

# Challenges in Reconciling Observations and Theory of the Brightest High-Energy Flare ever of 3C 279

**Eugenio Bottacini (University of Padova - Italy)**  
**Markus Böttcher, Elena Pian, Werner Collmar**

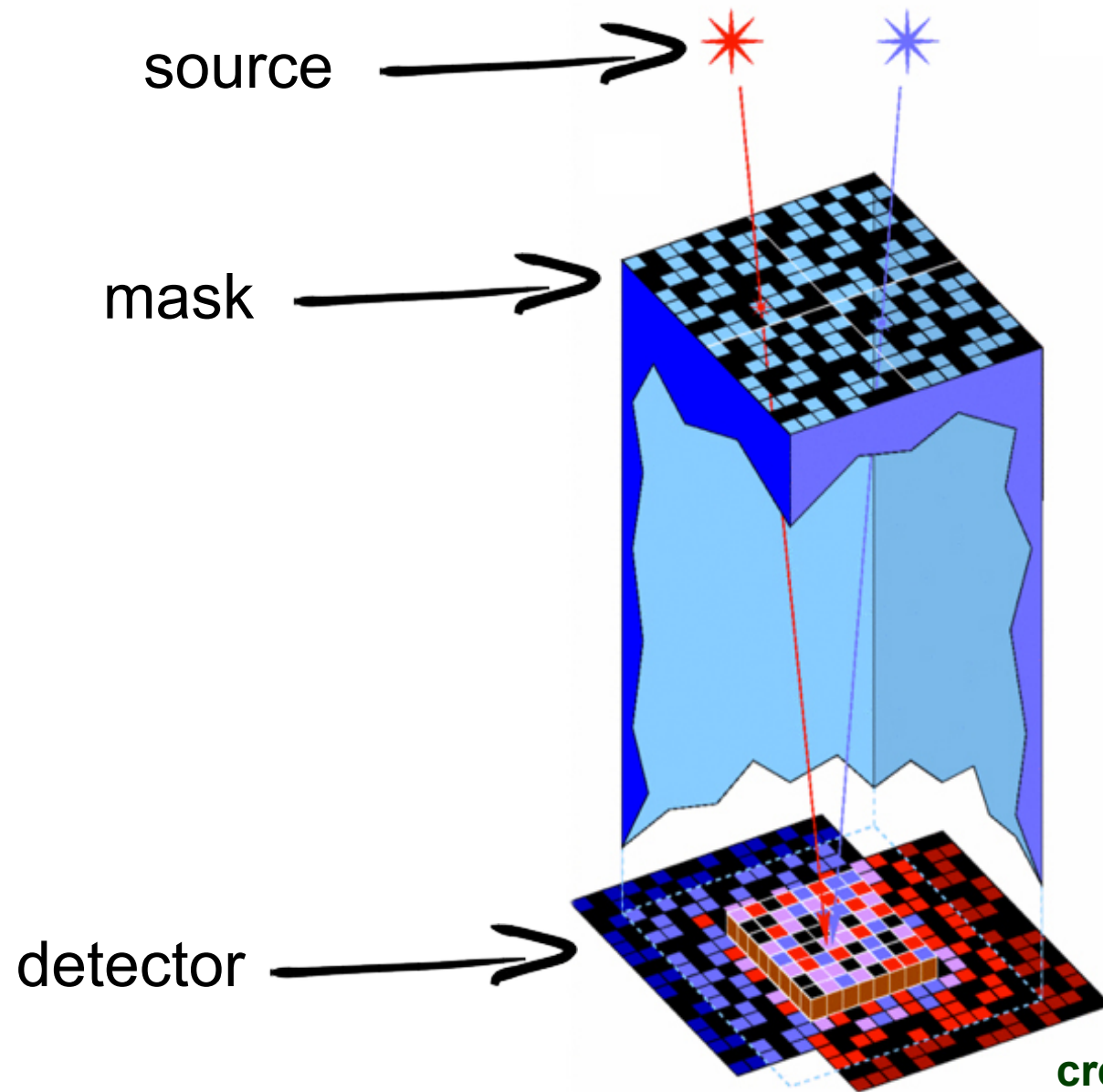
# Integral



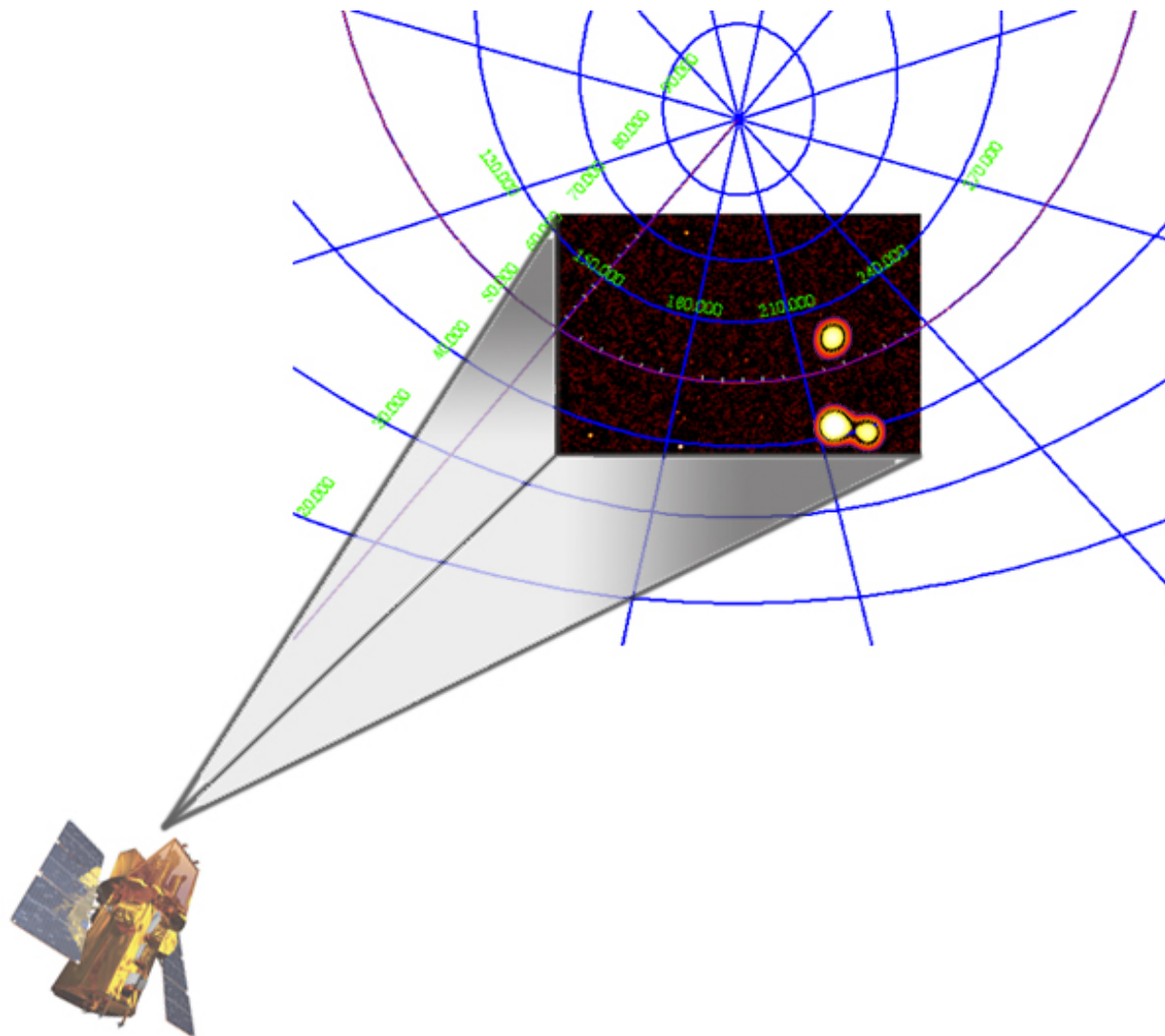
European Space Agency



