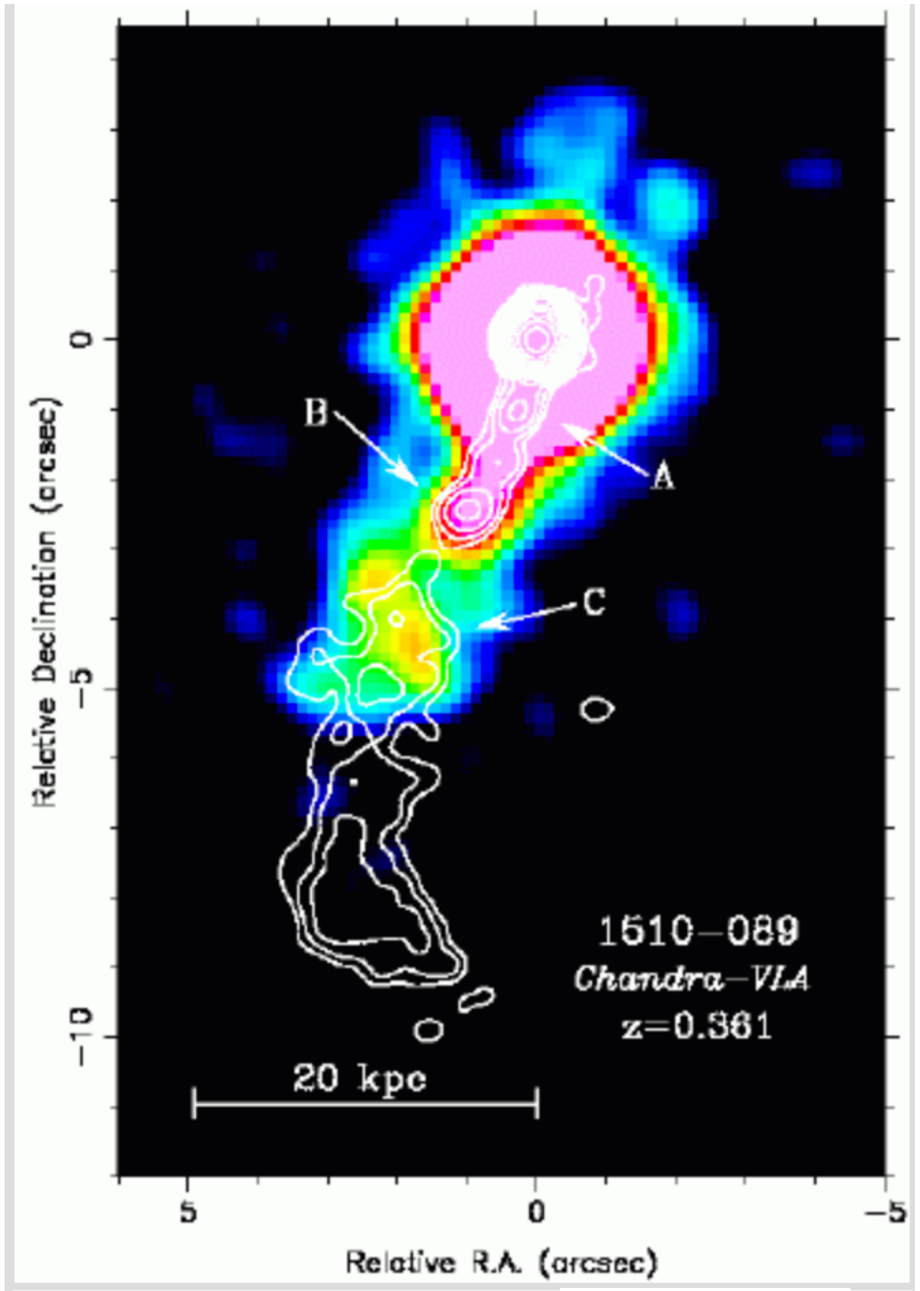
PKS 1510-089

FSRQ

Angle between the jet and the observer is near 0 deg

z=0.361

Nh(Gal)=6.99e20 cm-2
(Kalberla et al. 2005)

