Circumnuclear Star Formation and Feedback in the BAT AGN

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EWASS, July 5, 2016

Richard Mushotzky, Stuart Vogel, Neal Miller, Taro Shimizu

- What is the detection fraction of radio emission in the radio-quiet BAT AGN?
- Does the FIR-Radio correlation hold for star formation near the nucleus?
- Why do the BAT AGN tend to lie below the main sequence of star formation?

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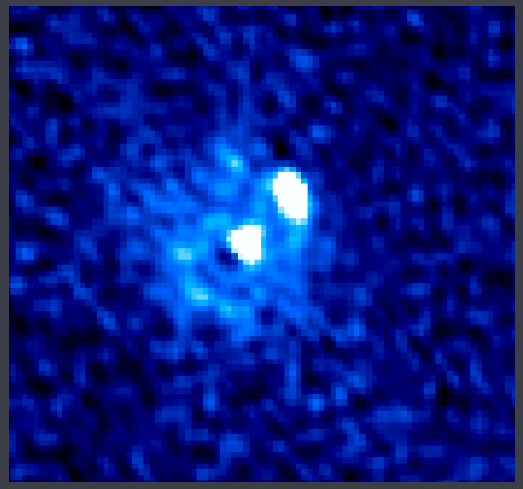
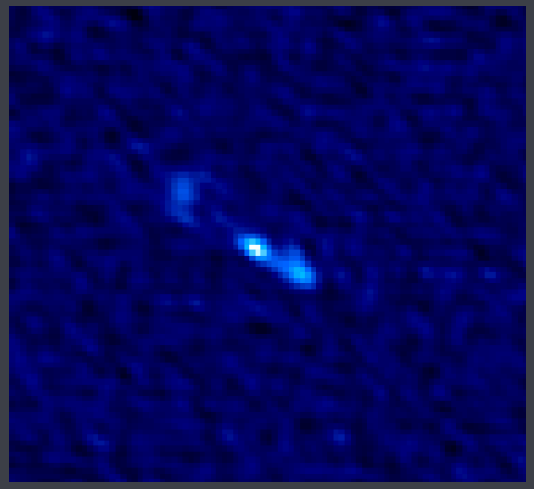
High resolution (1’’, 70 – 800 pc) JVLA 22 GHz imaging of 70 radio-quiet BAT AGN