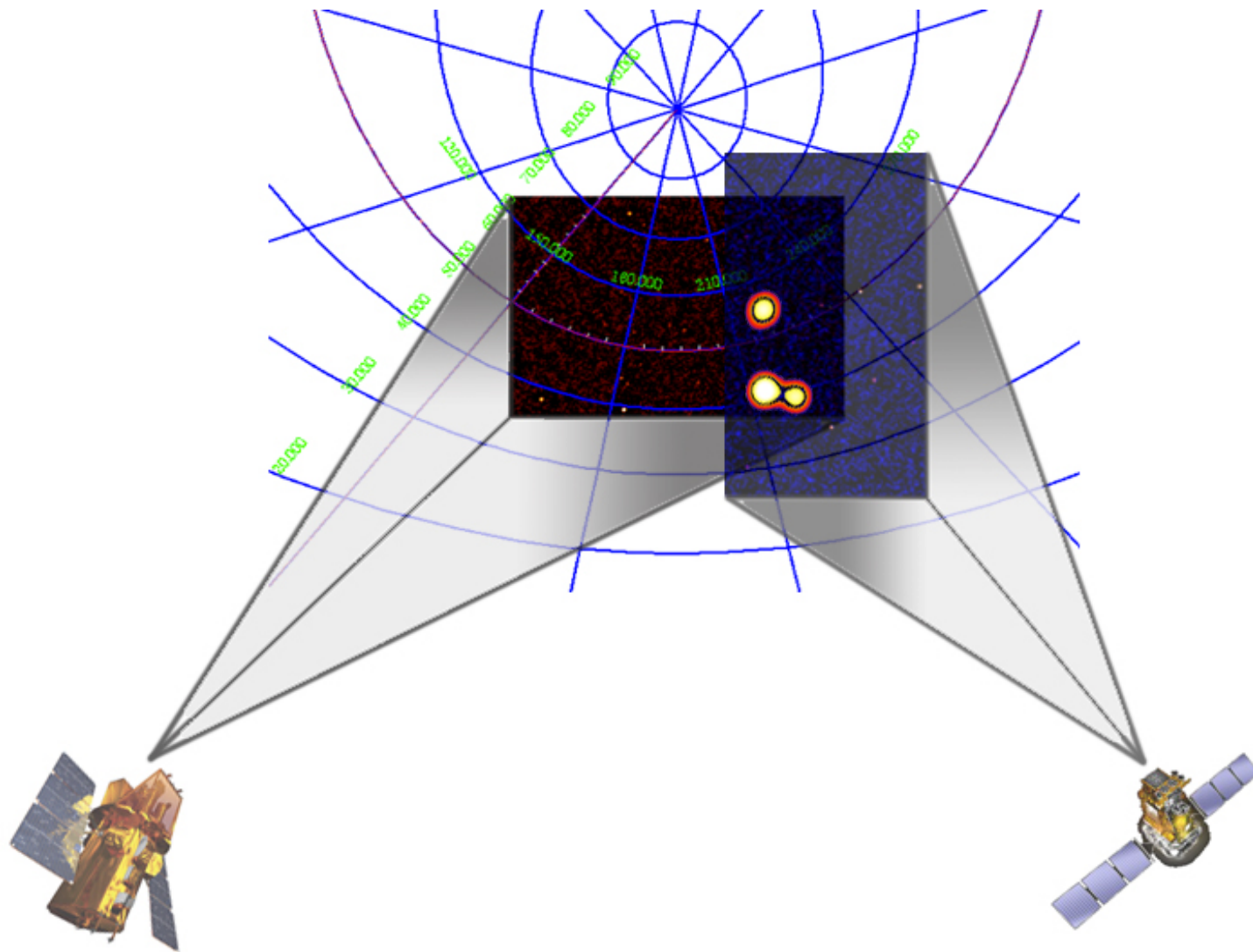
# Coded-mask telescopes



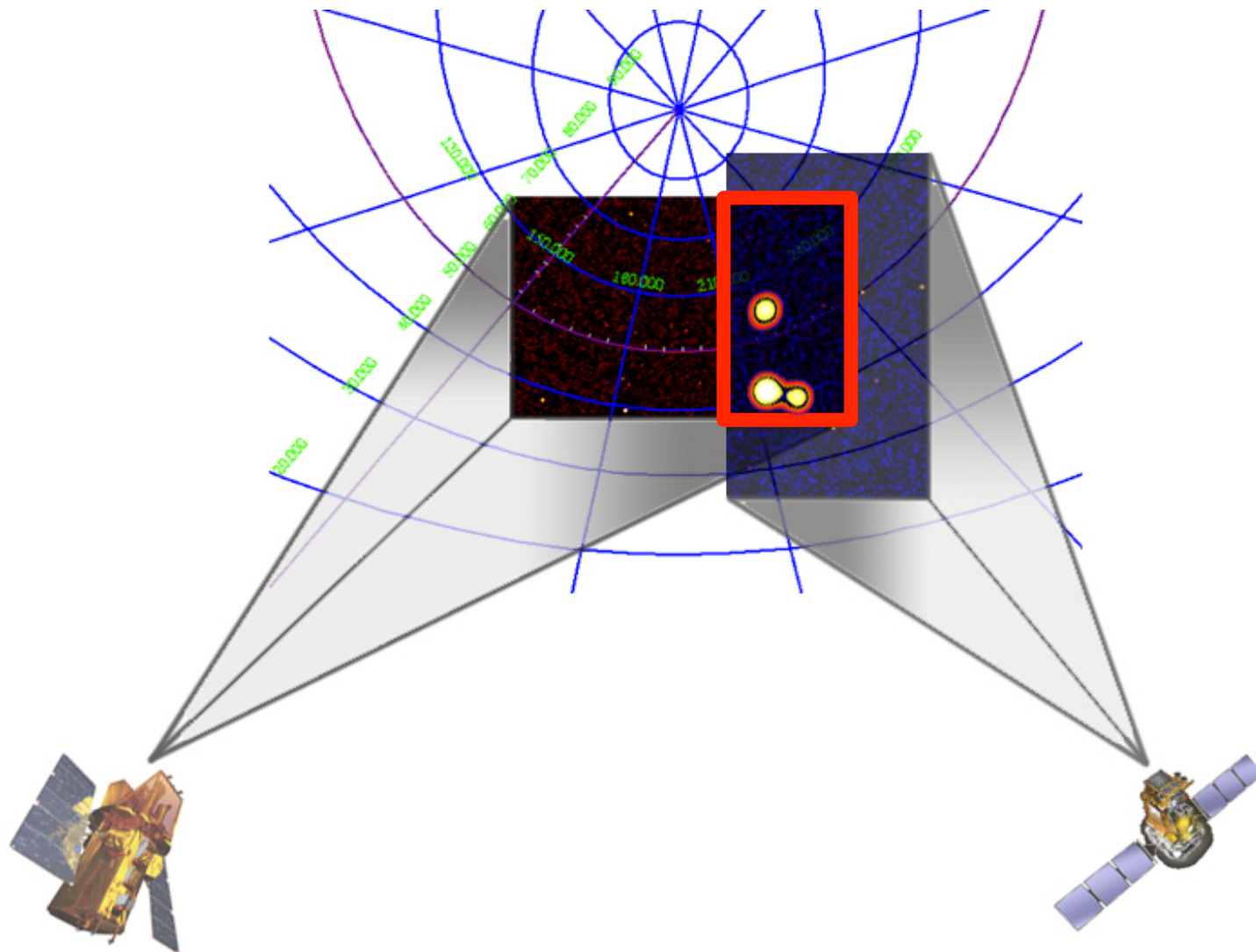
# Swift & Integral



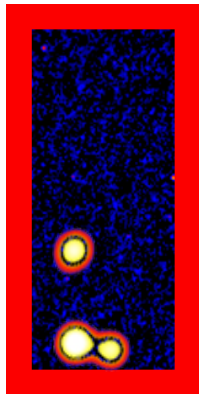
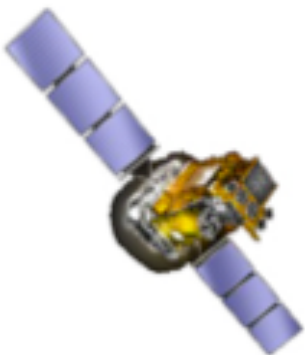
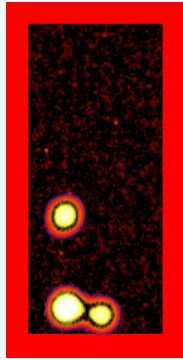
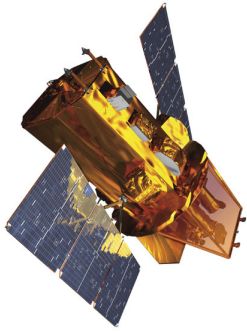
# Swift & Integral