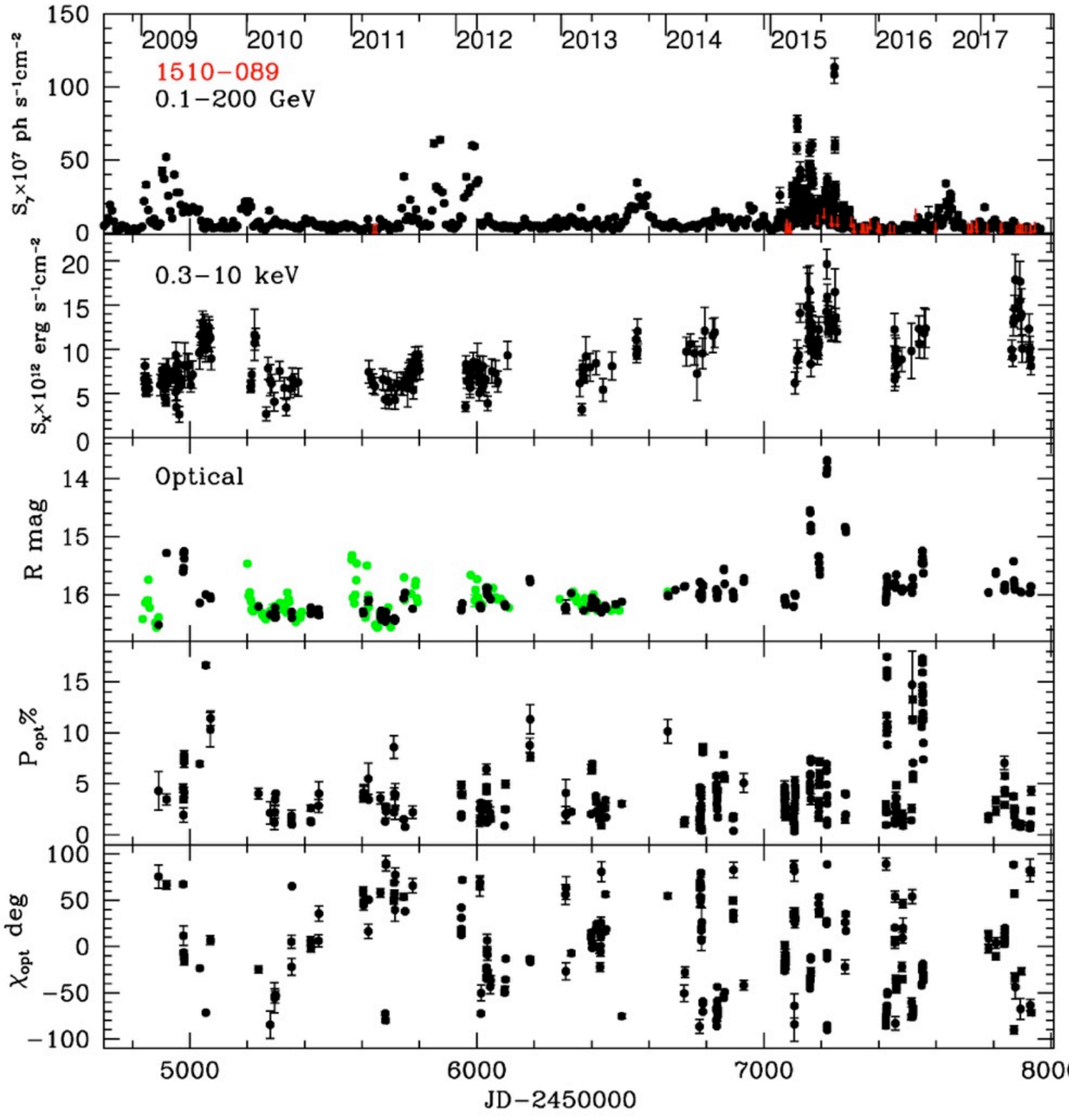


X-ray (color), Radio (contours)
From: Sambruna et al. (2004)

Apparent velocity: 1263 ± 27 μas/y ; 28.00 c
(Lister et al. 2013, AJ, 146, 120)

Extremely variable source

$$F_\nu(\nu) = \delta^{3+\alpha} F'_{\nu'}(\nu)$$
$$\Delta t = \Delta t' / \delta$$



γ-ray

X-ray

Optical

Radio

Spectral and Imaging Analysis

- Chandra: Superposition X-ray and Radio images (DS9) to individuate the entire jet and knots B, C to be analyzed;

- Chandra: extraction of the spectrum of the jet and production of rmf and arf files (CIAO). Analysis with XSPEC. Definition of the best model: parameter uncertainties, confidence (68%, 90% and 99%) contour plots, flux and luminosity;

