

Inflating a Chain of X-Ray-Deficient Bubbles by a Single Jet Activity Episode

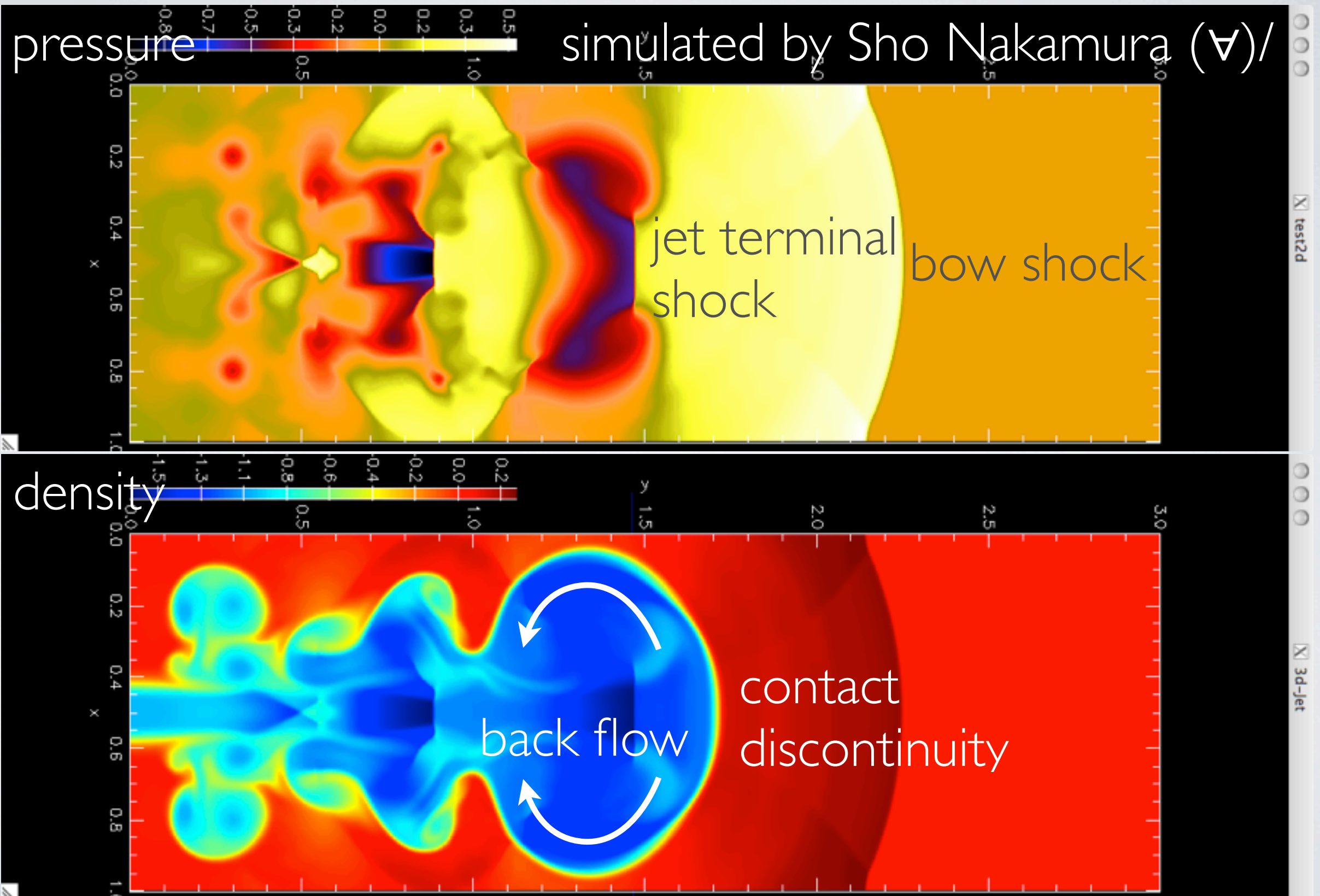
Refaelovich & Soker, 2012

第147回雑誌会 (2013 Jan. 09)

中村翔(服部研 1st year Ph.D)

