Strongly Lensed Dual AGN Systems in the Era of SKA-VLBI

Cecilia Stella (UniBo, INAF-IRA)

Dual AGN (DAGN)

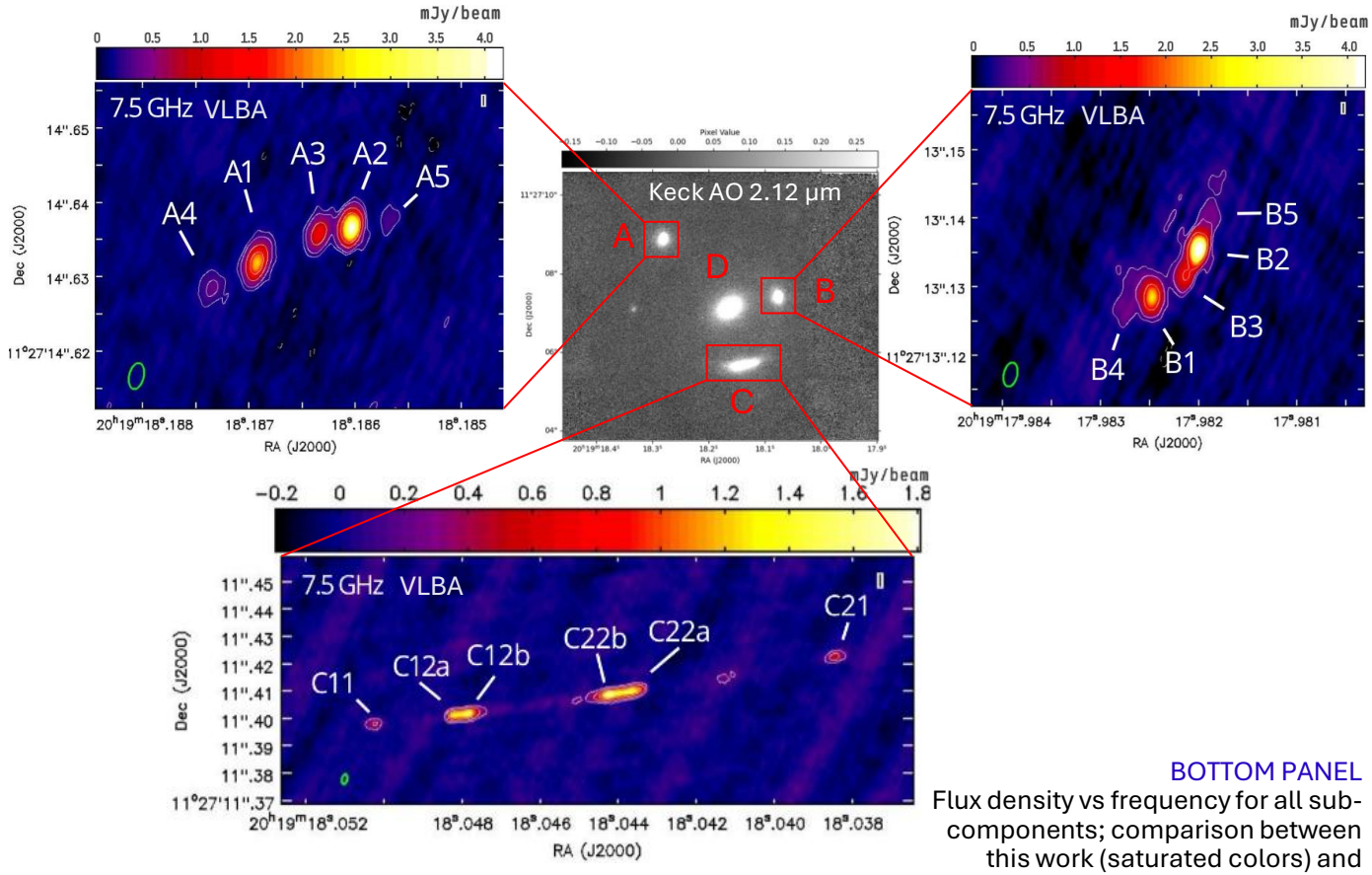
- Expected intermediate stage of merging process
- Low separation systems + high z = interesting to test predictions on rate of dual SMBH
  → Can be spatially resolved only with VLBI

Target: MG B2016+112

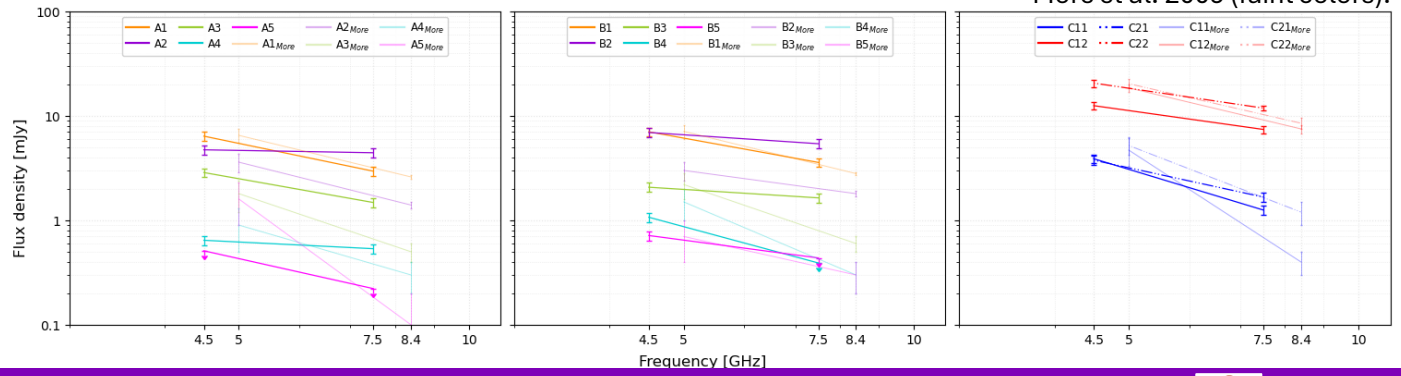
- **Strongly lensed candidate DAGN** at z=3.2773 and projected separation 175 pc
- three lensed images **A**, **B**, **C**: multiple sub-components with **two flat-spectrum components → two AGN cores?**
- Intrinsic μJy-level flux density + magnification factor μ~300 → anticipates **SKA-VLBI observations without lensing effect**
- **Problem:** available spectral indices α from non-simultaneous observations
- **New** flux density and α **measurements**, unaffected by (possible) variability

This work

- **2024: simultaneous multi-frequency** VLBI observations at 1.7, 4.5, 7.5 GHz to test presence of two AGN cores
- Confirm presence of two flat-spectrum components → supporting evidence for DAGN scenario
- **Implications:** occurrence of DAGN at high z larger that what currently predicted



BOTTOM PANEL
Flux density vs frequency for all sub-components; comparison between this work (saturated colors) and More et al. 2009 (faint colors).



Co-authors: C. Spingola, D. Dallacasa, G. Despali, C.D. Fassnacht,
G. Migliori, J. McKean, D. Schwartz, D. Massari, S. Vegetti, A. Barnacka