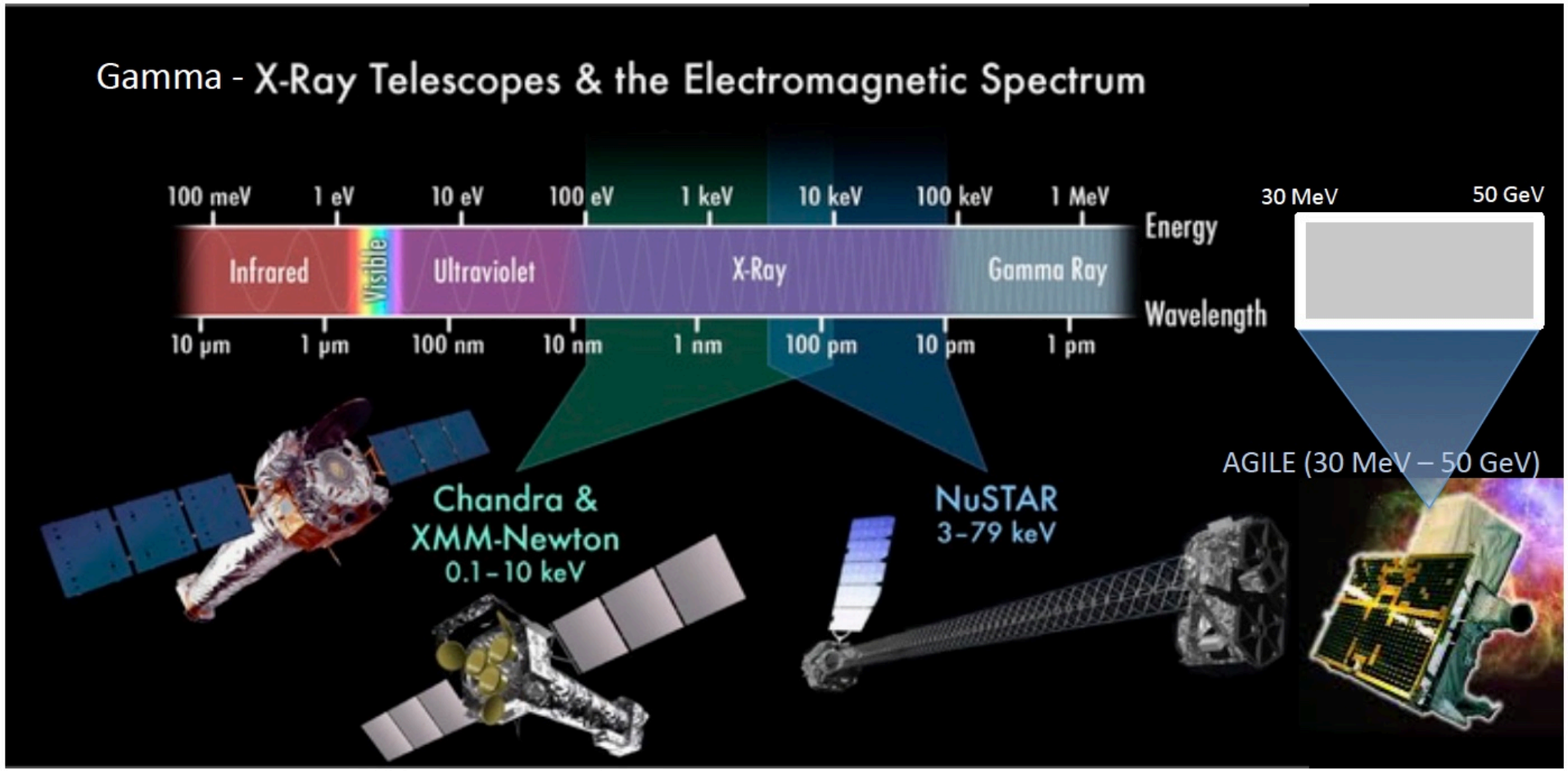
- Chandra: extraction of the spectra of knots B, C and production of rmf and arf files (CIAO). Analysis with XSPEC (see above);