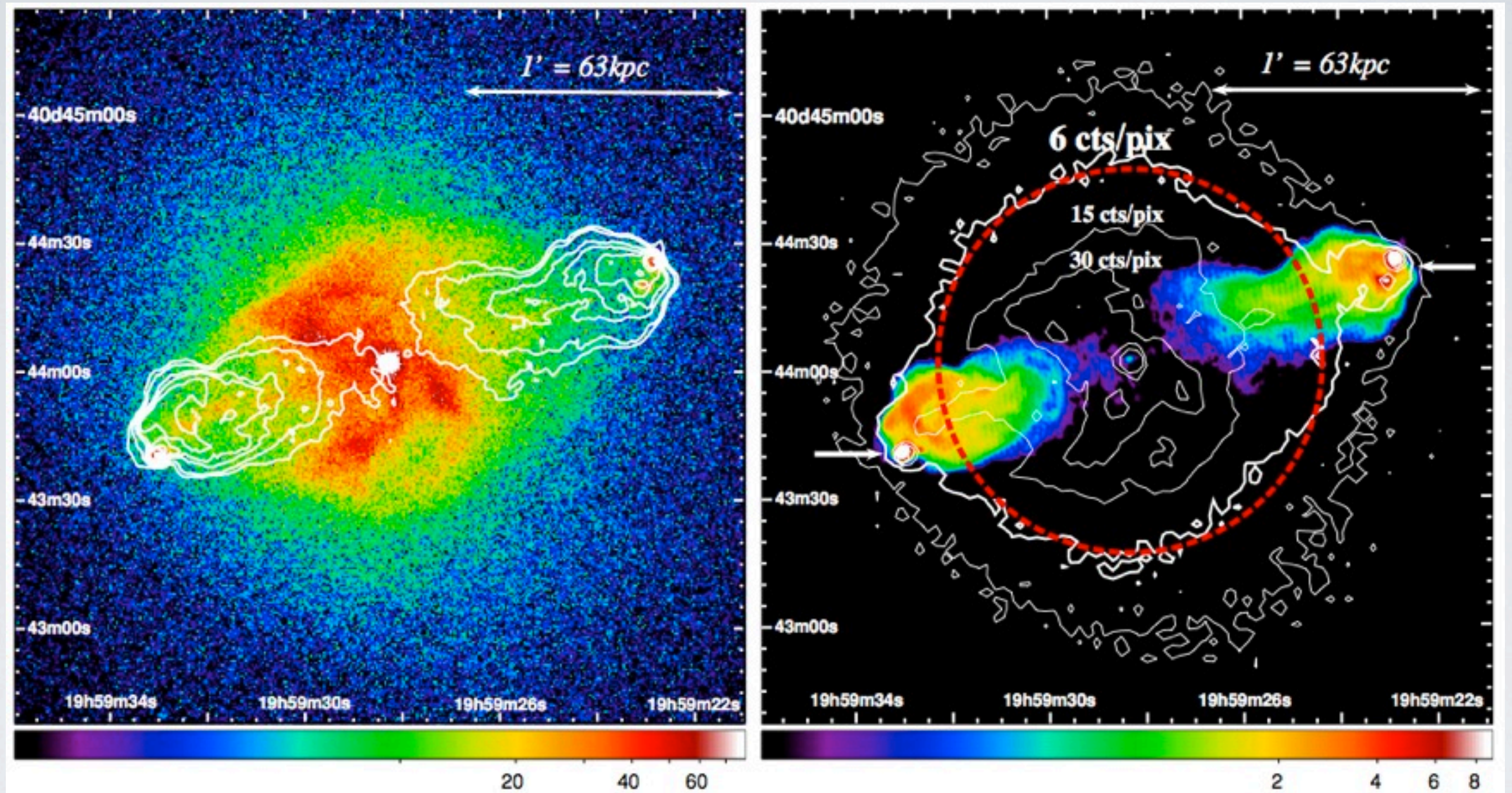
Jet

structure of Jet



Kelvin-Helmholtz instabilities

structure of Jet

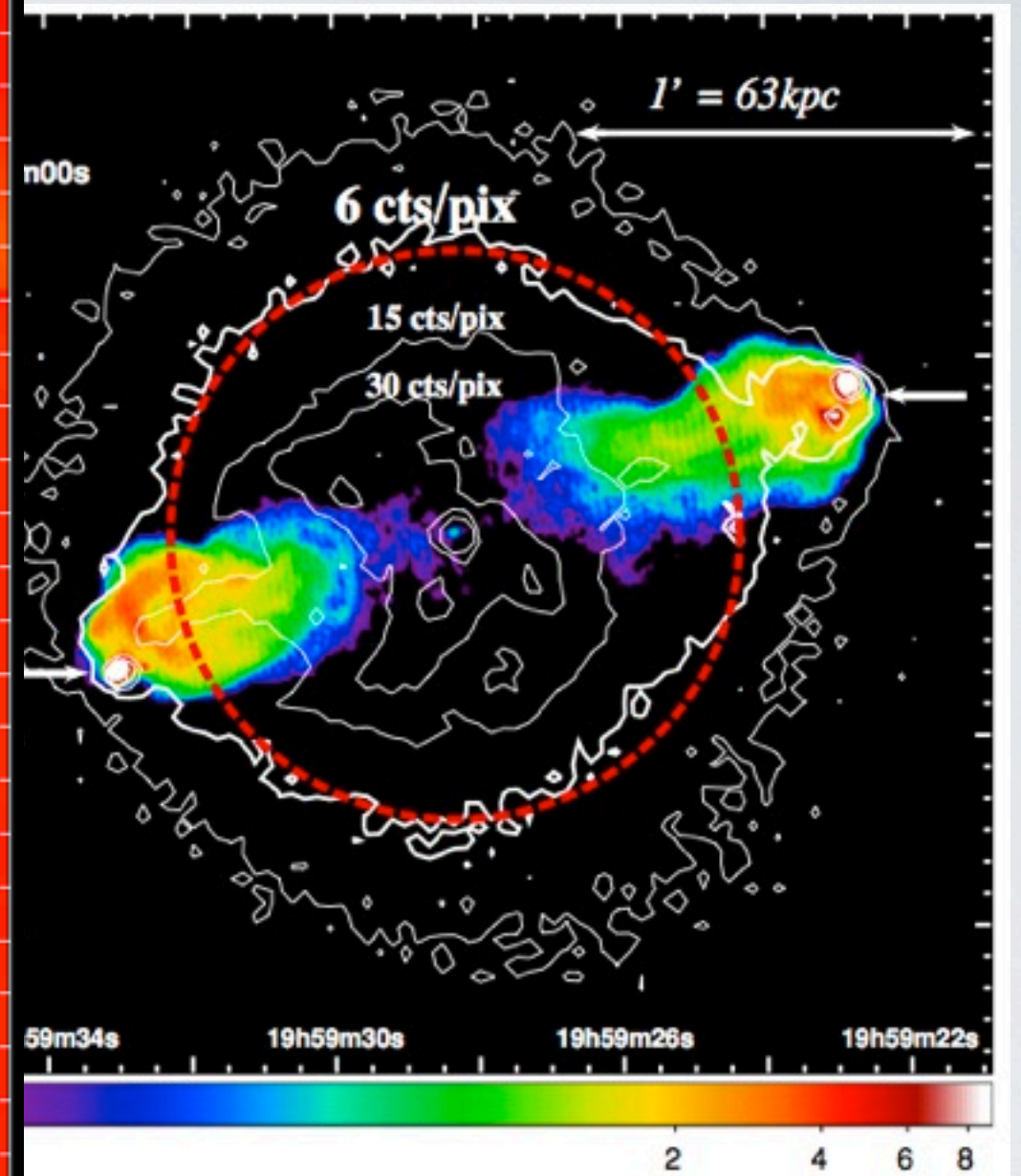
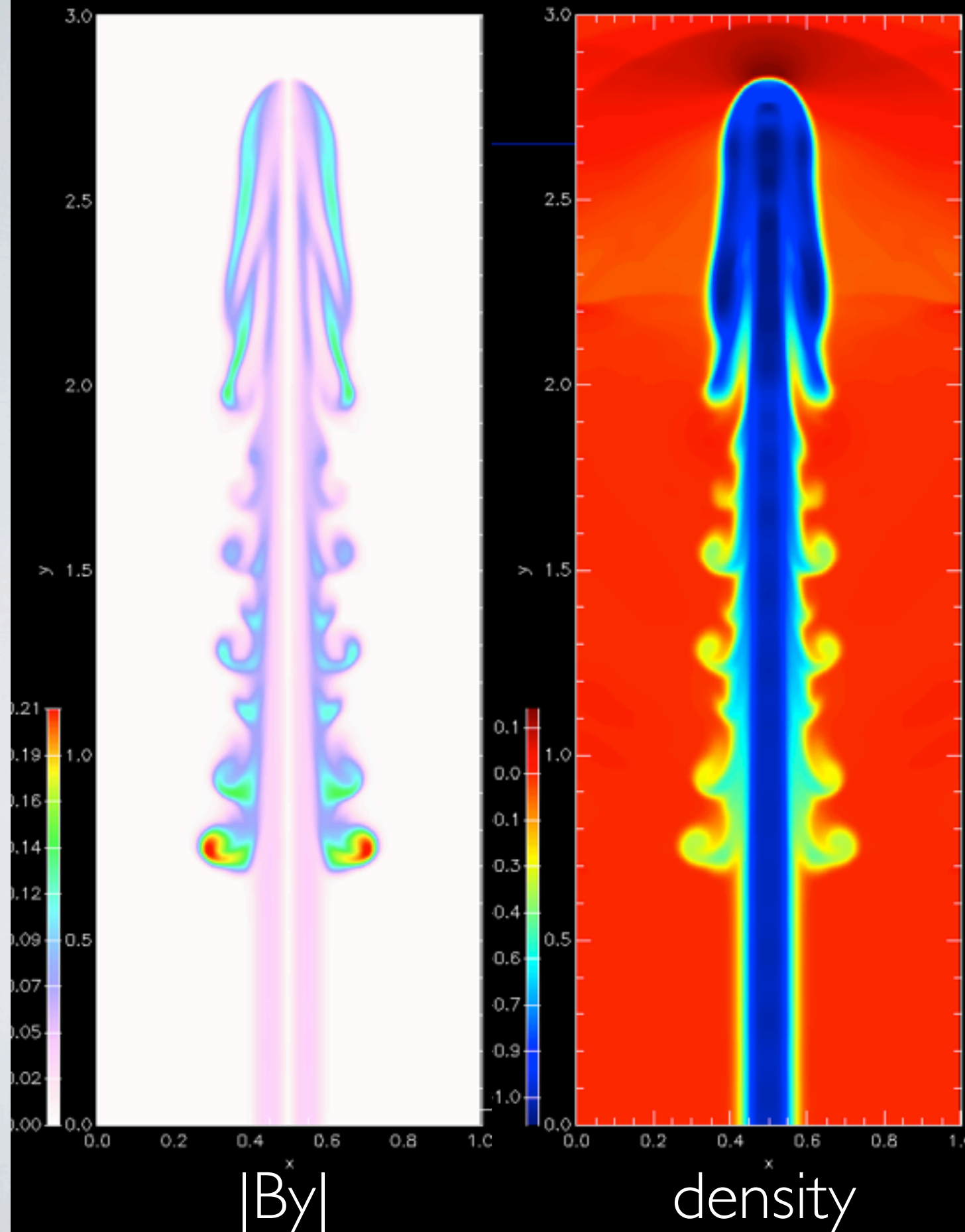