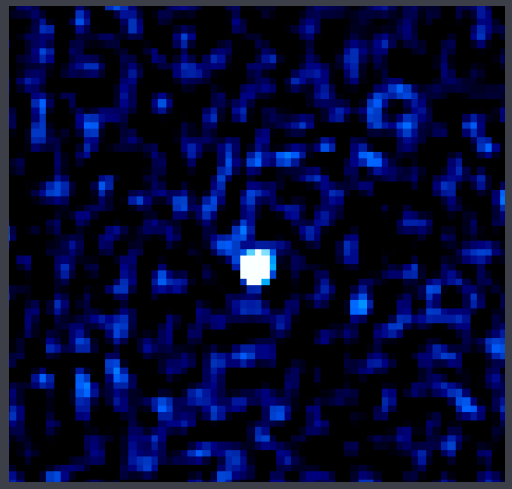
Extension / Rings



Jets



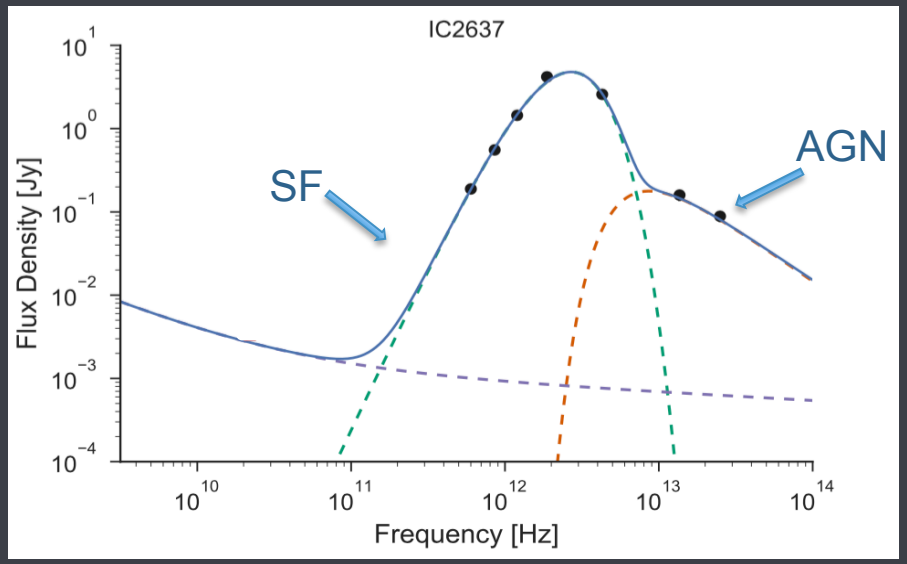
Compact



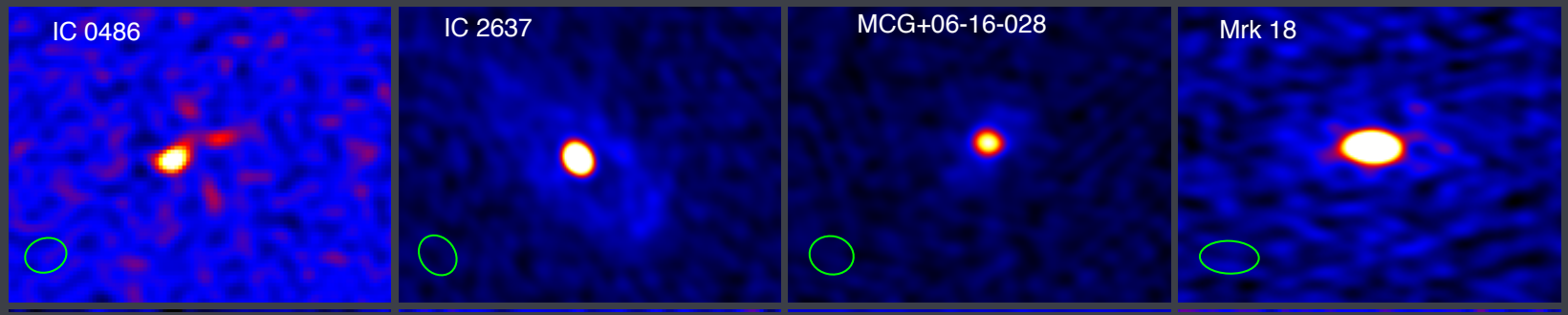
***All* of our Seyferts observed had compact radio cores at 22 GHz!**

FIR-Radio Correlation: decomposing AGN and SF Components

Infrared: *Herschel* SED decomposition
(T. Shimizu et al. 2015)