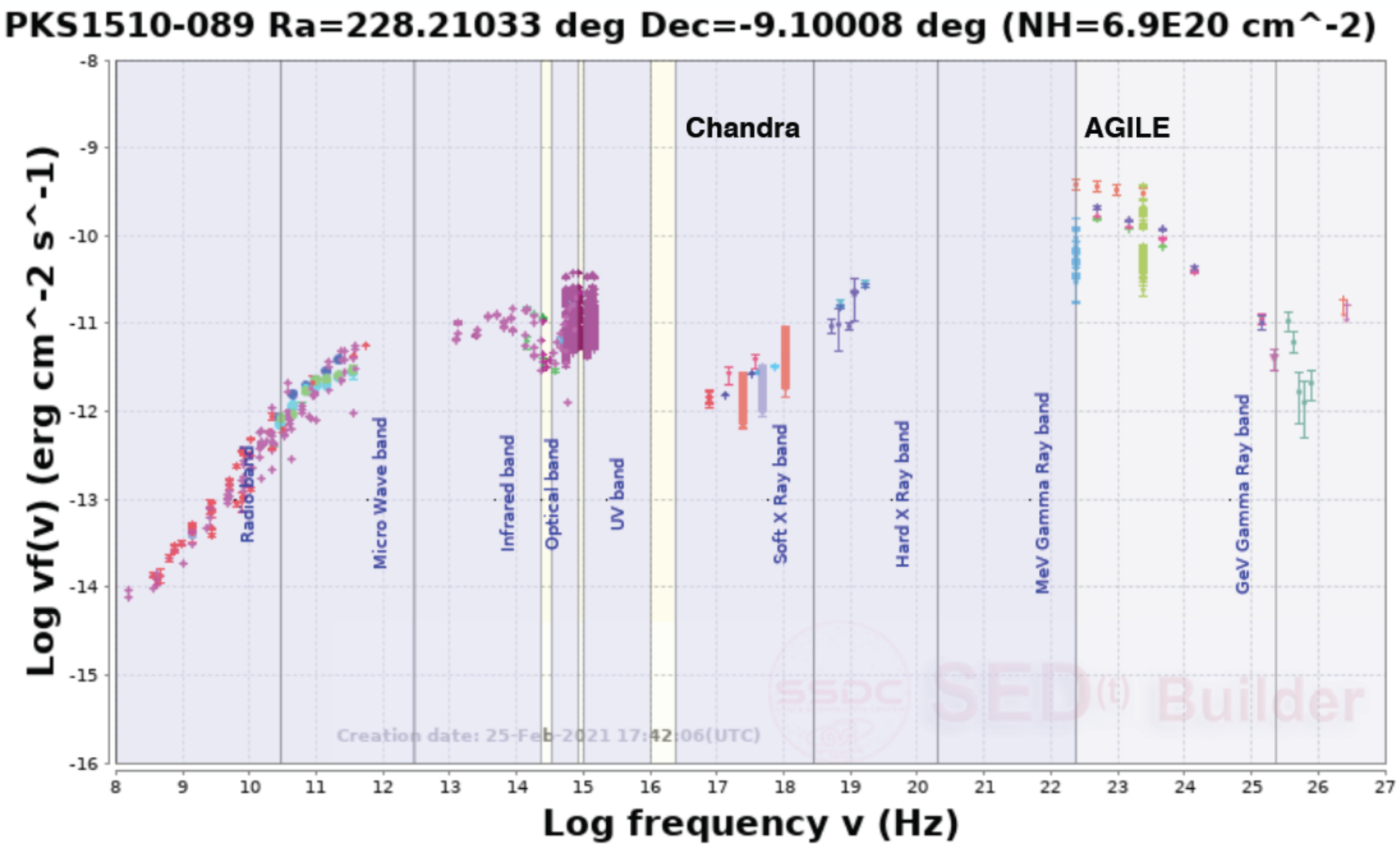
- Chandra: Nucleus - extraction of the spectrum using a circle and spectral analysis;

<u>Optional: Satellite AGILE</u>

- Optional: Spectral analysis (spectral slope and flux); time variability of the gamma-ray counterpart of PKS1510-089; TS map;

Il cielo in raggi X e Gamma dallo spazio




PKS1510-089 Ra=228.21033 deg Dec=-9.10008 deg (NH=6.9E20 cm^-2)
Chandra
AGILE
Radio band
Micro Wave band
Infrared band
Optical band
UV band
Soft X Ray band
Hard X Ray band
MeV Gamma Ray band
GeV Gamma Ray band
Creation date: 25-Feb-2021 17:42:06(UTC)
SED Builder
Log vf(v) (erg cm^-2 s^-1)
Log frequency v (Hz)
-8
-9
-10
-11
-12
-13
-14
-15
-16
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Using AGILE data collected in the time interval:

2009-02-28T12:00:00 (MJD 54894.50) -- 2009-03-31T12:00:00 (MJD54921.50)

