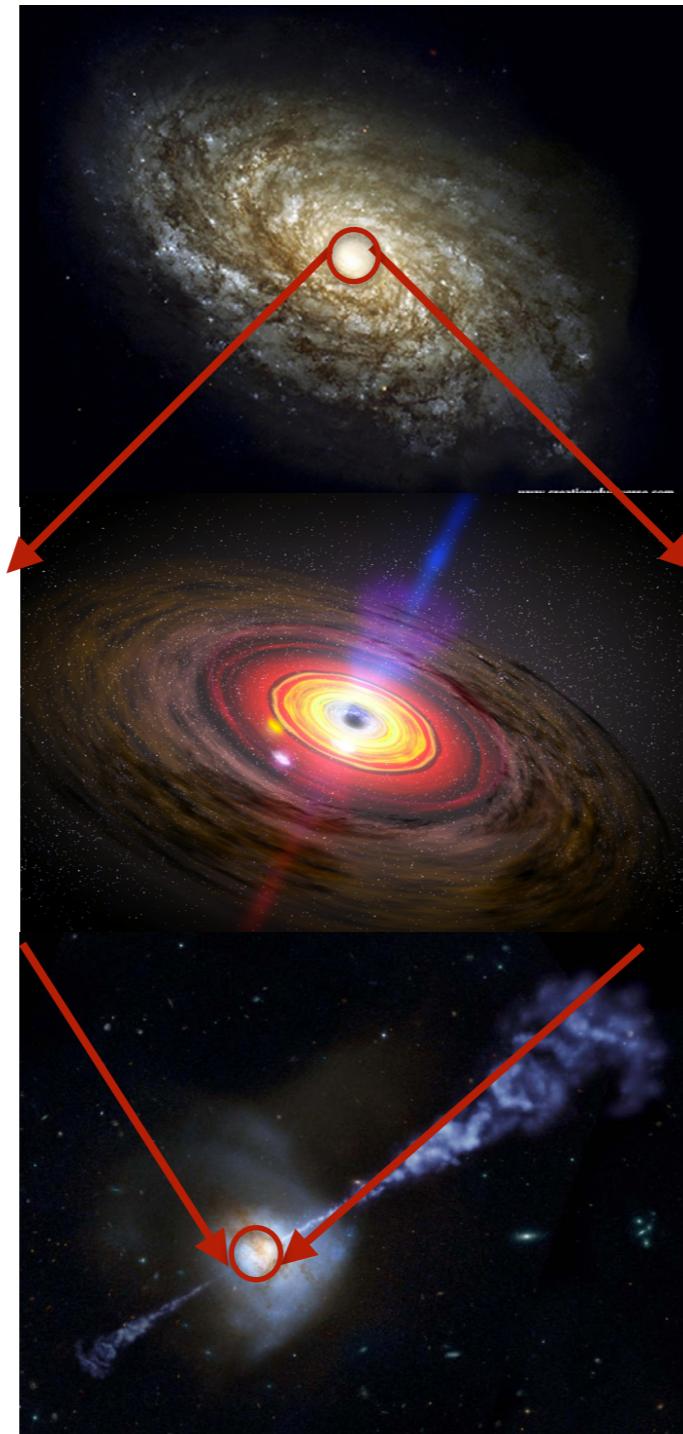
Michael Tremmel
Fabio Governato



Why Are SMBHs So Important?