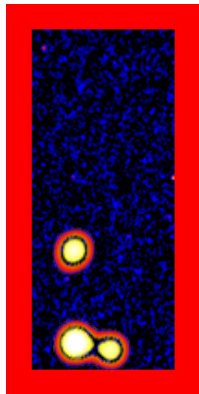
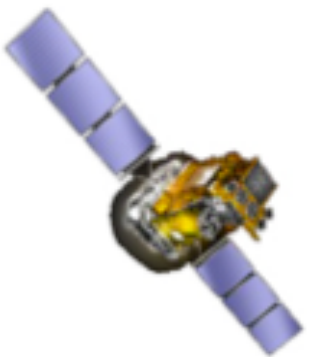
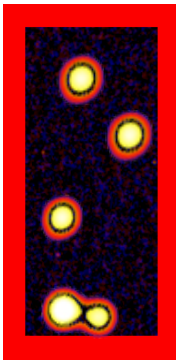
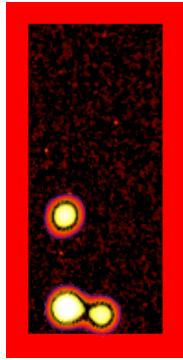
# Swift & Integral



# Combining Observations

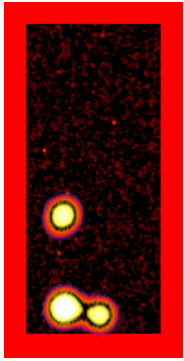


# Combining Observations

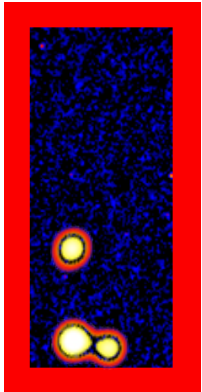
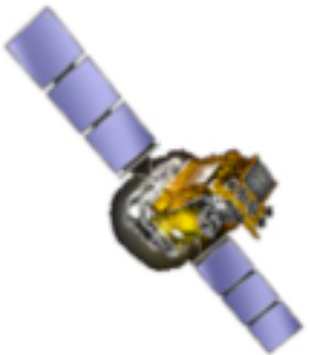
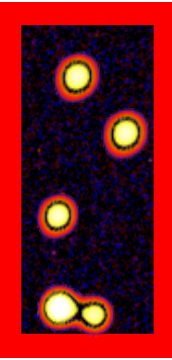




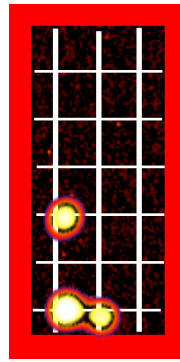
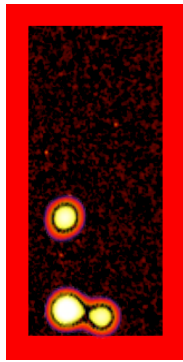
# Combining Observations



**observations**

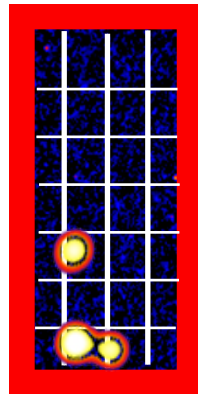
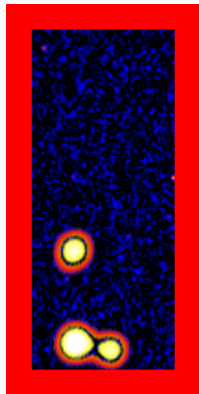
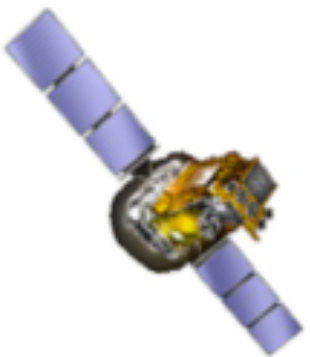
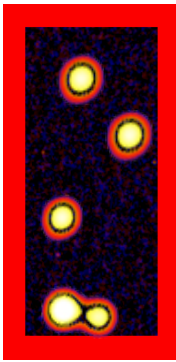


# Combining Observations

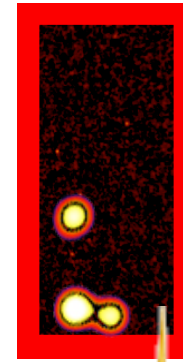
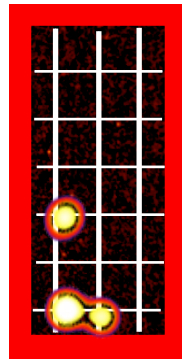
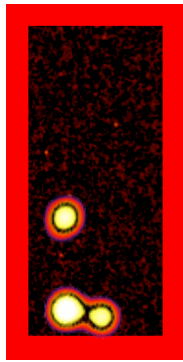


observations

resample



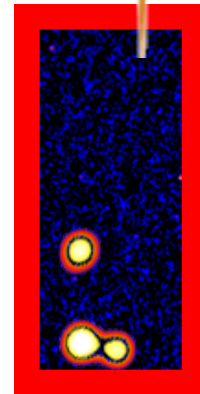
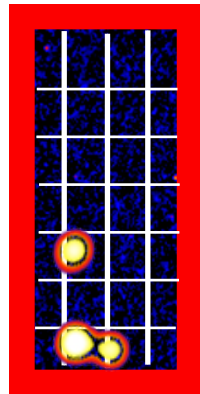
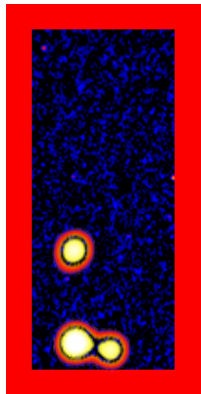
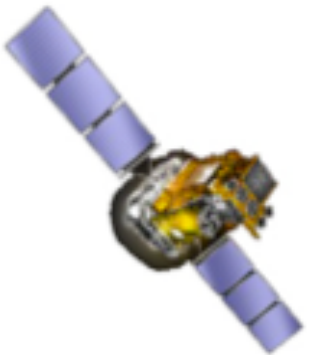
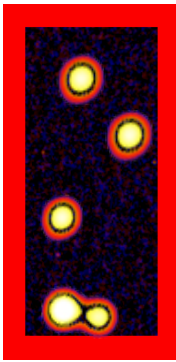
# Combining Observations