0.7-7keV ACIS

1.7GHz VLA Yaji et al.
(2010),
Cygnus A

simulated by Sho Nakamura (▽)/

of Jet



1.7GHz VLA Yaji et al.
(2010),
Cygnus A

Today's review

$B=0$

Inflating a **Chain of X-Ray-Deficient Bubbles**
by a Single Jet Activity Episode

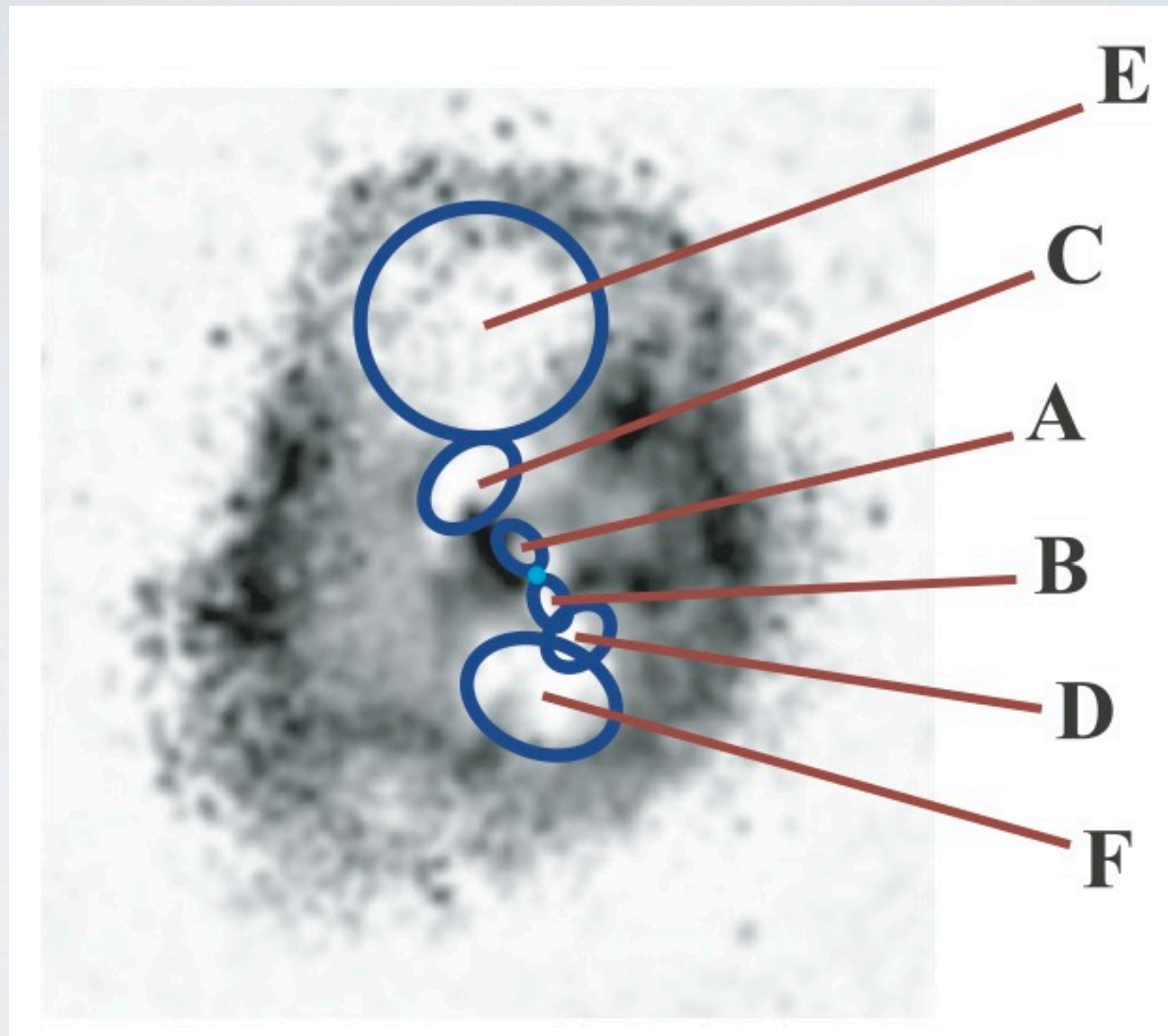
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X-Ray-Deficient Bubble Cavity