They exist in most large galaxies... including our own

This energy can have important effects on the host galaxy



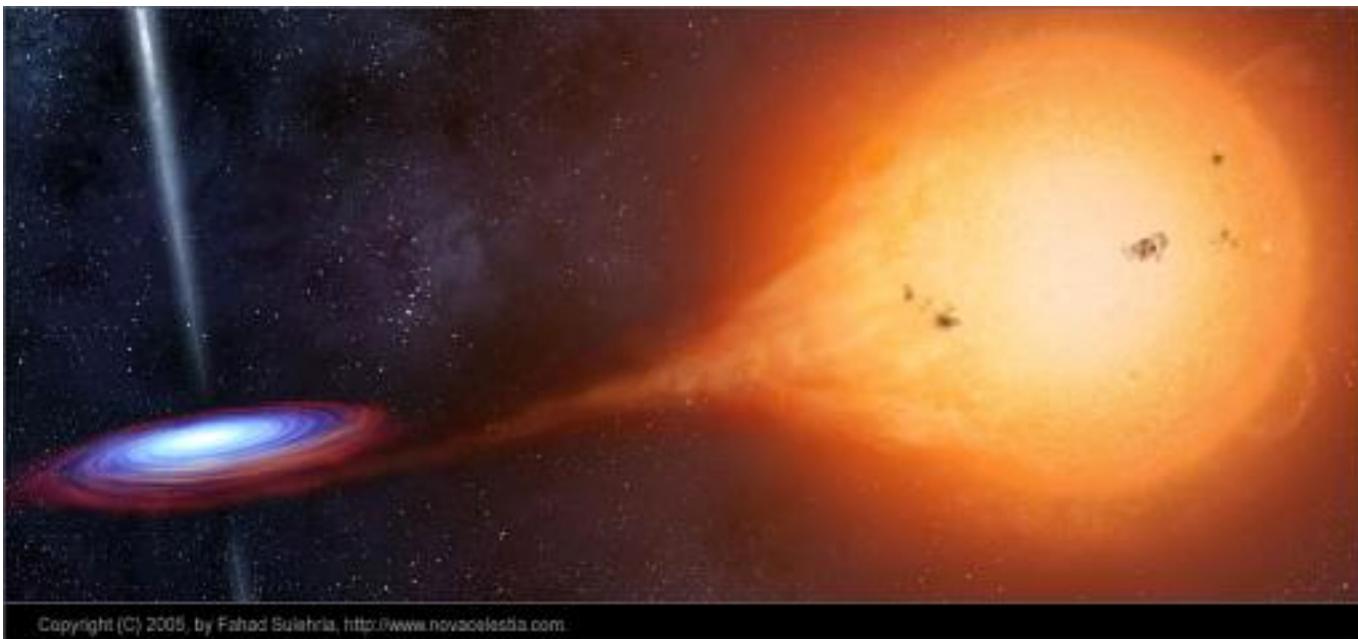
As the black hole grows, the gas it eats gets very hot, releasing a lot of energy

To understand this interaction, we study what drives and regulates the growth of SMBHs

How do Black Holes Grow?

Black holes the size of normal stars
are relatively common and we
know a lot about them

They grow mostly by consuming
mass from other stars



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How do Black Holes Grow?

Supermassive Black Holes are much larger and, therefore, much more extreme



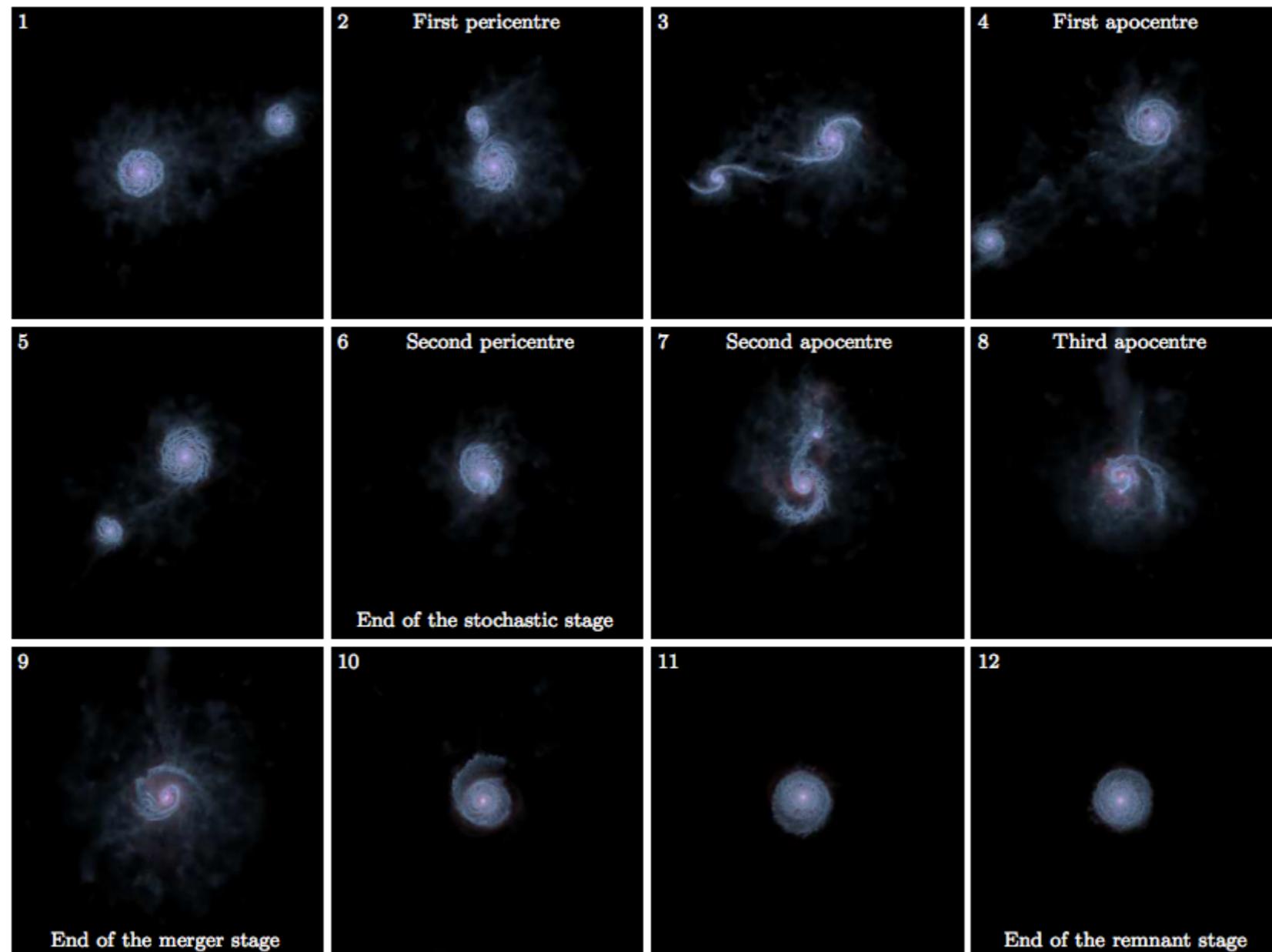
They consume very large amounts of material from their host galaxy



