

# Jet kinematics in the core of 3C84

Georgios Filippas Paraschos

Max-Planck-Institut für Radioastronomie

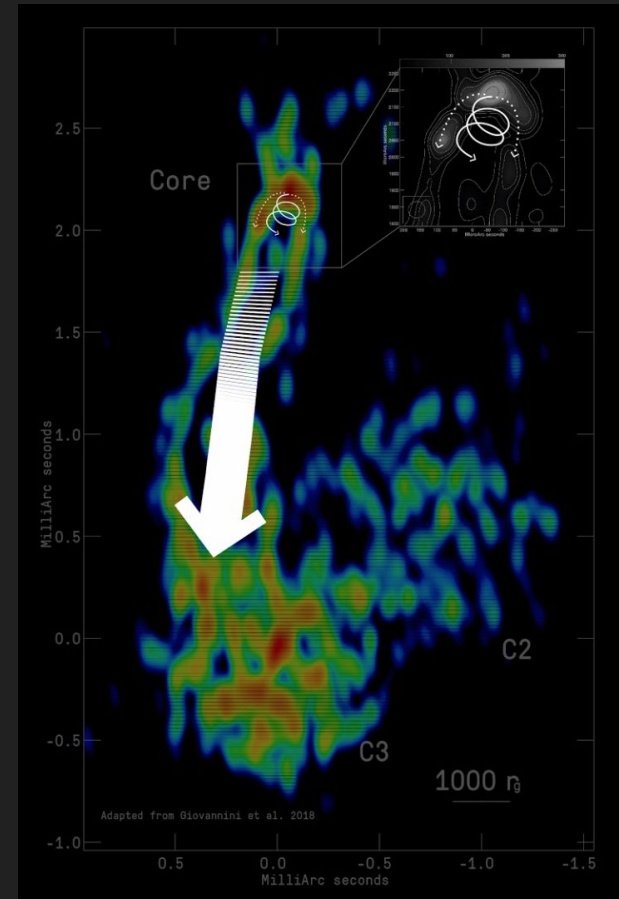
Jets 2021 Conference, Heidelberg

Collaborators: J.-Y. Kim, T. P. Krichbaum, J. A. Zensus

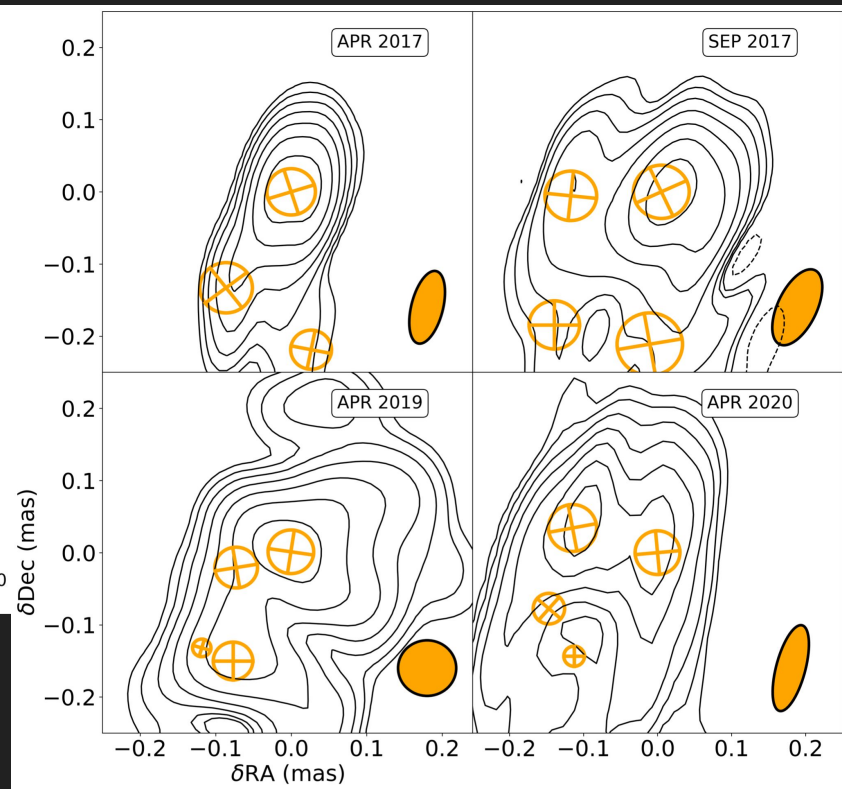
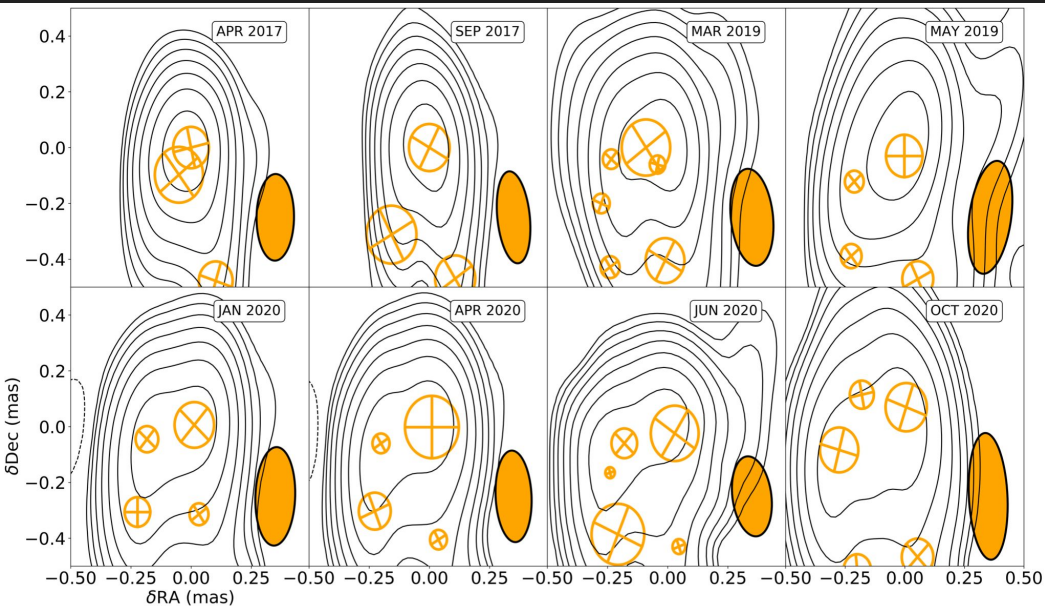
# Introduction / Motivation

- Recent RA map (Giovannini et al. 2018) from 2013 data revealed E-W elongated structure in the core of 3C84 and a double rail structure southward
- Punsly et al. 2021 found that the elongated structure persists up to April 2020 at 43 GHz
- Oh et al. submitted showed that the core can be described by 2+ components between 2008 and 2015 at 86 GHz

In this work we extend the analysis of all available, recent 43 & 86 GHz images by fitting circular Gaussian components to the jet base of 3C84