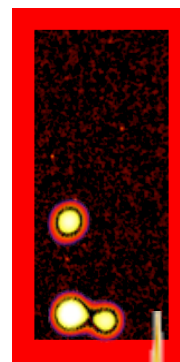
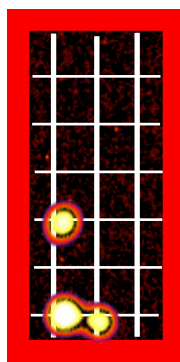
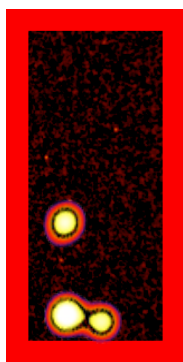
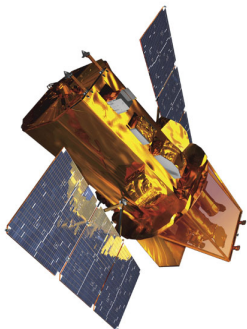
observations

resample

cross-cal



# Combining Observations



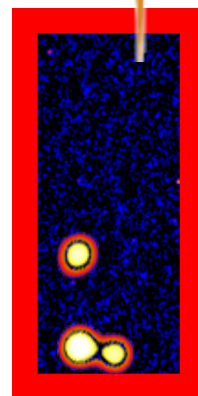
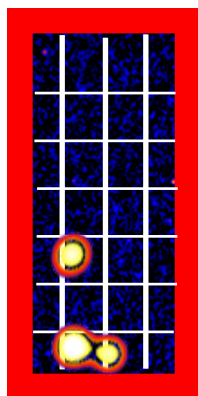
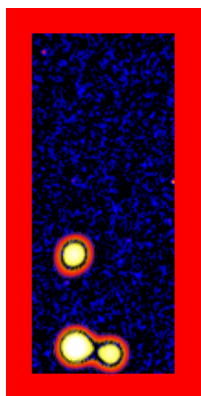
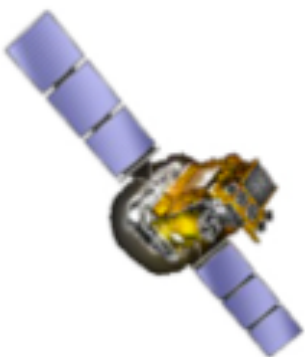
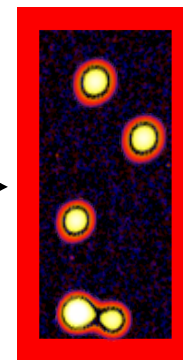
Bottacini et al. (2012)

