

Breaking News



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First Image of a Black Hole

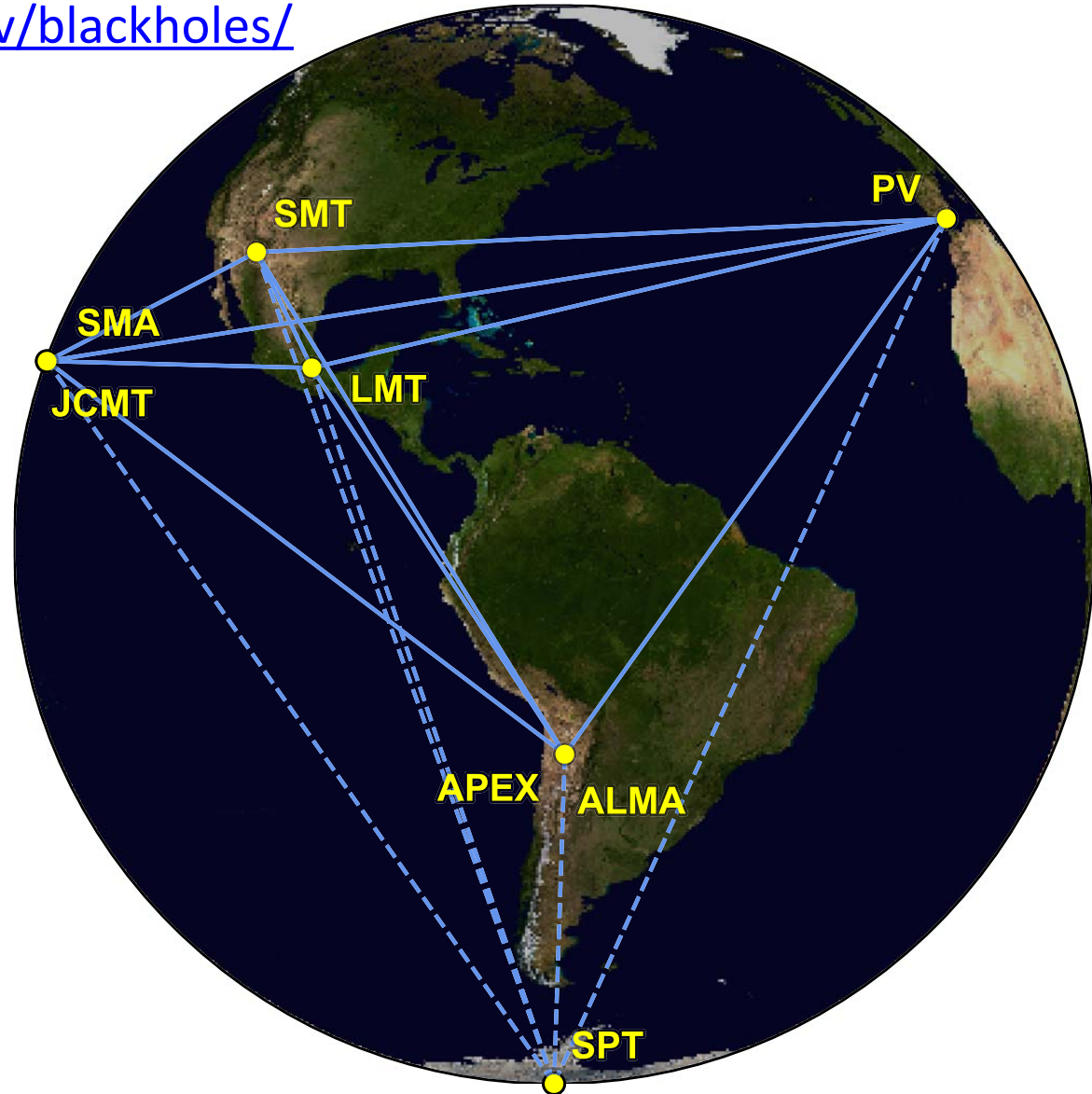
The First Image of a Black Hole

Course webpage: <http://orion.astr.nthu.edu.tw/astro/>

Event Horizon Telescope (EHT)

