



BLACKHOLE JETS

Presentation by Melissa Rasmussen
Research led by Dr. Maria Rodriguez

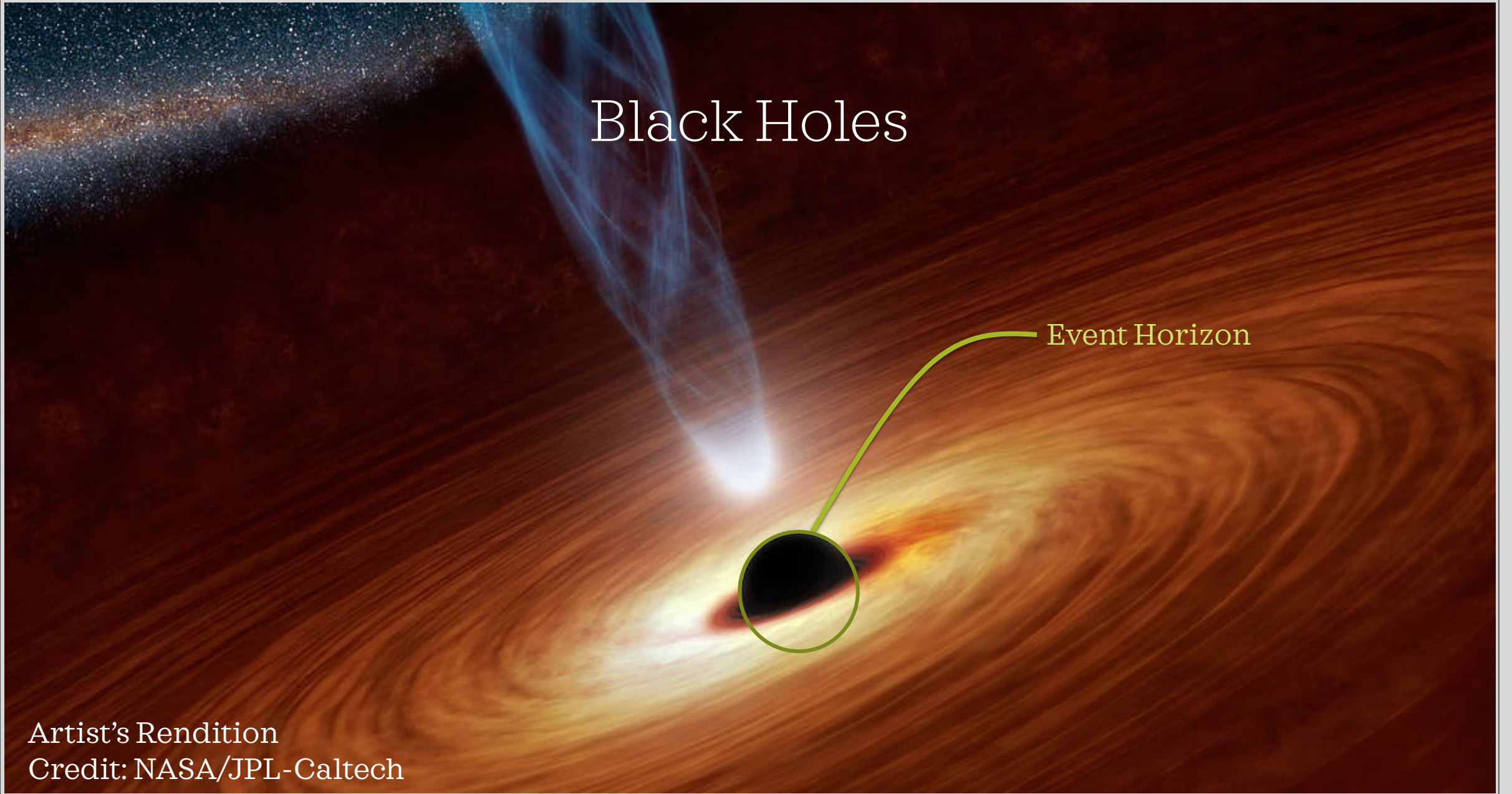


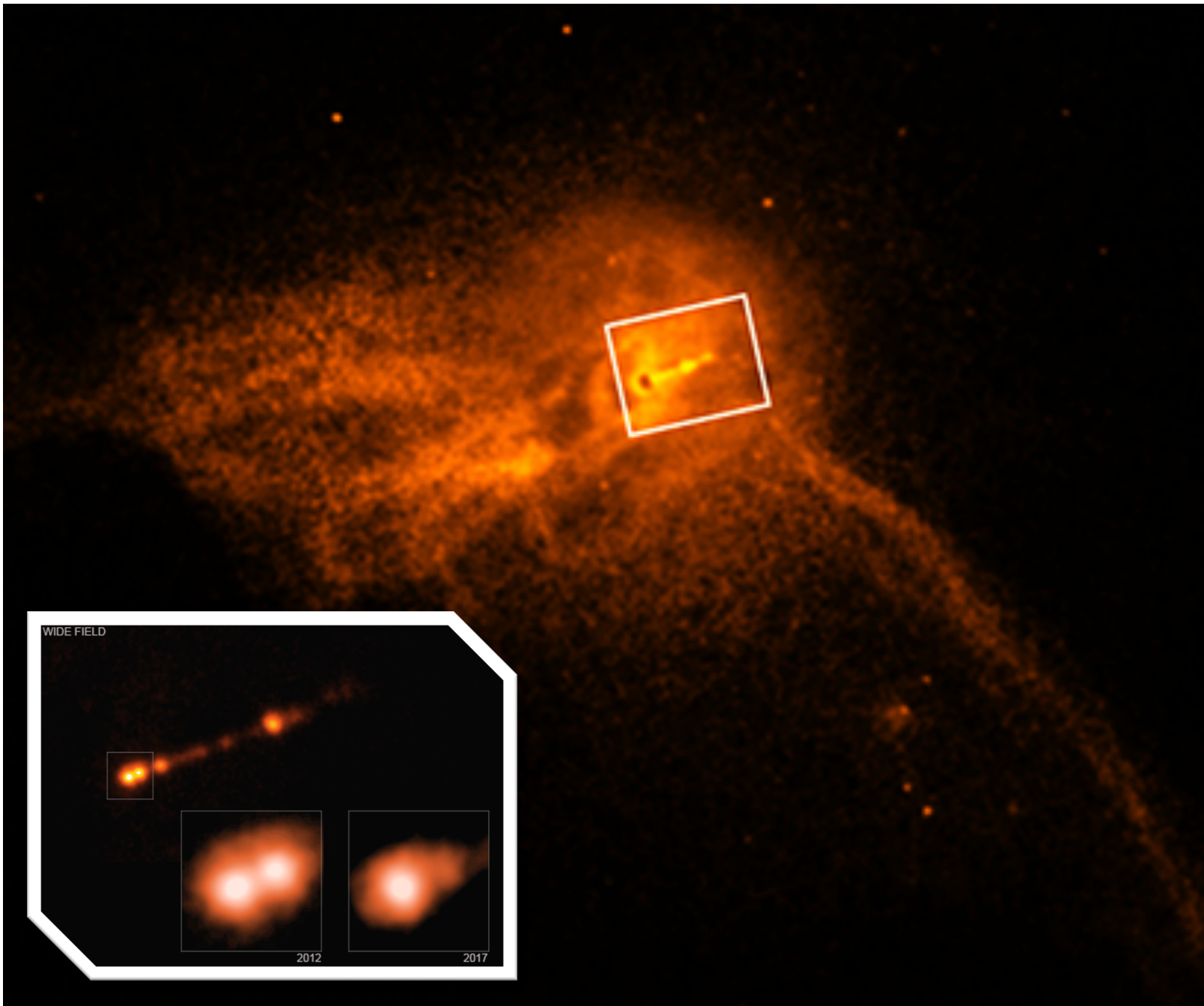
BLACK HOLE JET THEORY

Black Holes

Event Horizon

Artist's Rendition
Credit: NASA/JPL-Caltech





M87

Credit: NASA/CXC

Chandra Wide-field

Blandford-Znajek

“Equations governing stationary force-free electromagnetic fields in Kerr spacetime are derived, and it is found that energy and angular momentum can be extracted from a rotating black hole by a purely electromagnetic mechanism.”

- Excerpt from the abstract for Blandford and Znajek's paper.

R. D. Blandford and R. L. Znajek, “Electromagnetic extractions of energy from Kerr black holes,” Mon. Not. Roy. Astron. Soc. 179, 433 (1977).



OUR RESEARCH

Restrictions

01

Force-Free
condition for
surrounding
plasma

02

Extremal Kerr
black holes

03

Stationary and
axisymmetric

04

Asymptotically
approaches
Anti-de Sitter
space

AdS-NHEK Solution

— $a=0.25$ — $a=0.4$ — $a=0.5$