observations

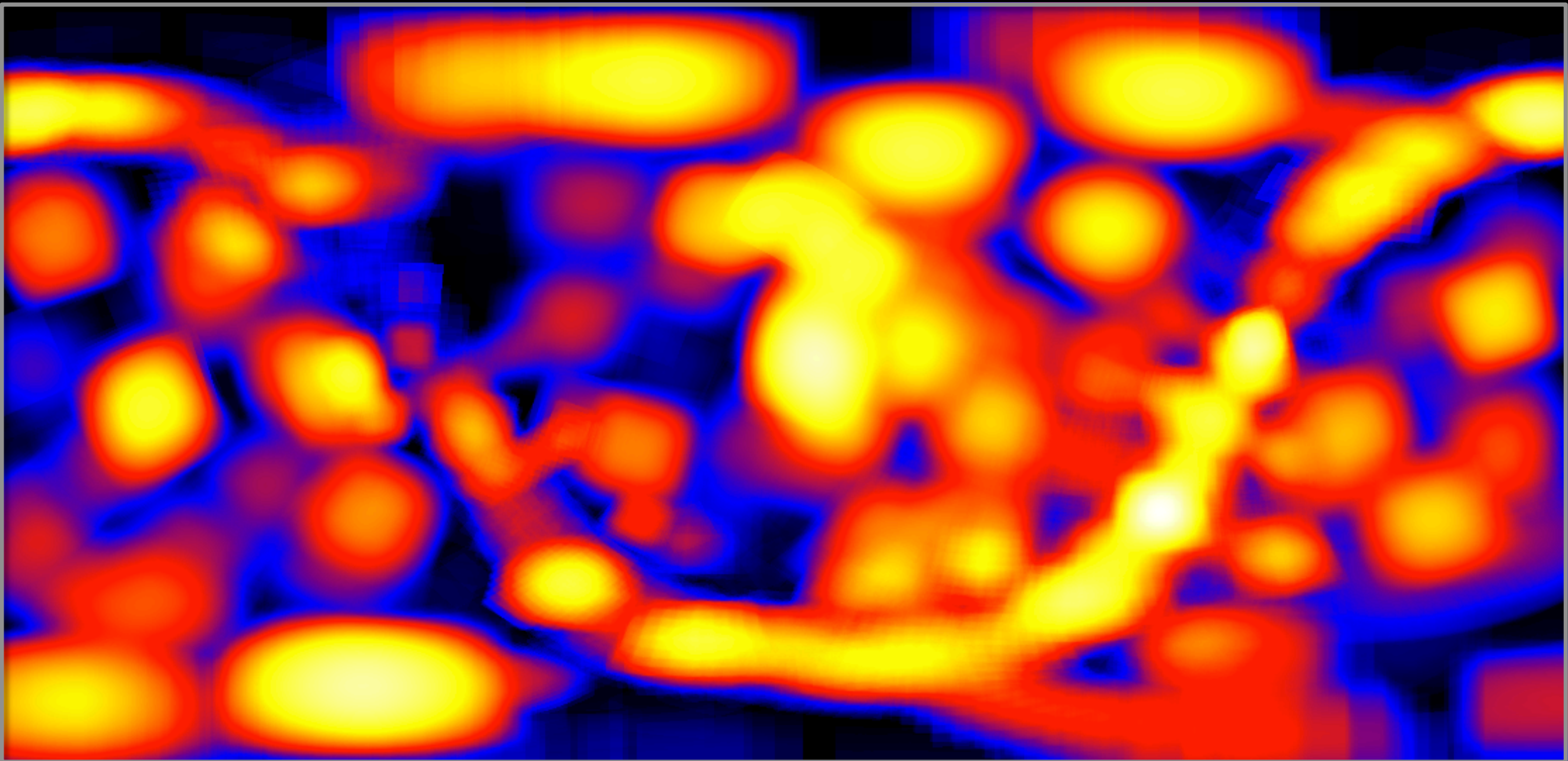
resample

cross-cal

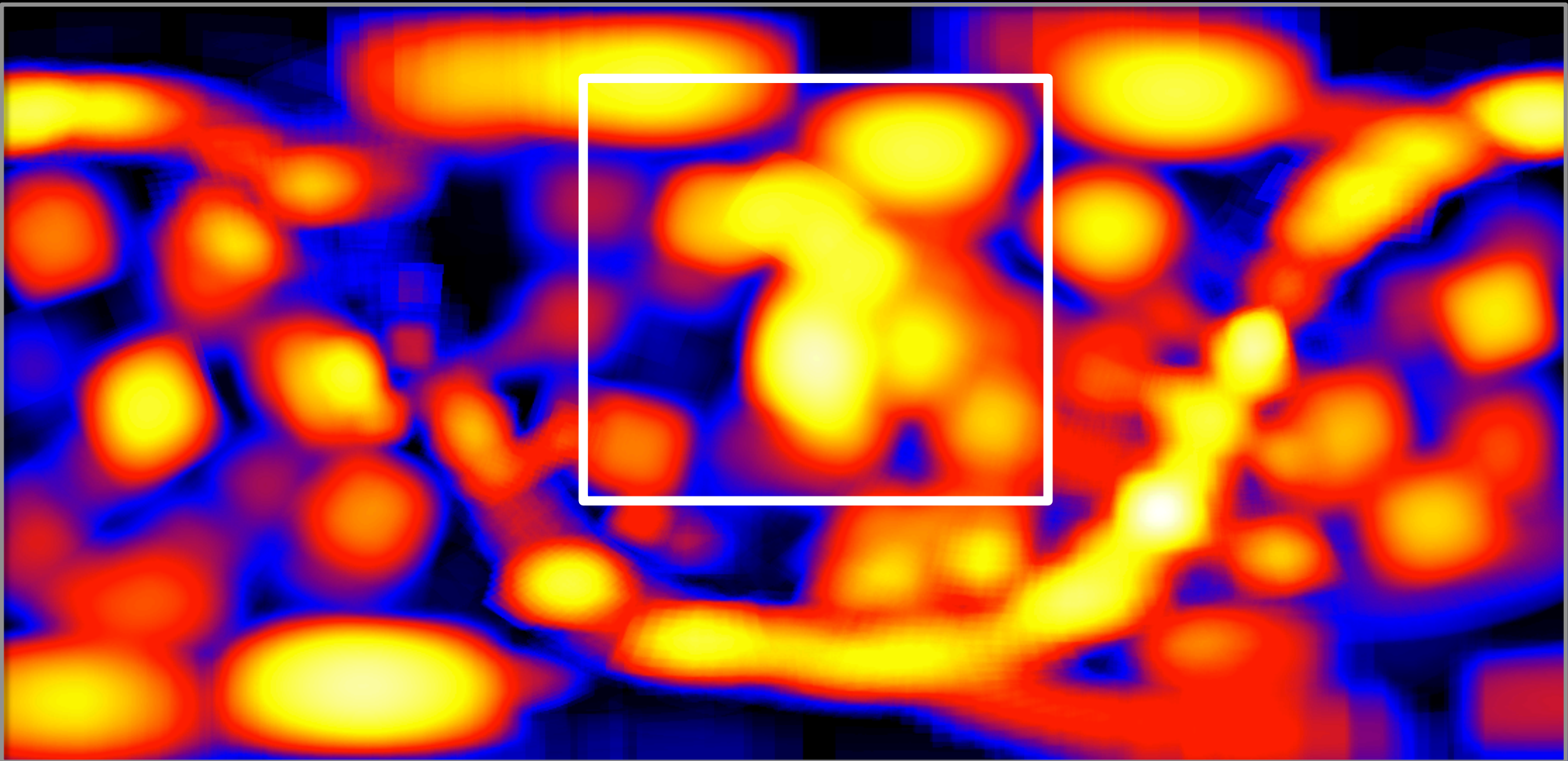
merging



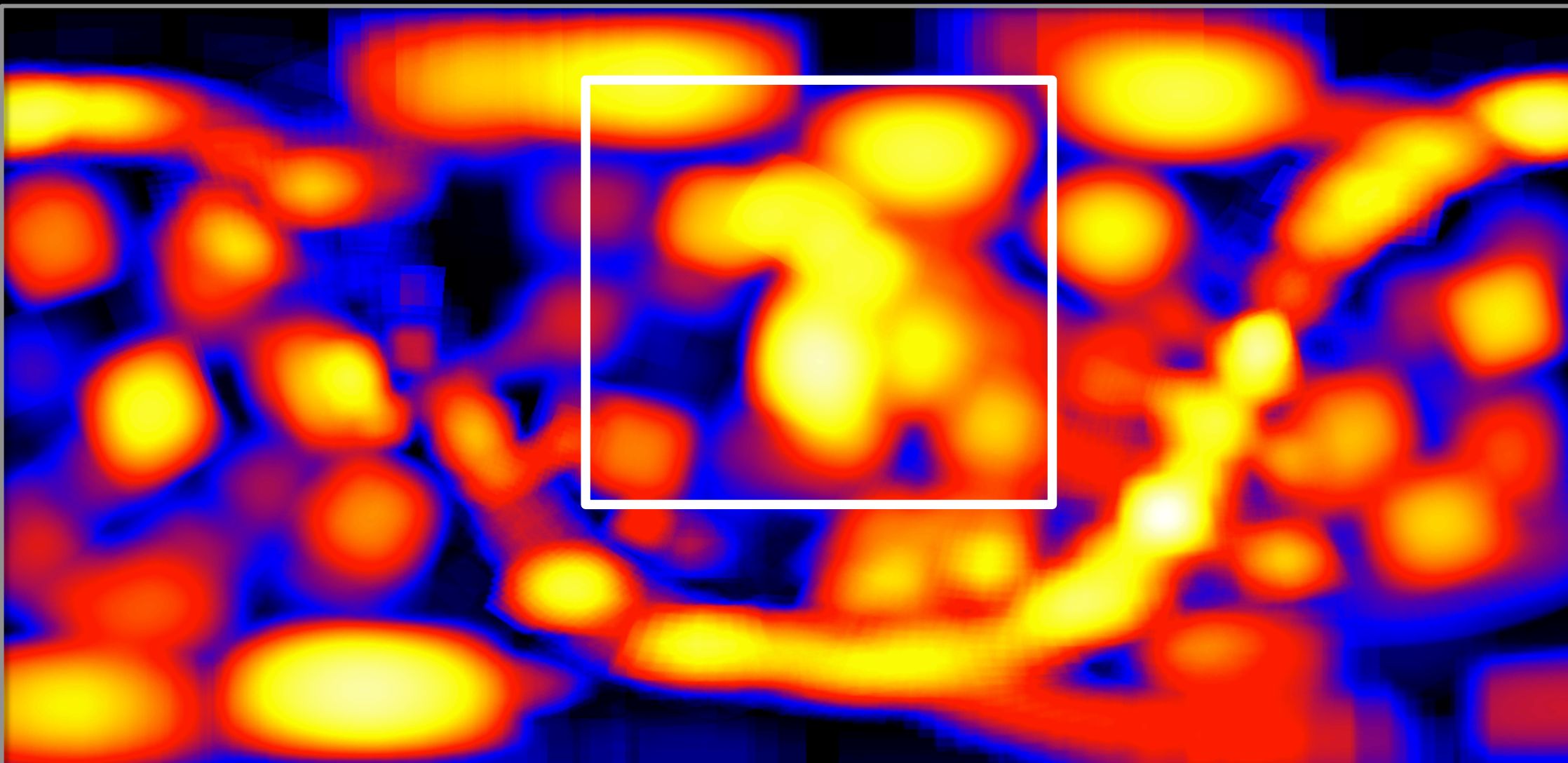
# INTEGRAL Exposure Map



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Paliya (2015, ApJ, 808, 48)

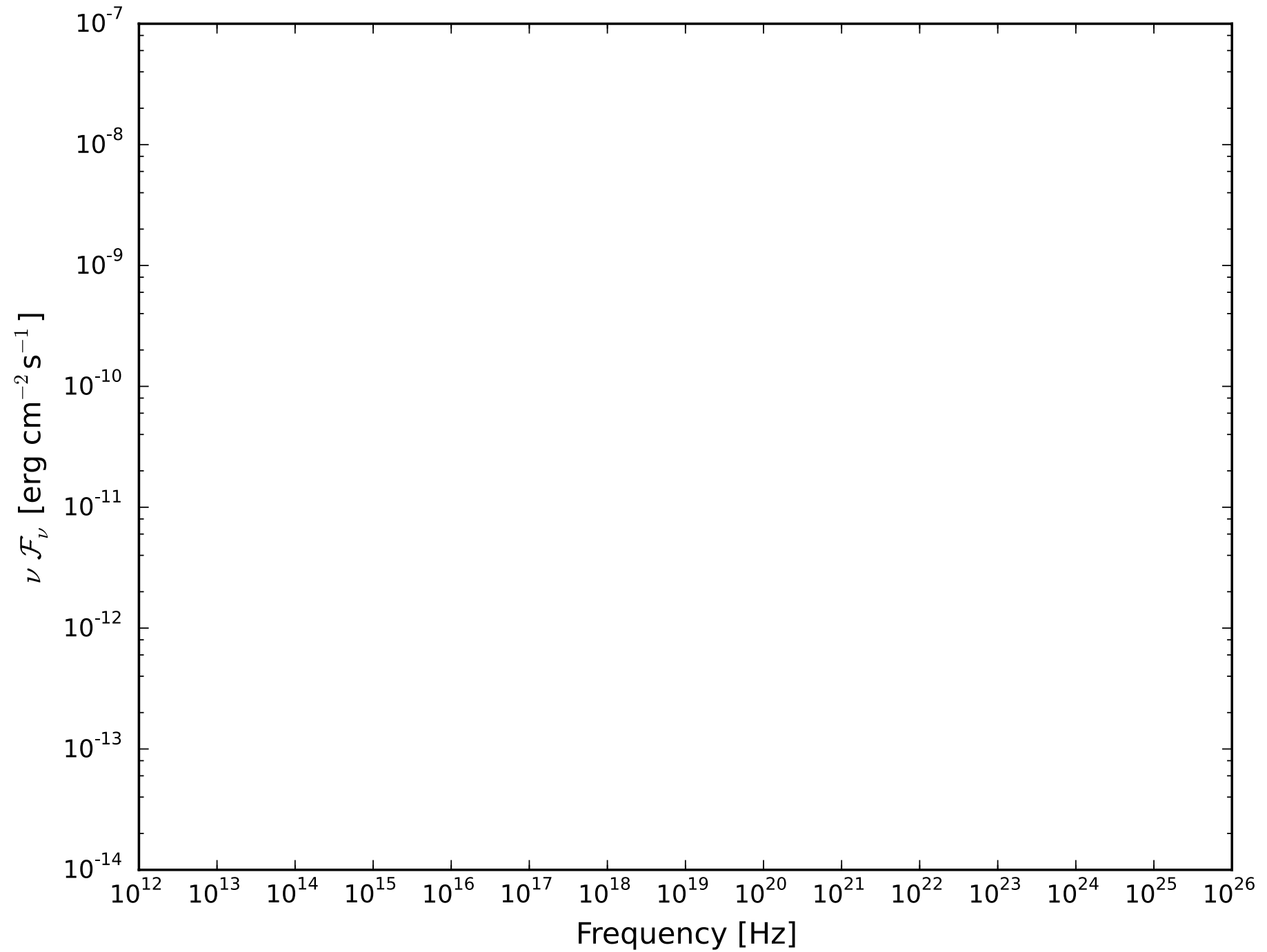
Ackermann et al. (2016, ApJ, 824, 20)