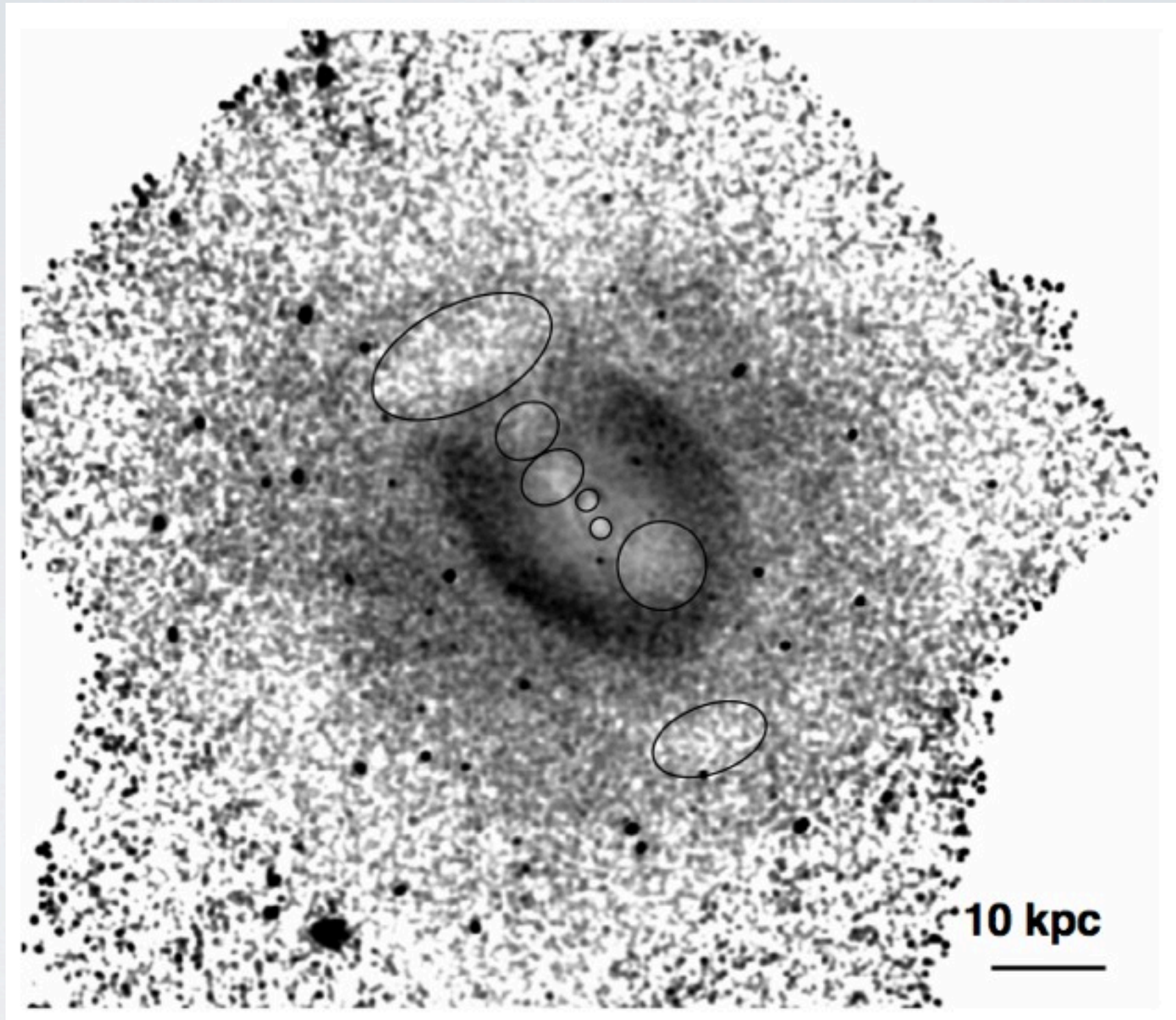
Observation



Wise et al.
(2007),
Hydra A

X-ray cavities observed in clusters of galaxies.