Details on <https://www.nsf.gov/blackholes/>

- ❖ A virtual observatory campaigning many radio observatories to create a baseline as long as the size of the Earth
- ❖ Taiwan joined with Green Land Telescope (GLT)



First Image of a Black Hole

Event Horizon Telescope (EHT)



First Image of a Black Hole



The Host Galaxy M87



First Image of a Black Hole

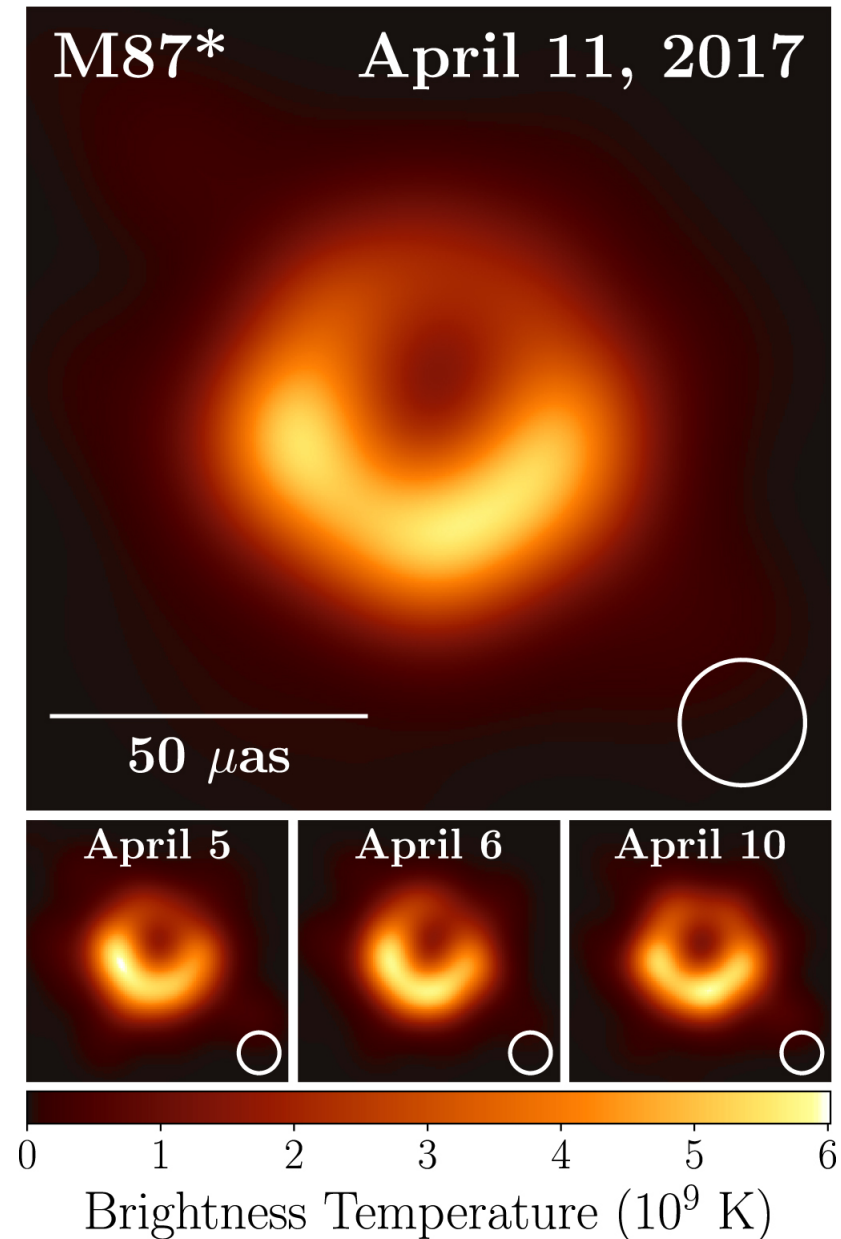
A Zoom to the Black Hole in M87

Visualization: F. Summers, STScI

Music: "First Day of Spring", David Hilowitz, CC BY-NC

M87 Suppermassive BH !