Petropoulou et al. (2017, MNRAS, 467, 16)

Cerutti et al. (2017, AIP, 1792, 50029)

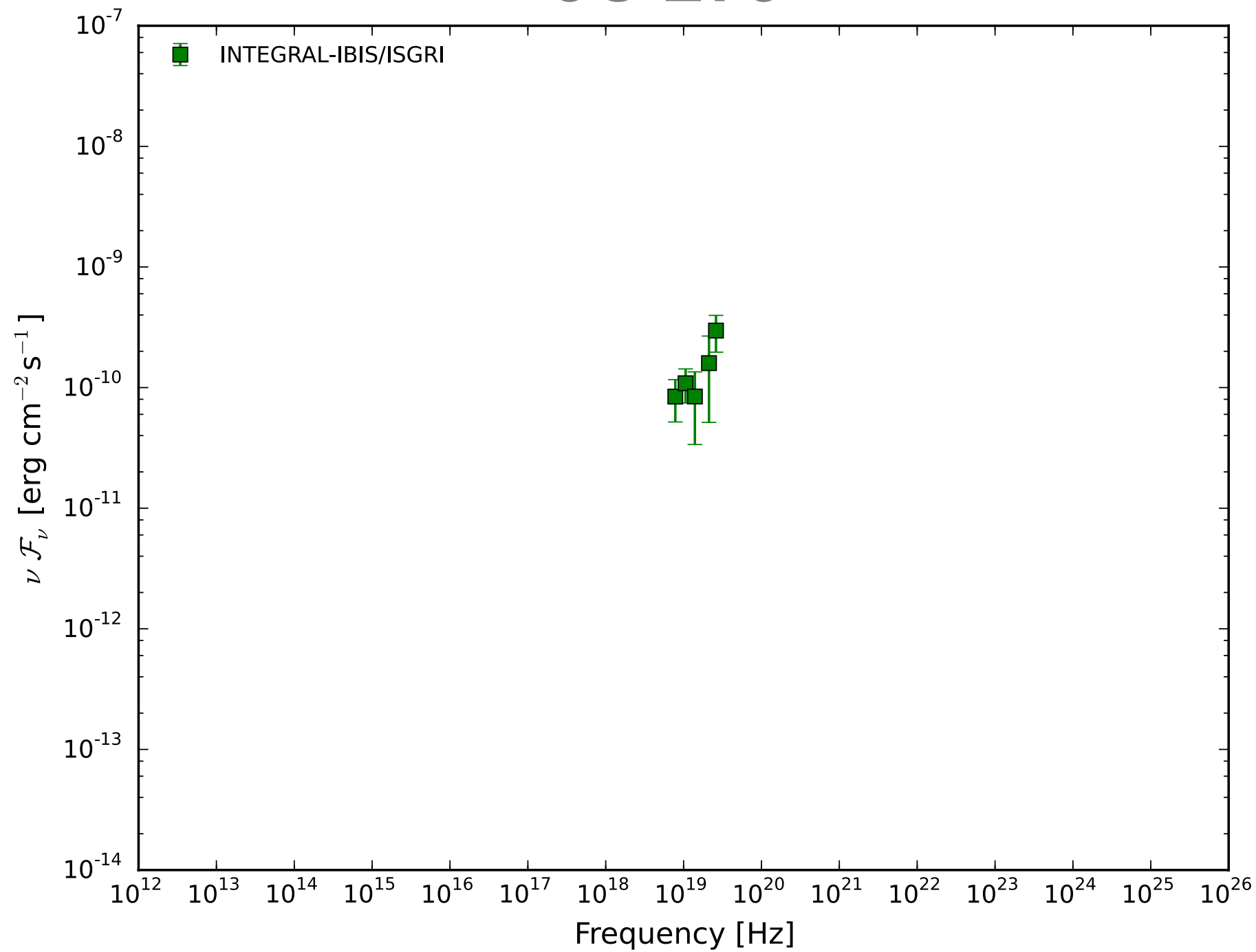
Romoli et al. (2017, Talk at ICRC)