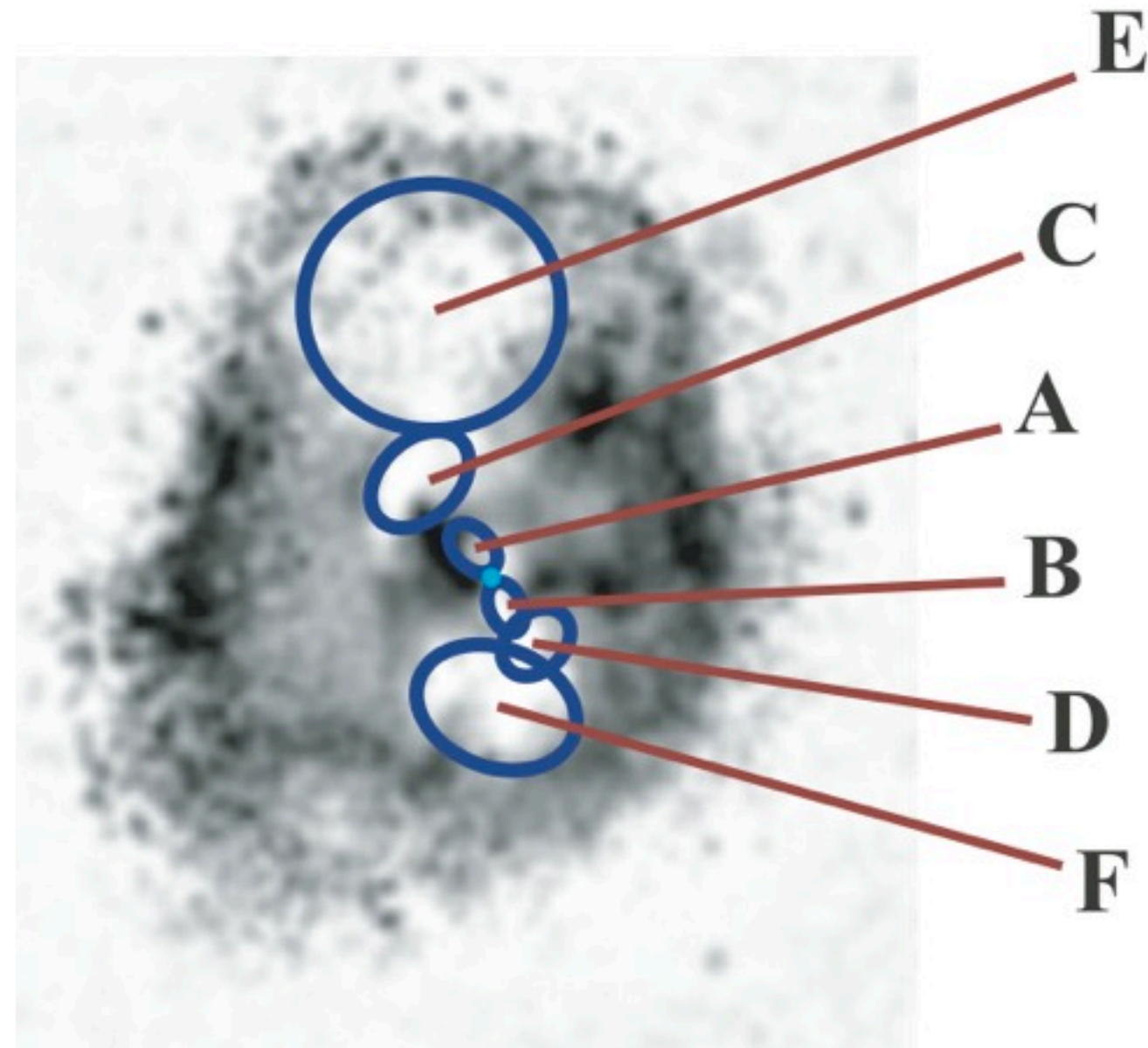
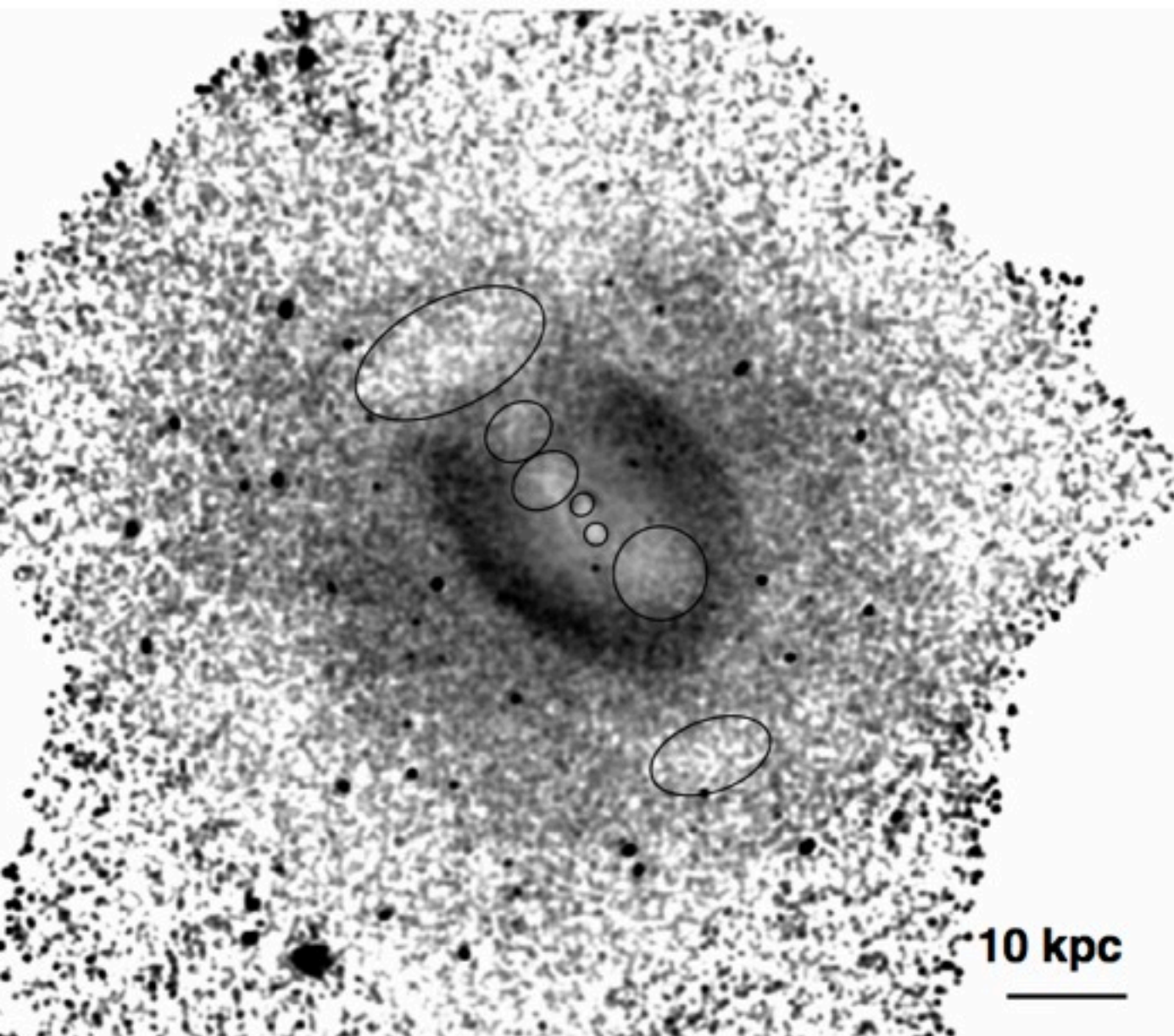
Observation



Randall et al.
(2011),
NGC 5813

X-ray cavities observed in clusters of galaxies.

several jet-launching ?