They consume so much mass that we can see them from billions of light years away!

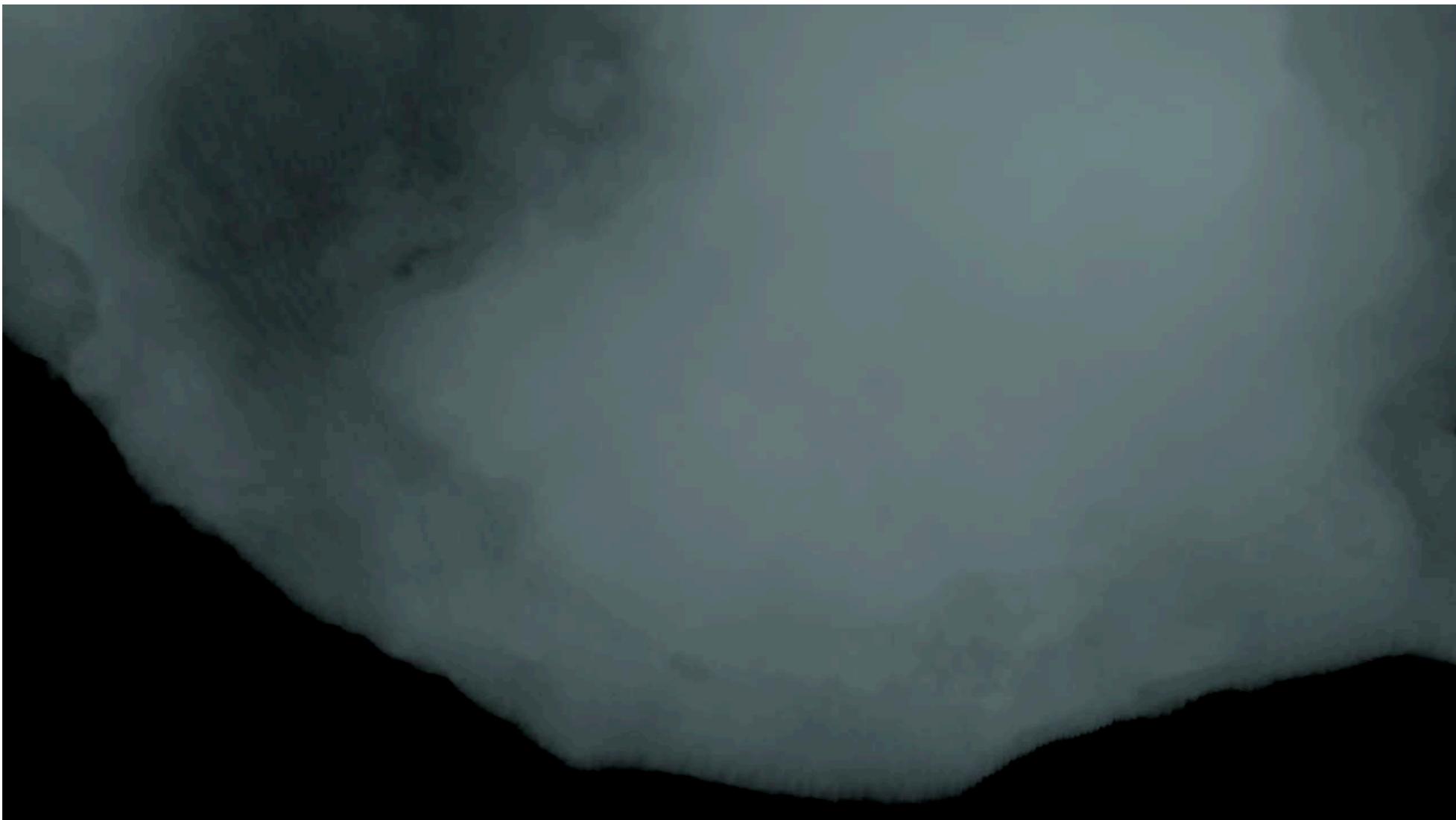
How do Black Holes Grow?