# 3C 279

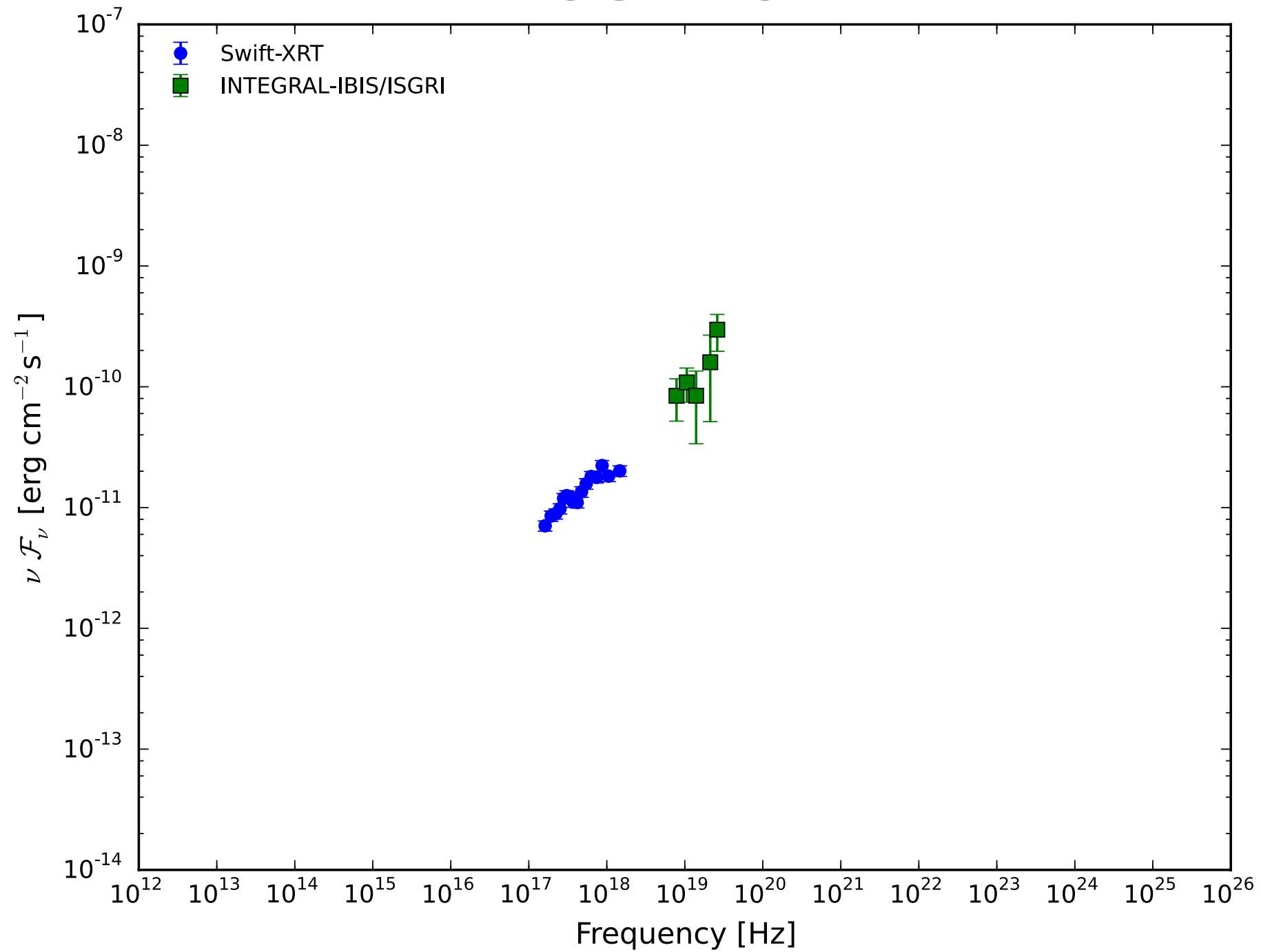




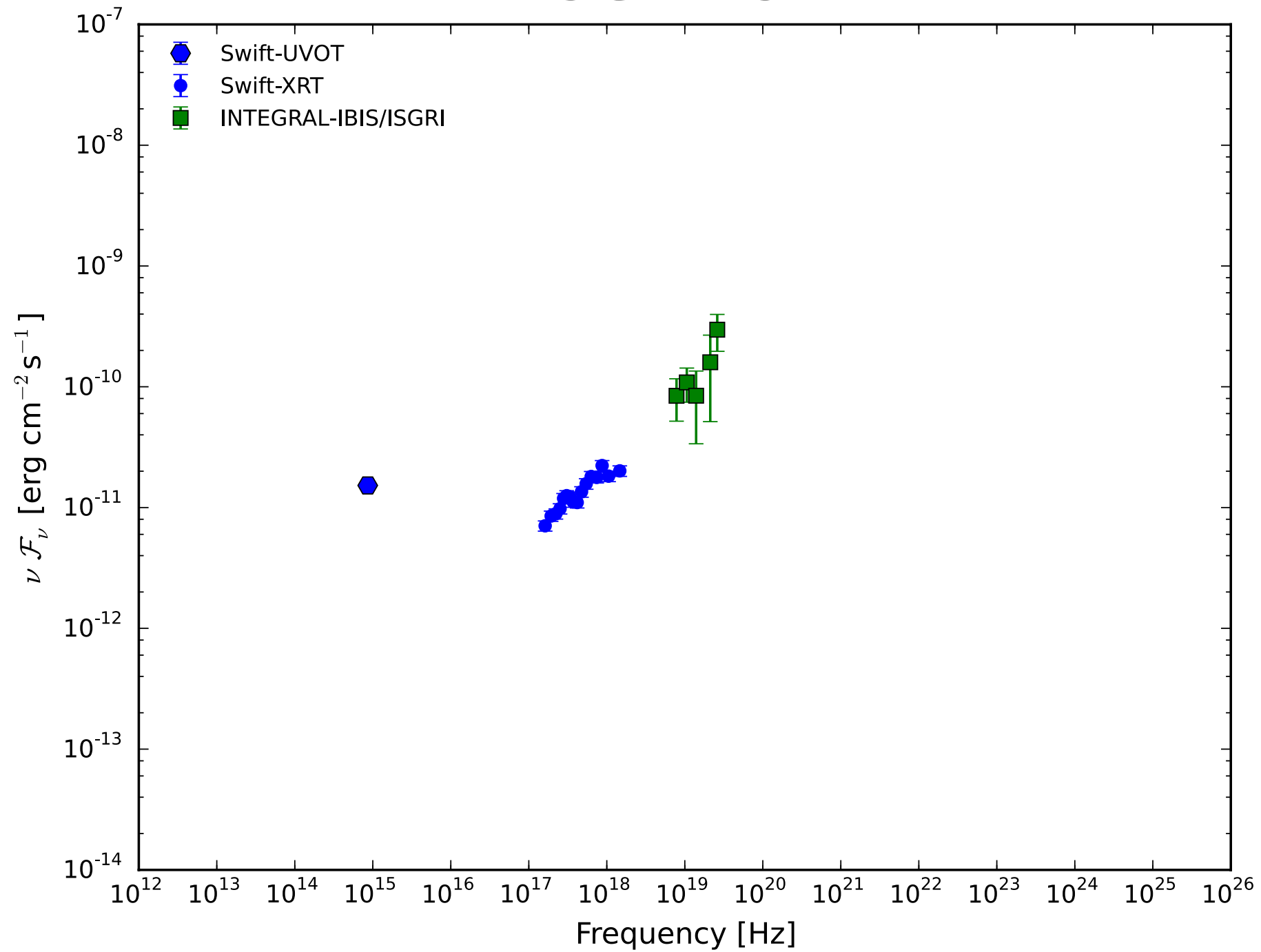
## 3C 279



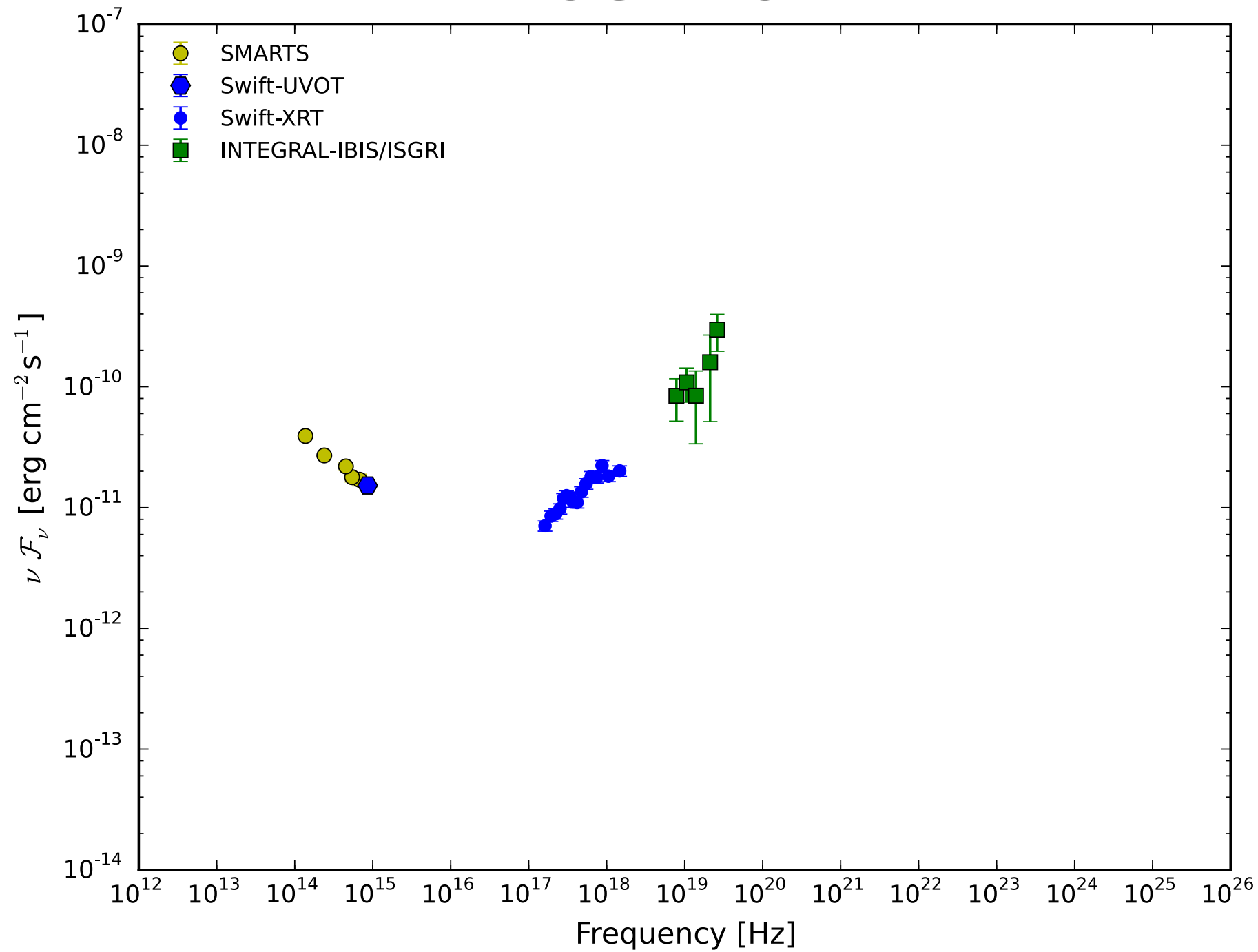