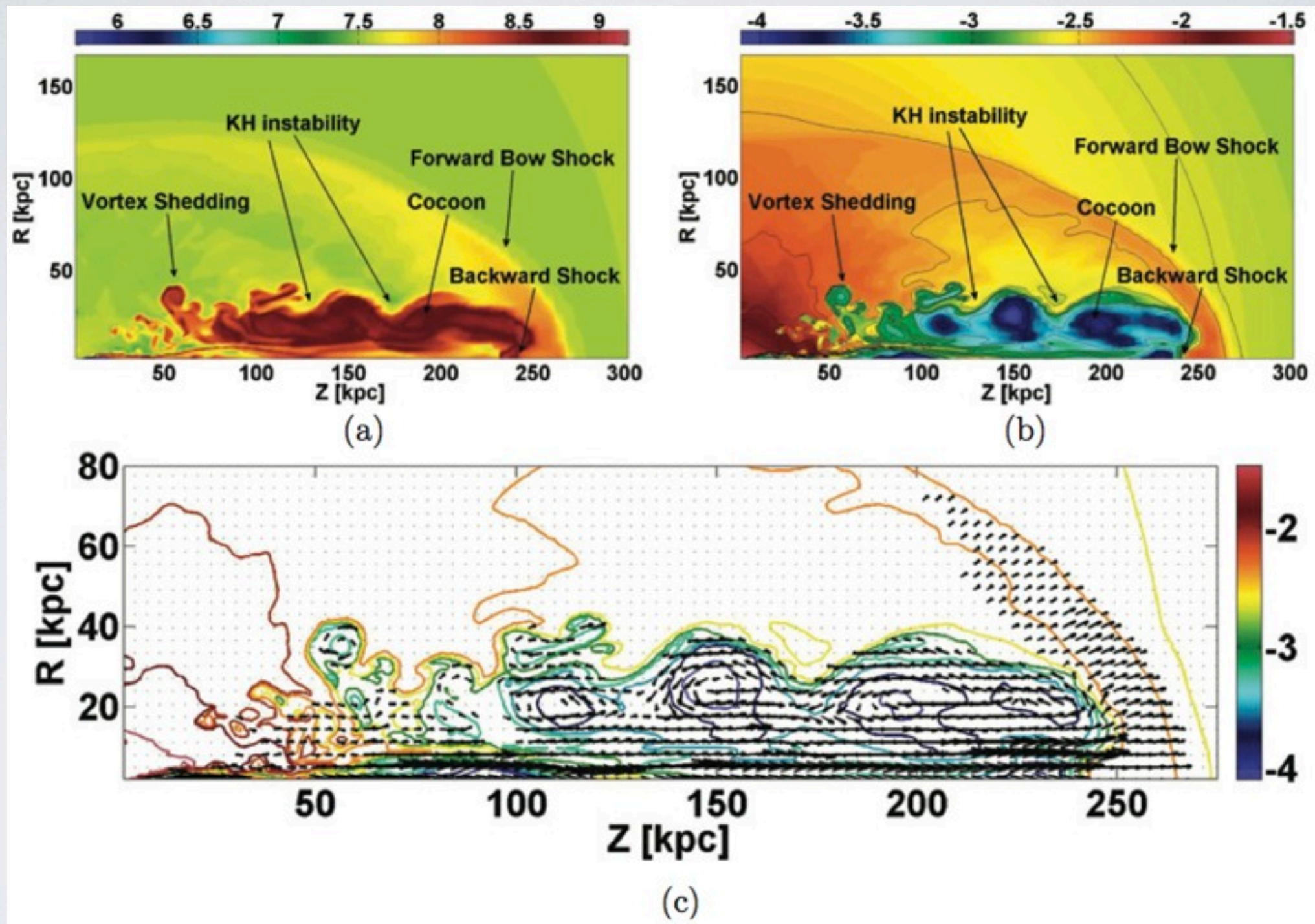
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Refaelovich & Soker, 2012

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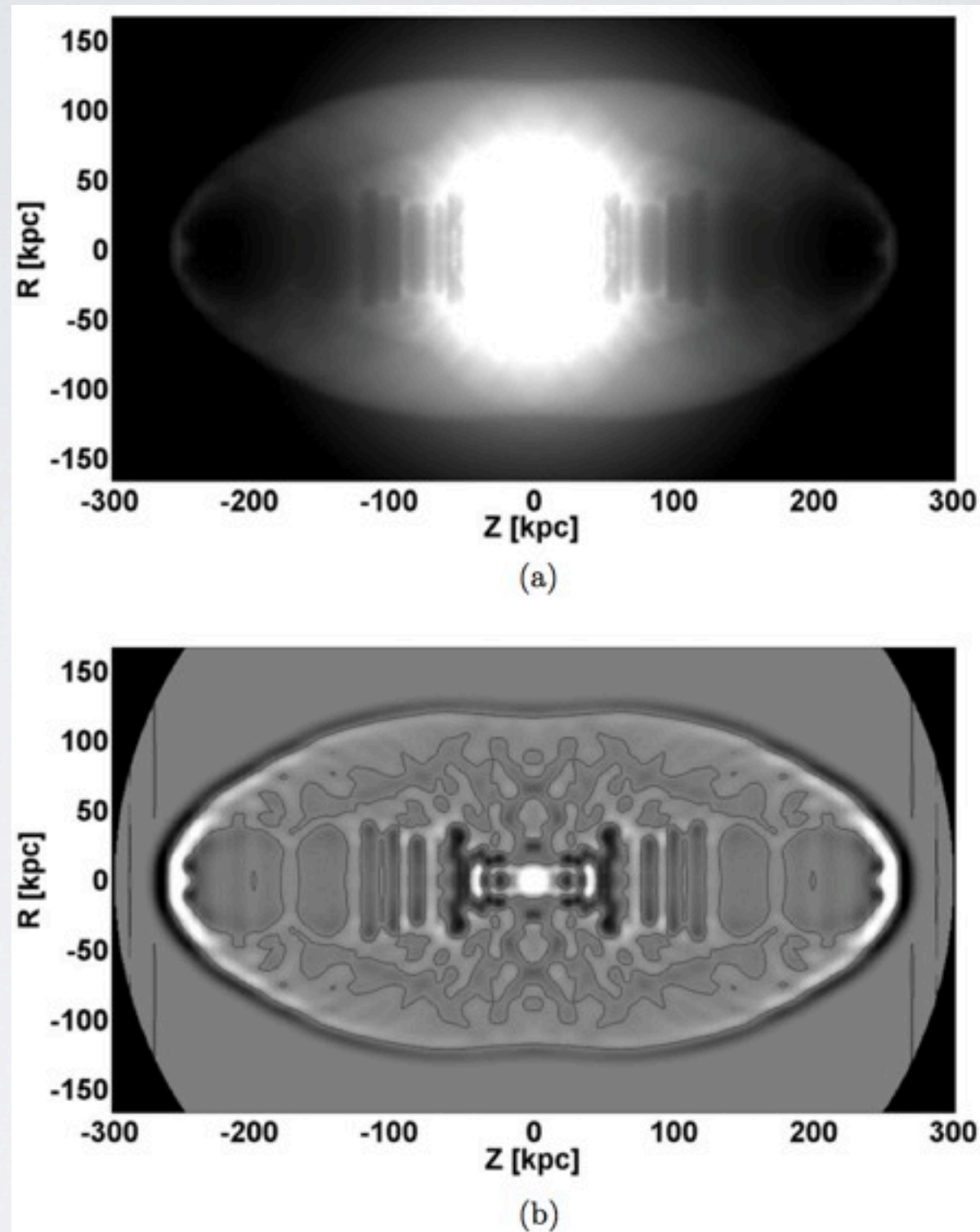
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simulation result