How does that much material get to the SMBH?



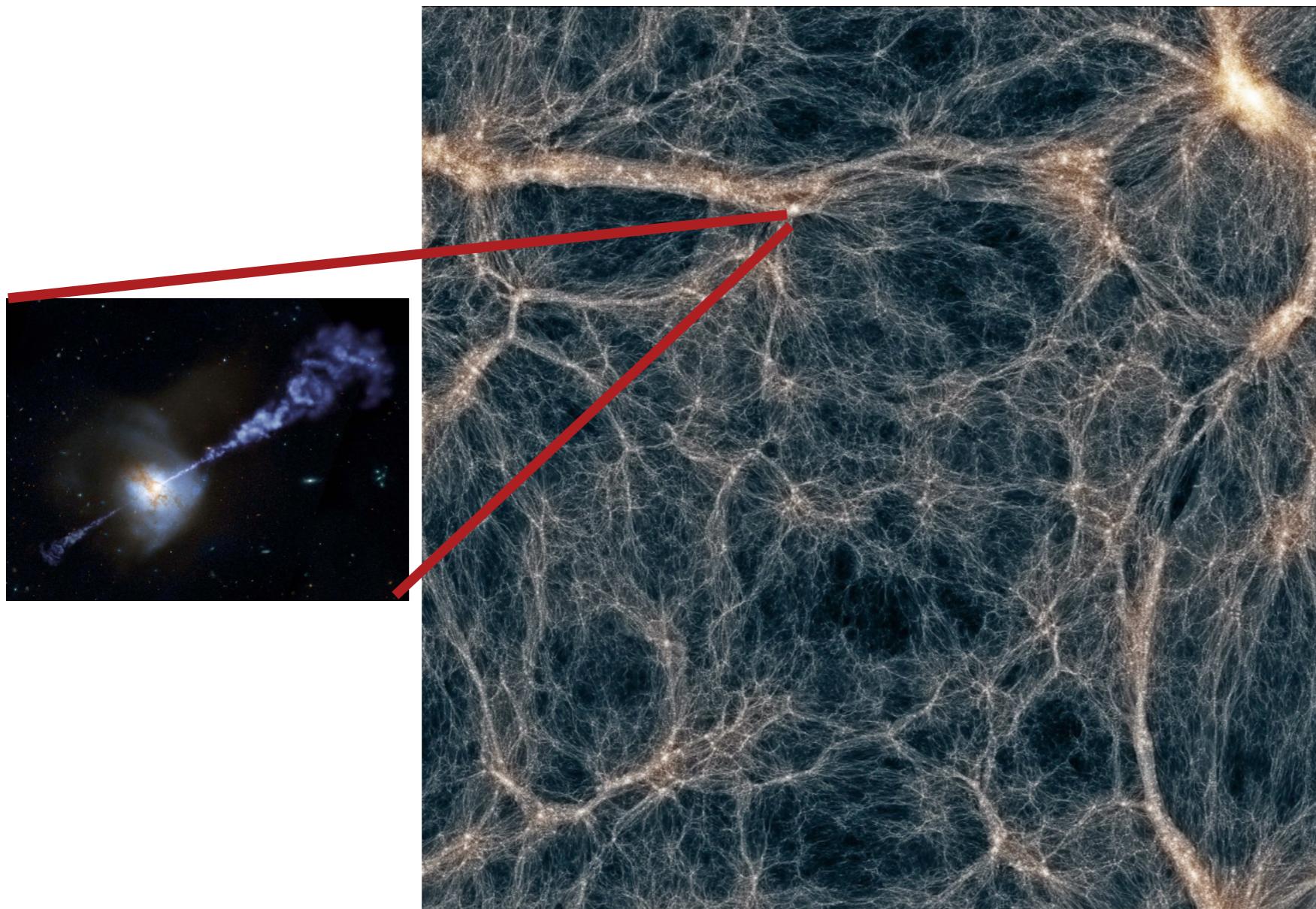
How do Black Holes Grow?