- ❏ **Supermassive black hole in the center of M87**
- ❏ $M_{\text{BH}} = (6.5 \pm 0.7) \times 10^9 M_{\odot}$
- ❏ **Diameter = $42 \pm 3 \mu\text{as}$
= $(42 \pm 3) \times 10^{-6} \text{ arcsec}$**
- ❏ **Special issue in the Astrophysical Journal Letters, 875**



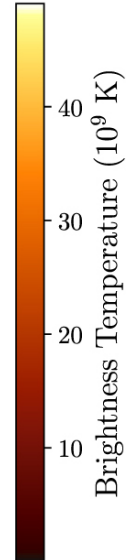
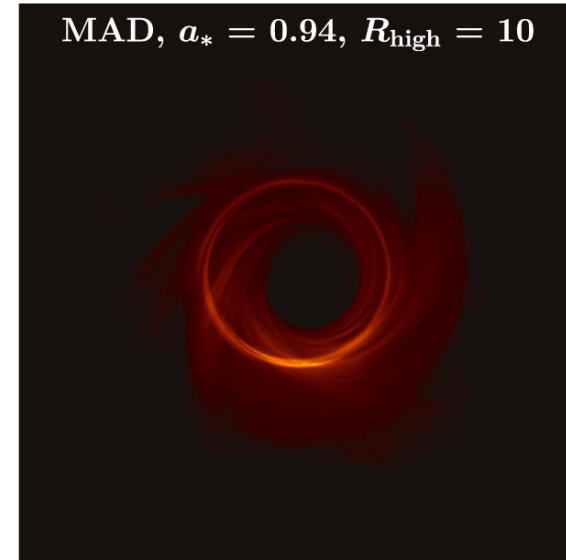
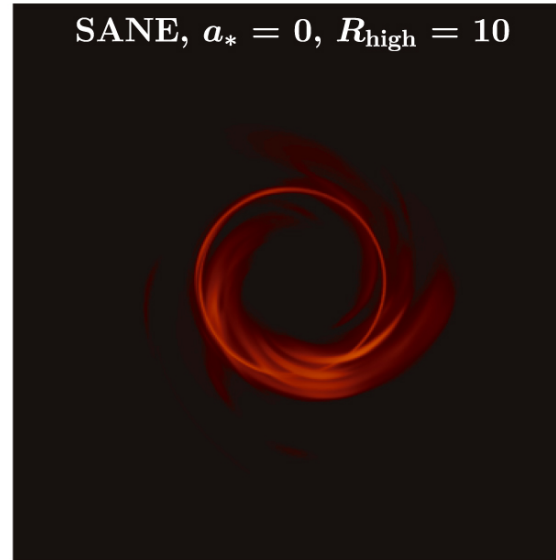
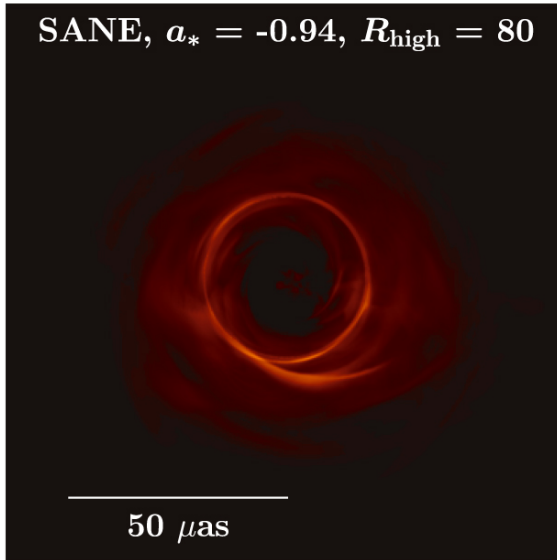
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Comparison with Models