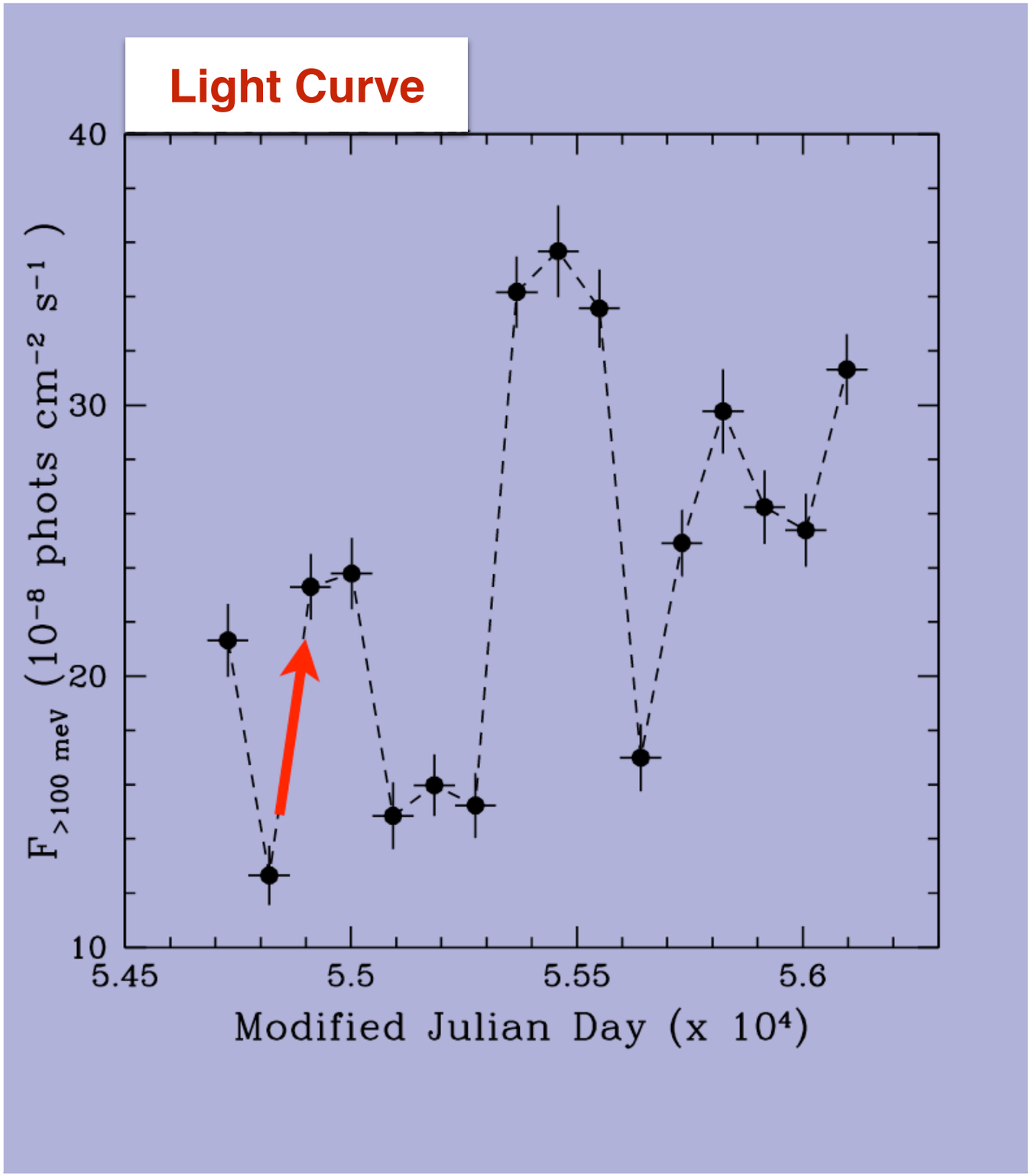
1) calculate flux, best-position and spectral index

2) generate a "counts map" in the energy. range 100-50000 MeV

3) generate a light curve

4) Compute the dimension (upper limit) of the emitting region from the flux variability

Variability ⇒ upper limit on the source size $R < \frac{c\Delta t_{obs}\delta}{1+z}$



PKS1510-089

$\delta \sim 39$

Jordstat et al. 2005

http://iopscience.iop.org/article/10.1086/444593/pdf

$\delta = [\gamma(1 - \beta cos\theta)]^{-1}$