The growth of real galaxies in the Universe is rather complicated...



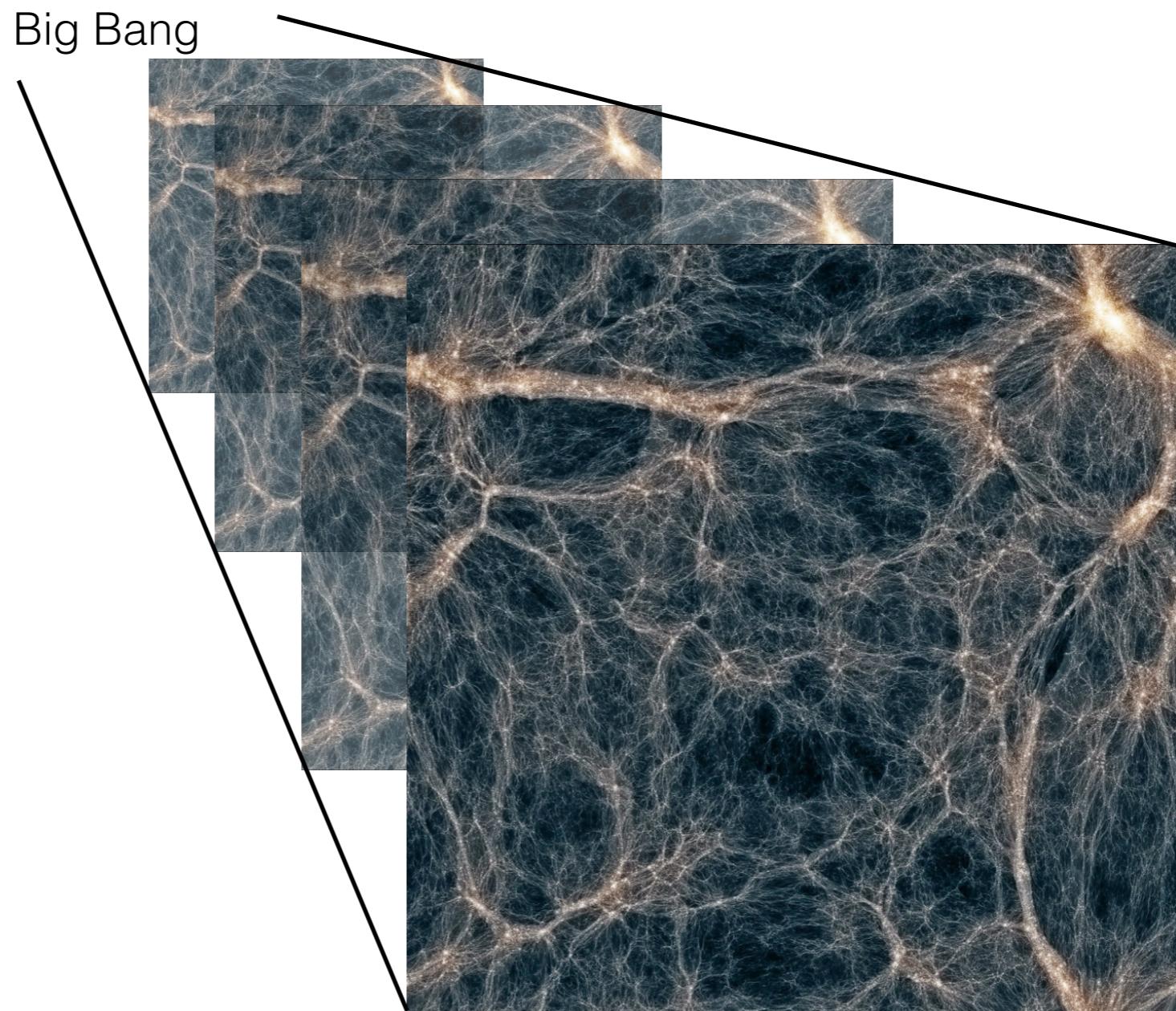
How do Black Holes Grow?

Cosmological simulations give us a very large sample of realistic galaxies to study within a variety of environments



This Project

We will examine data from cosmological simulations at different times in the Universe's history



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