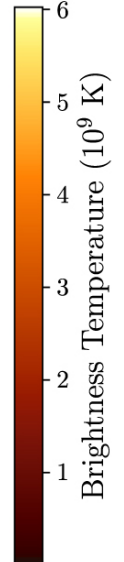
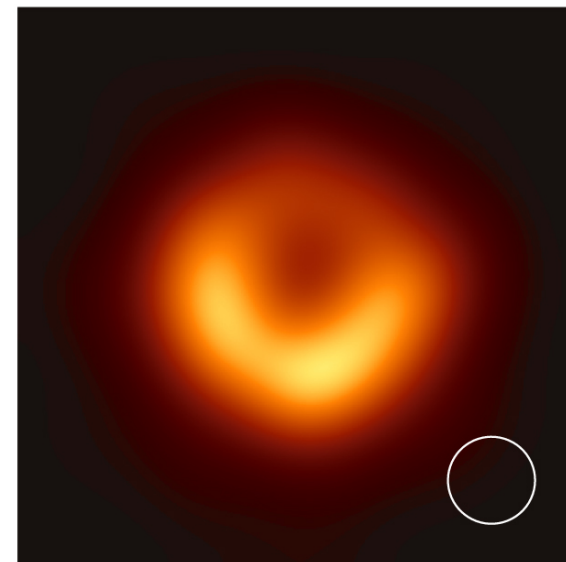
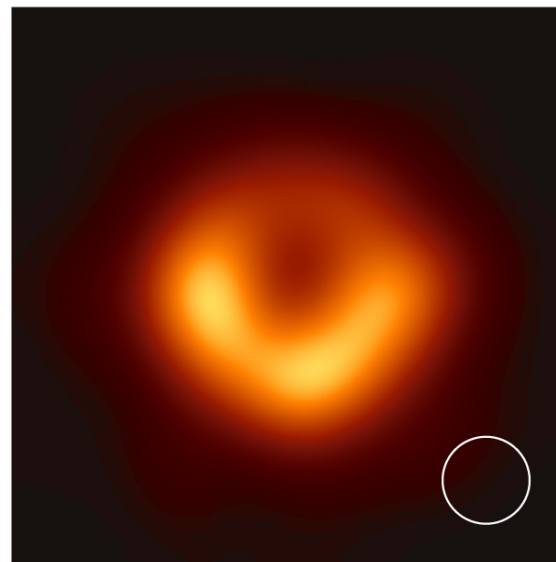
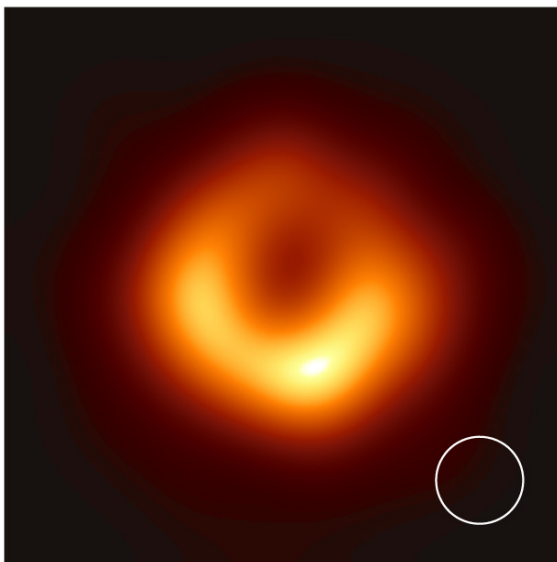