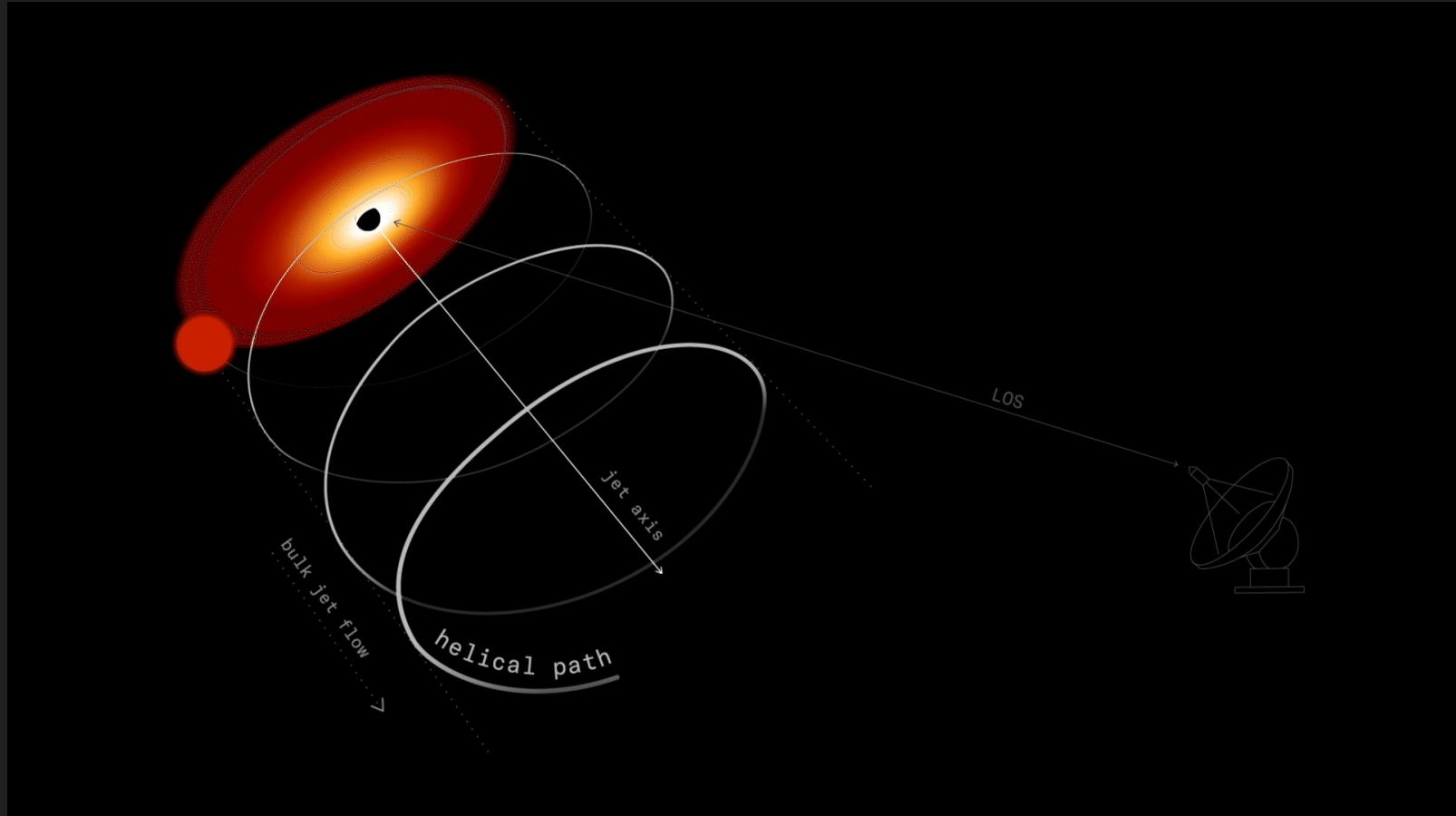


# 3C84 jet core kinematics

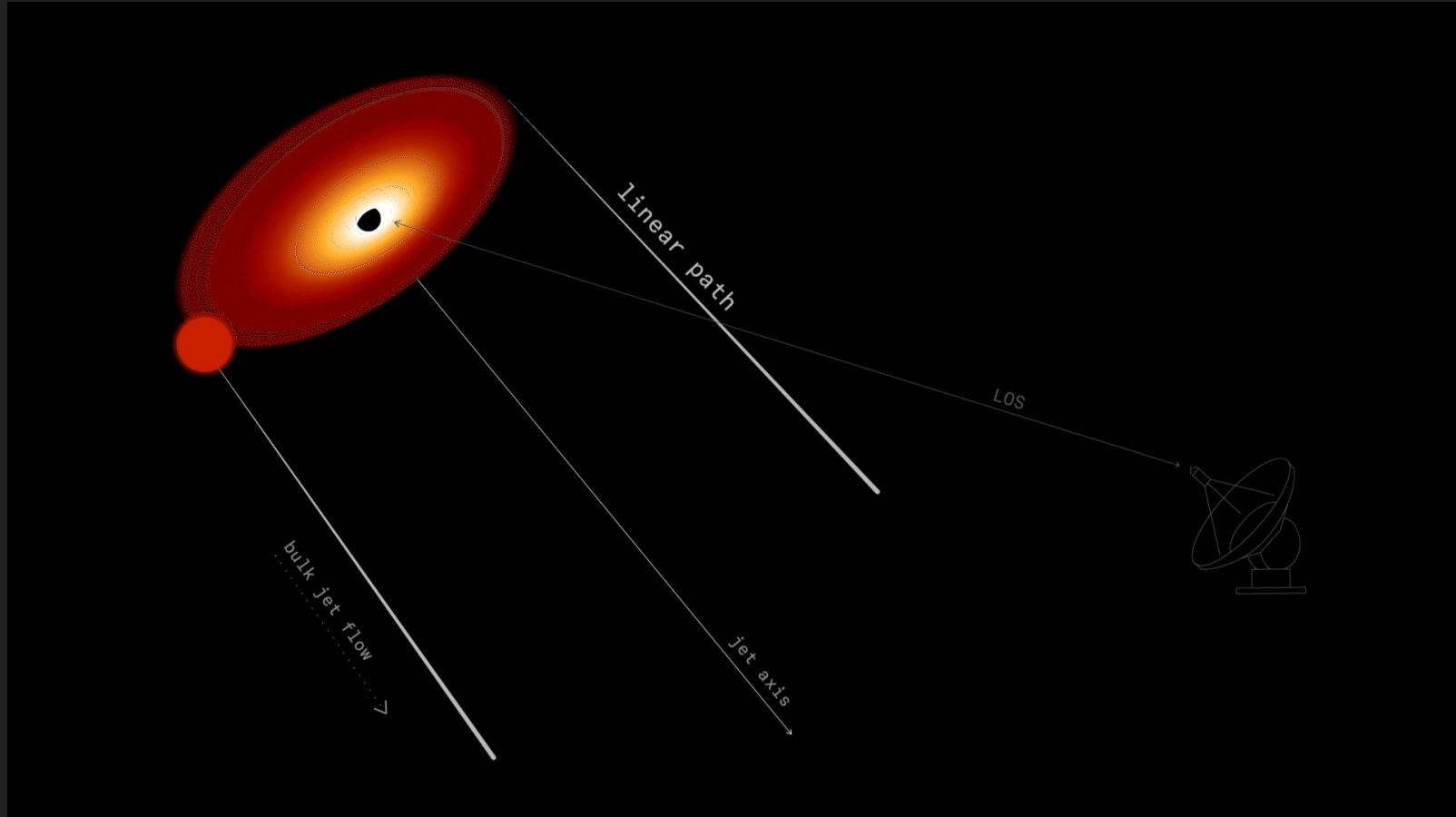


- 2-3 component nucleus confirmed in recent epochs
- Components either move in mirrored "S" shape or linearly southward

# Helical path (H scenario)



# Linear path (R scenario)



# Conclusions

- Exact trajectory of motion in 3C84's jet base is still unclear and is tied to the true location of the SMBH
- H (helical path) model: BH possibly NW of the apparent VLBI elongated core
  - In this scenario the bulk jet flow follows a mirrored "S" shape, bending southwards within the central 0.1 mas
  - The components follow a helical trajectory reflected as a "zig-zag" motion in the sky plane
- R (spine/sheath) model: the BH is located purely to the N of the elongated core
  - The components move in a linear trajectory, free of any major bends, observed as the bright jet sheath