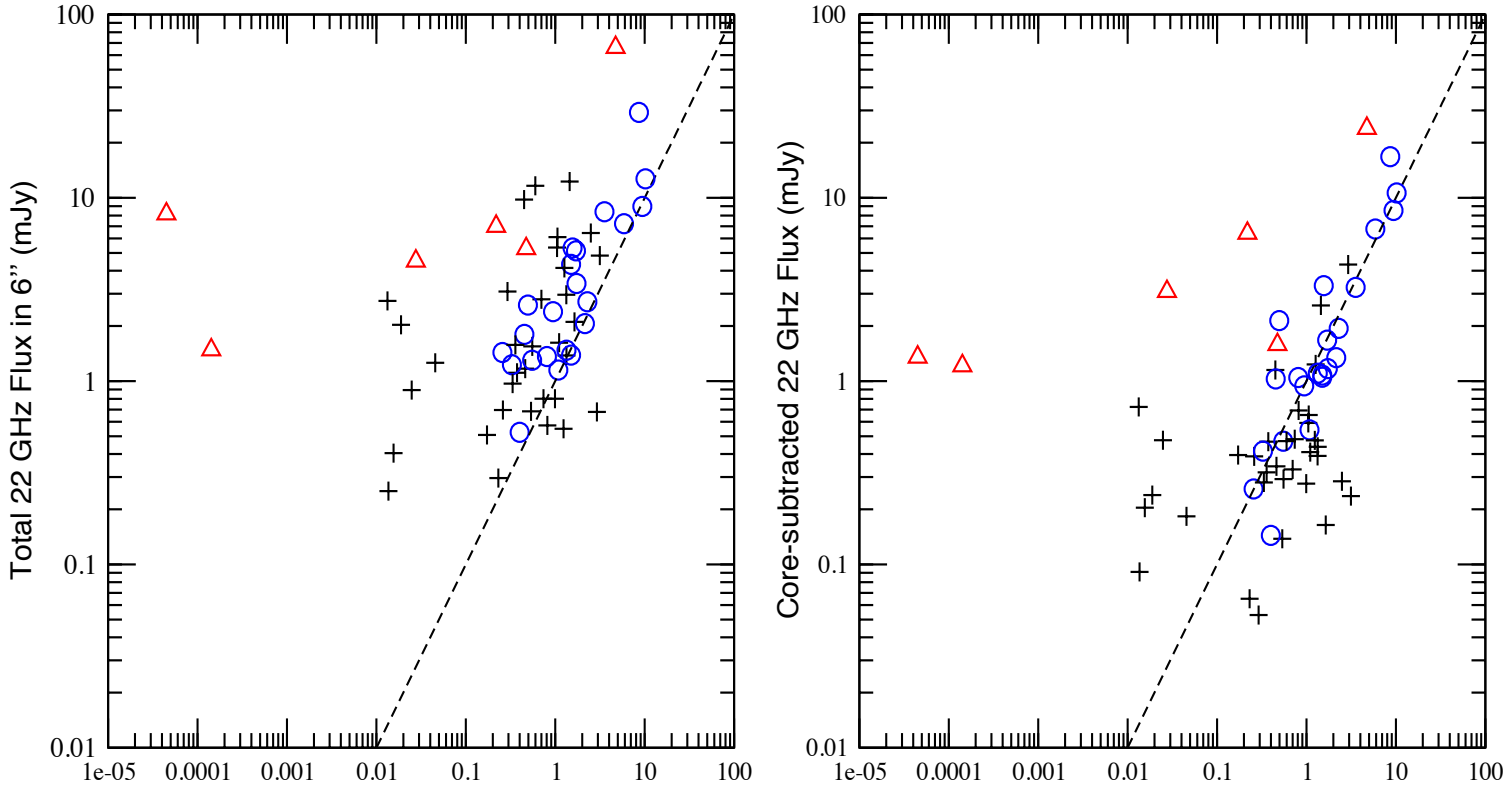


Radio: Spatial decomposition into core and extended star formation



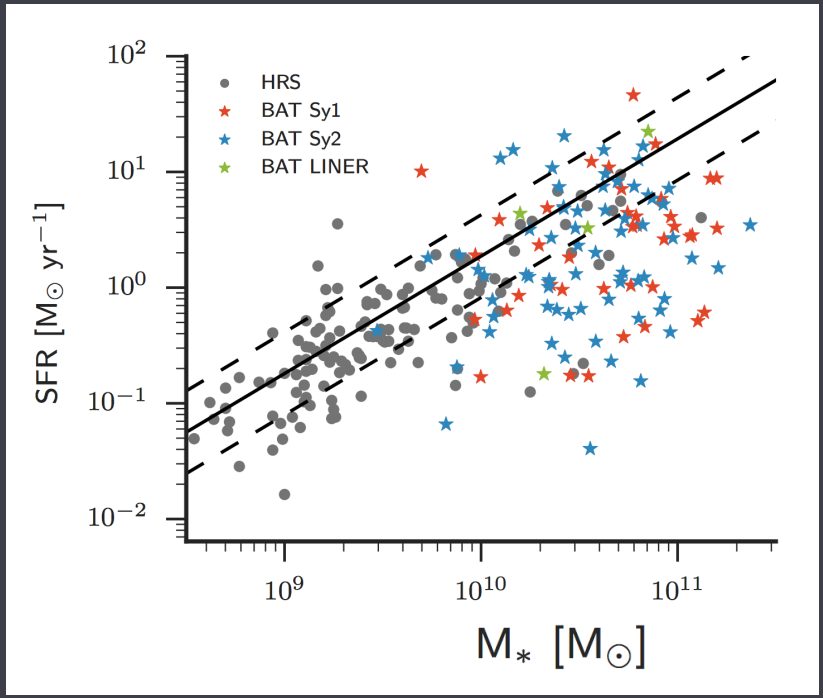
FIR-Radio Correlation: decomposing AGN and SF Components

Star-forming objects lie on the relation after AGN core removal!

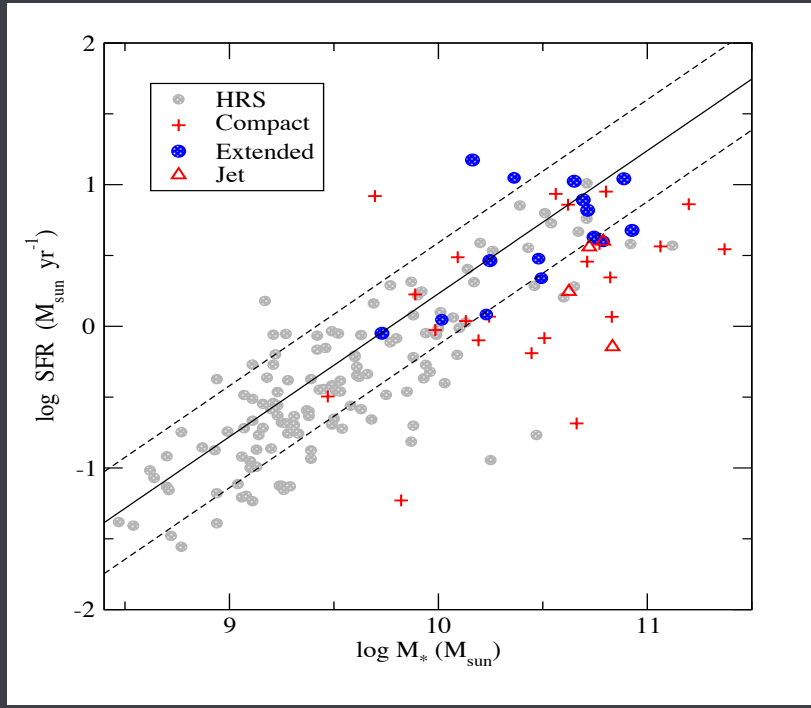


Why is star formation suppressed in the BAT AGN?

High resolution morphologies clarify the situation!



T. T. Shimizu et al., 2015



KL Smith +, in prep

All hard X-ray selected Seyferts have radio cores at 22 GHz.

FIR-Radio correlation confirmed for circumnuclear star formation in hard X-ray selected AGN.

Only core- or jet-dominated objects have suppressed star formation.