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GRMHD models



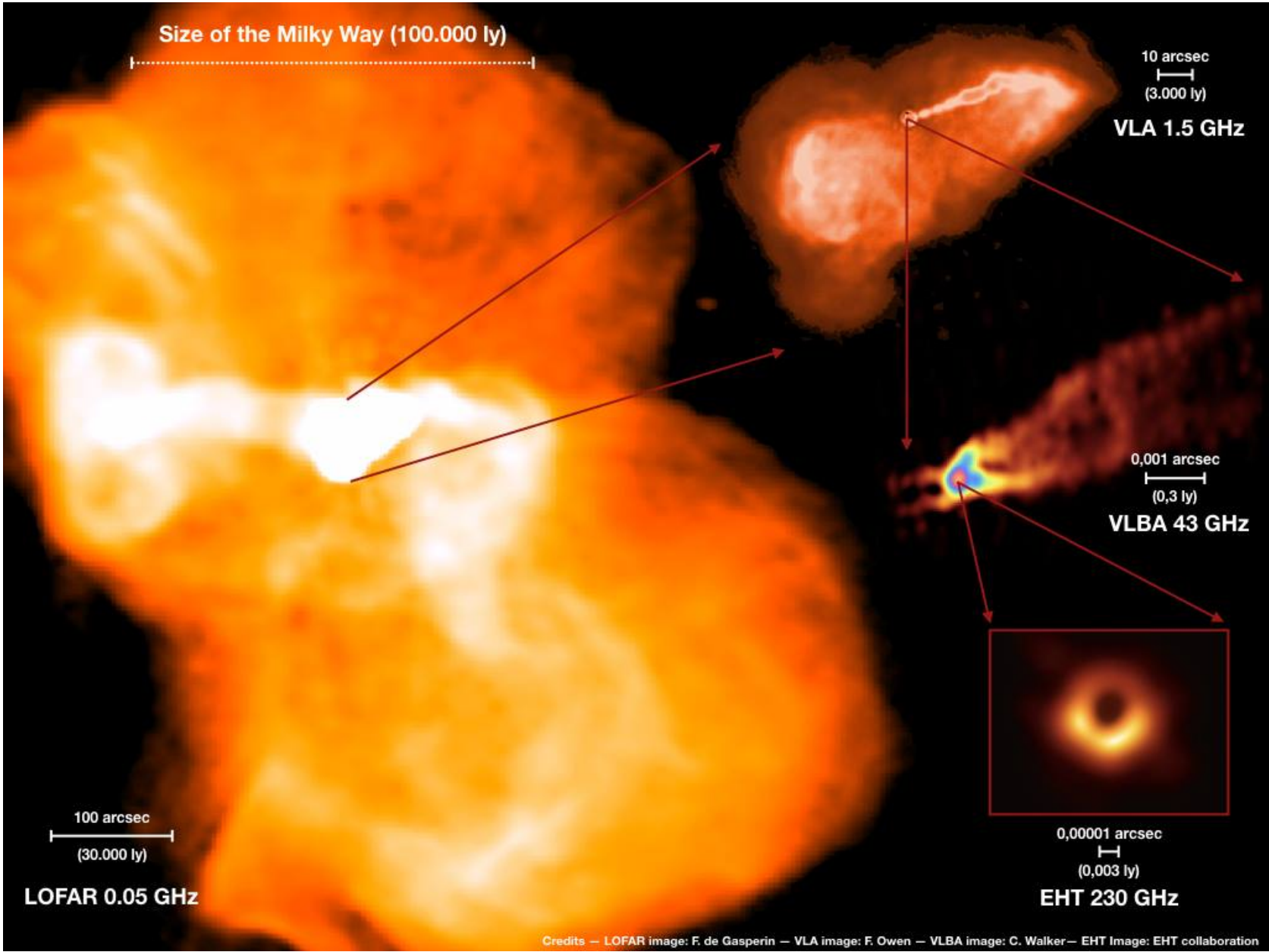
Simulated EHT observations



The Surroundings of the BH



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Fun!

0.5



1.0



1.5



2.0



2.5



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Press Conference on April 10, 2019

Check out details on <https://www.nsf.gov/blackholes/>



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