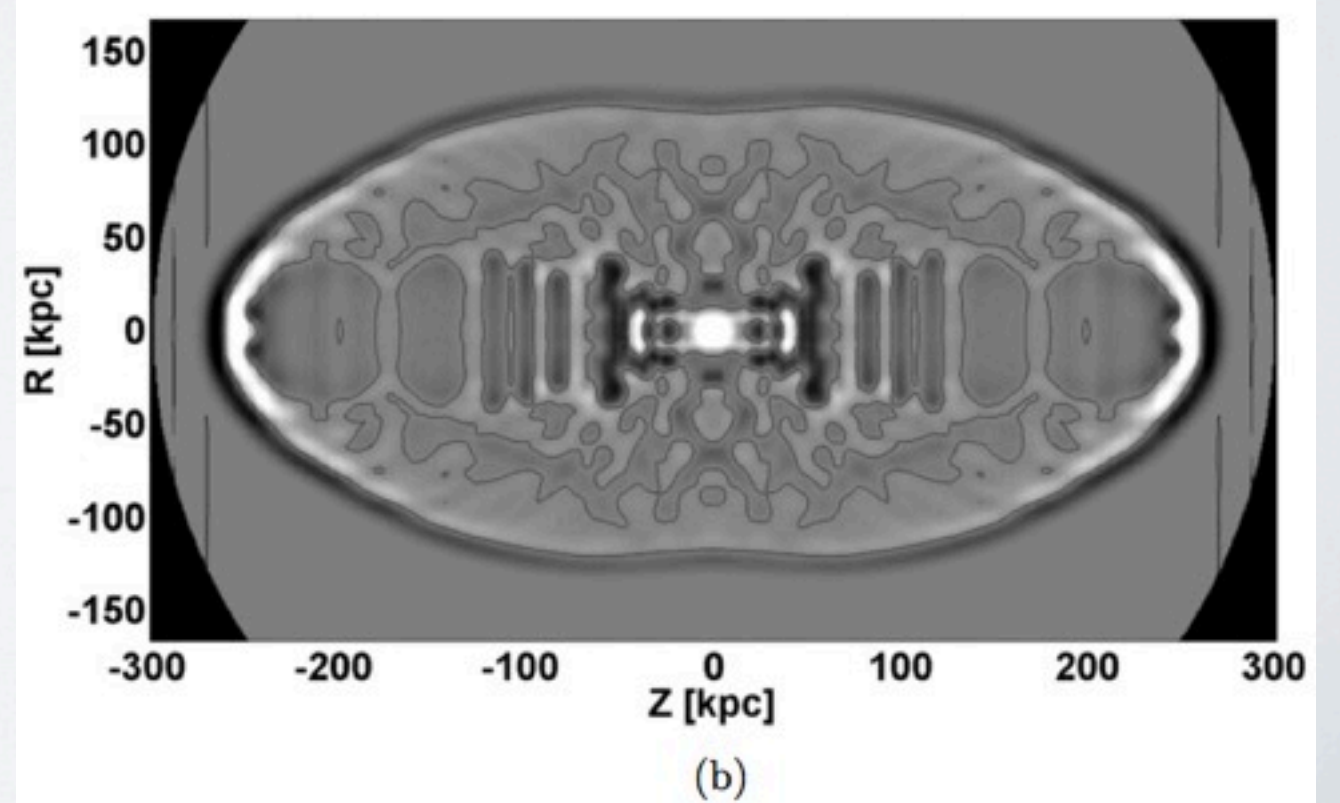
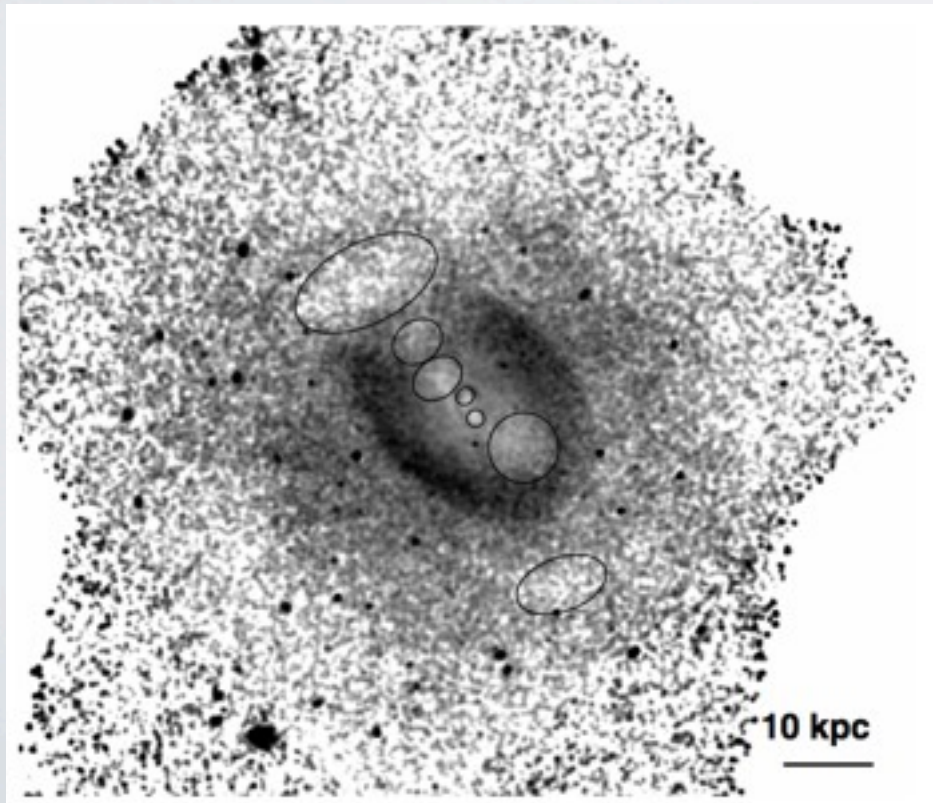
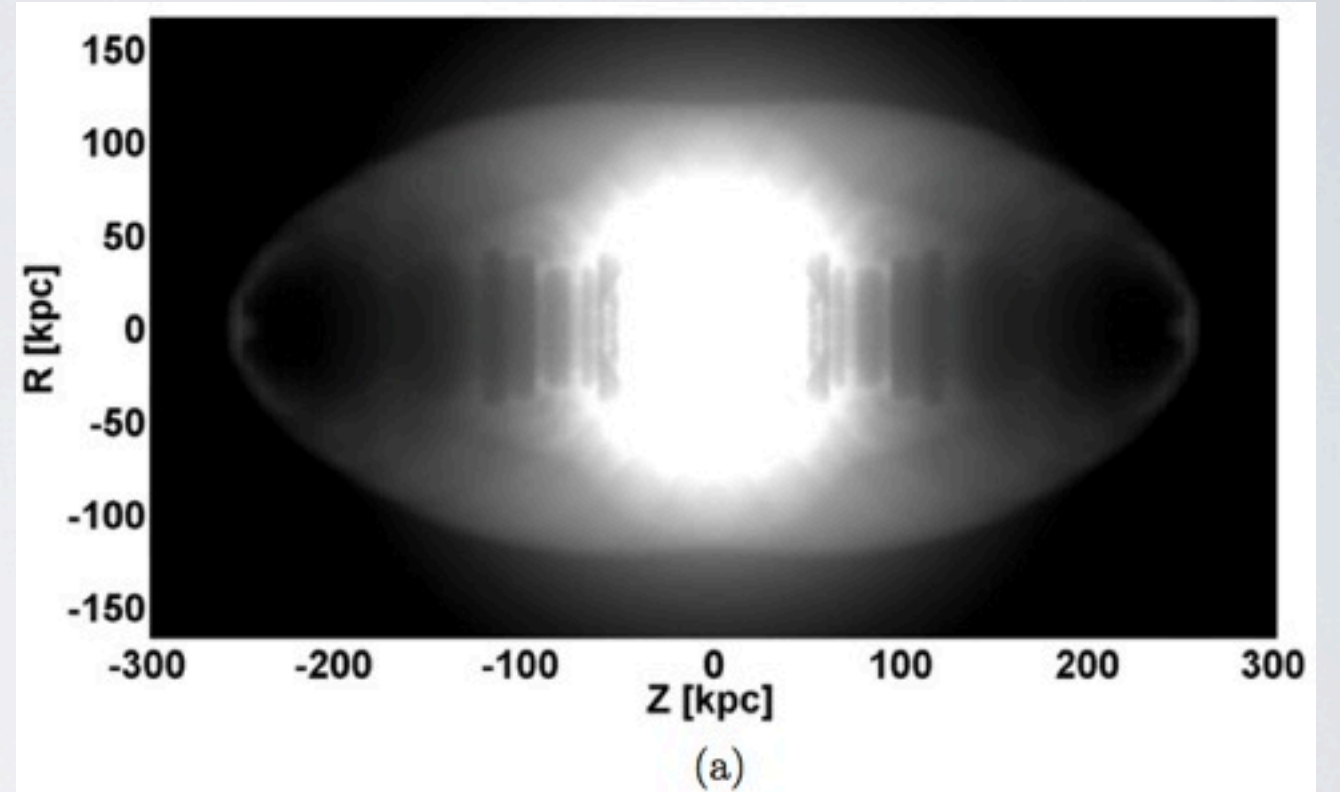
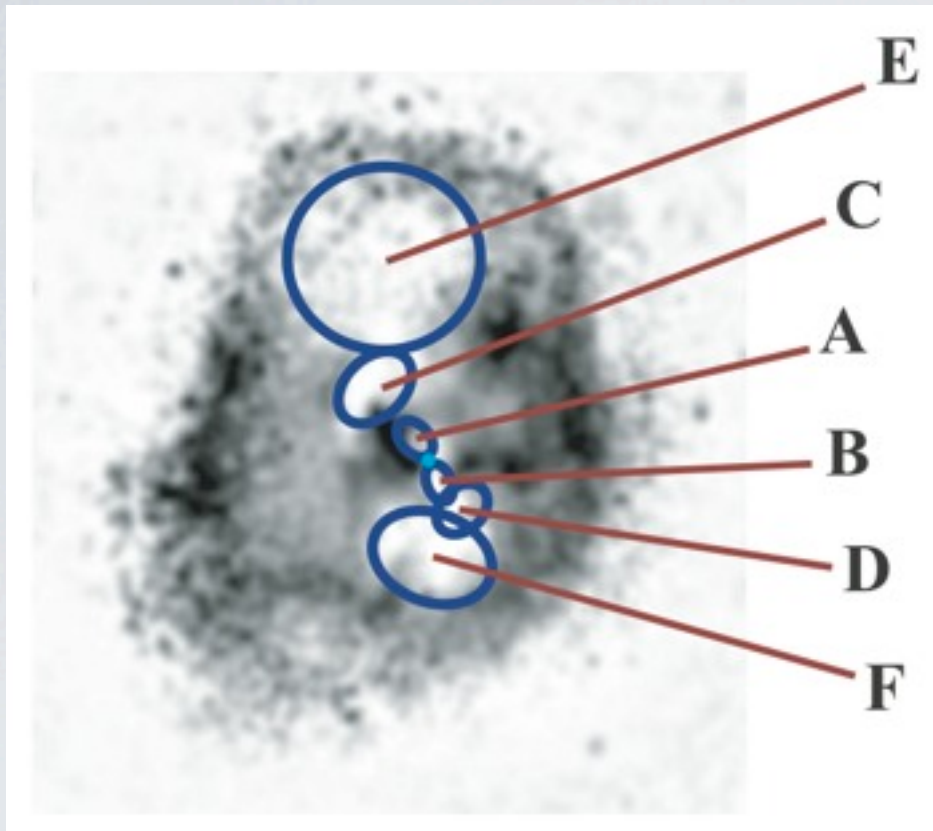
(a)temperature (b)density (c)contour of density & velocity arrows

synthetic X-ray image



(a) X-ray map (integrating n_e^2) (b) unsharp filter applied

compare with observations



Summary

multi bubble(cavity)はJet一発でも説明できる。

End.