## 3C 279



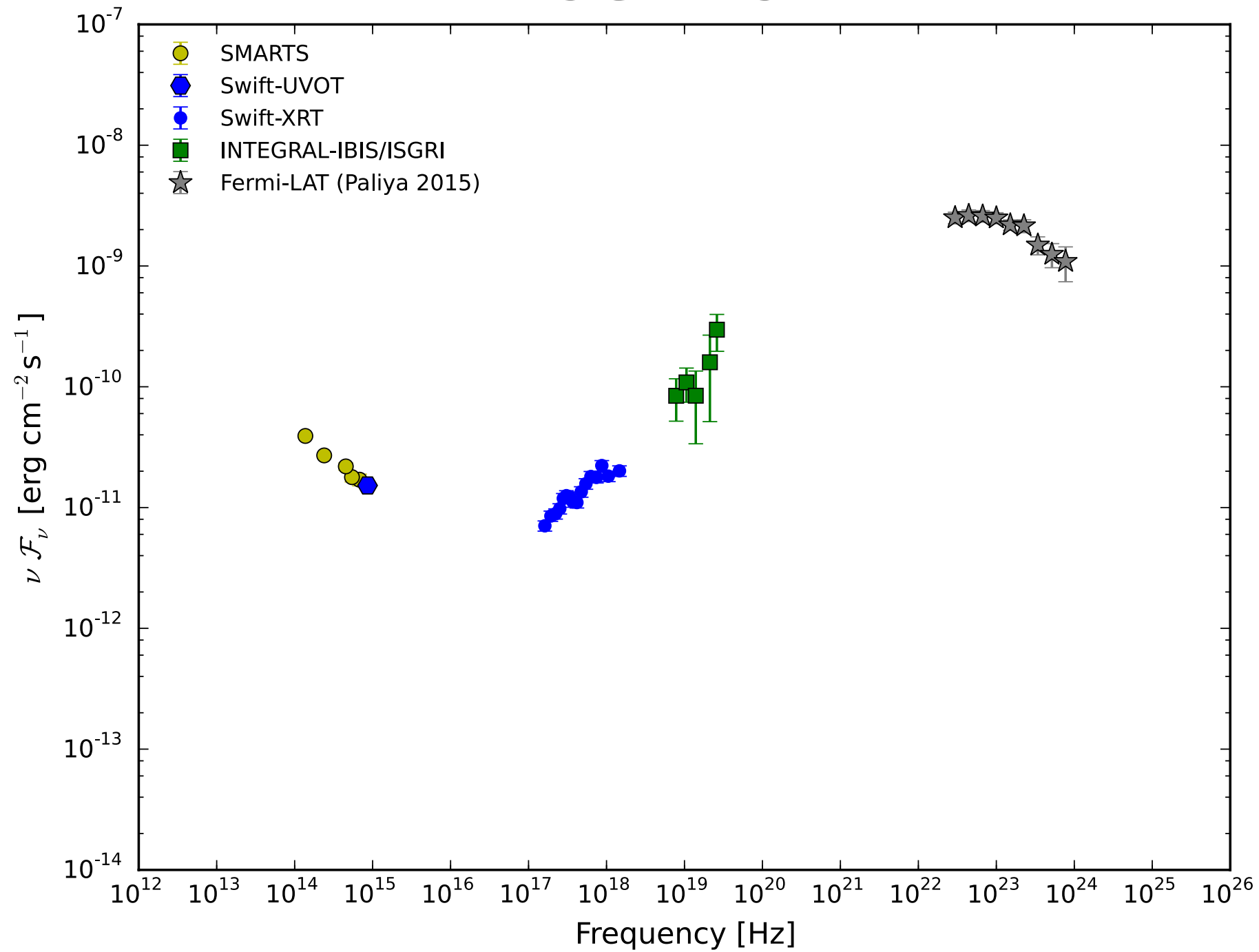
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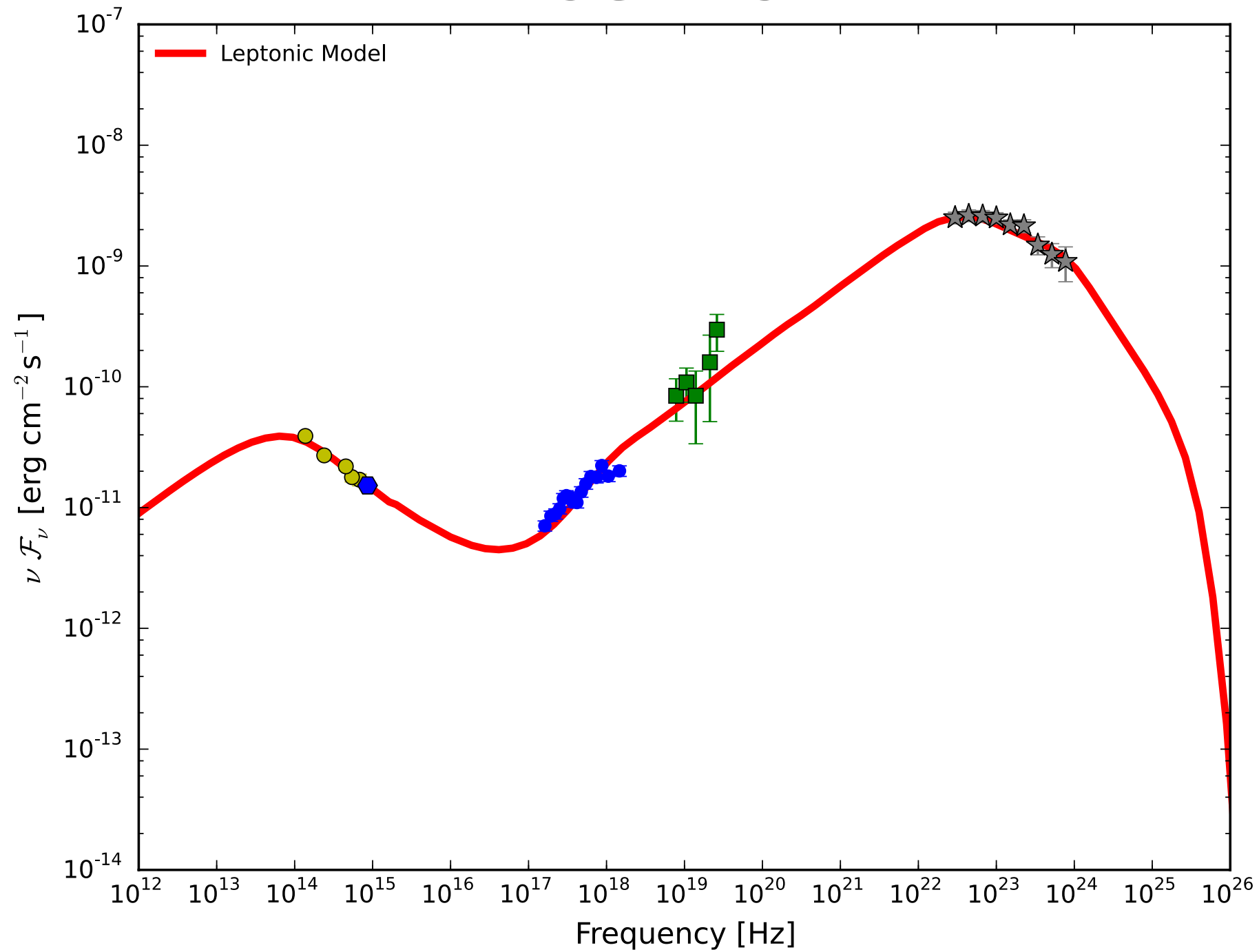
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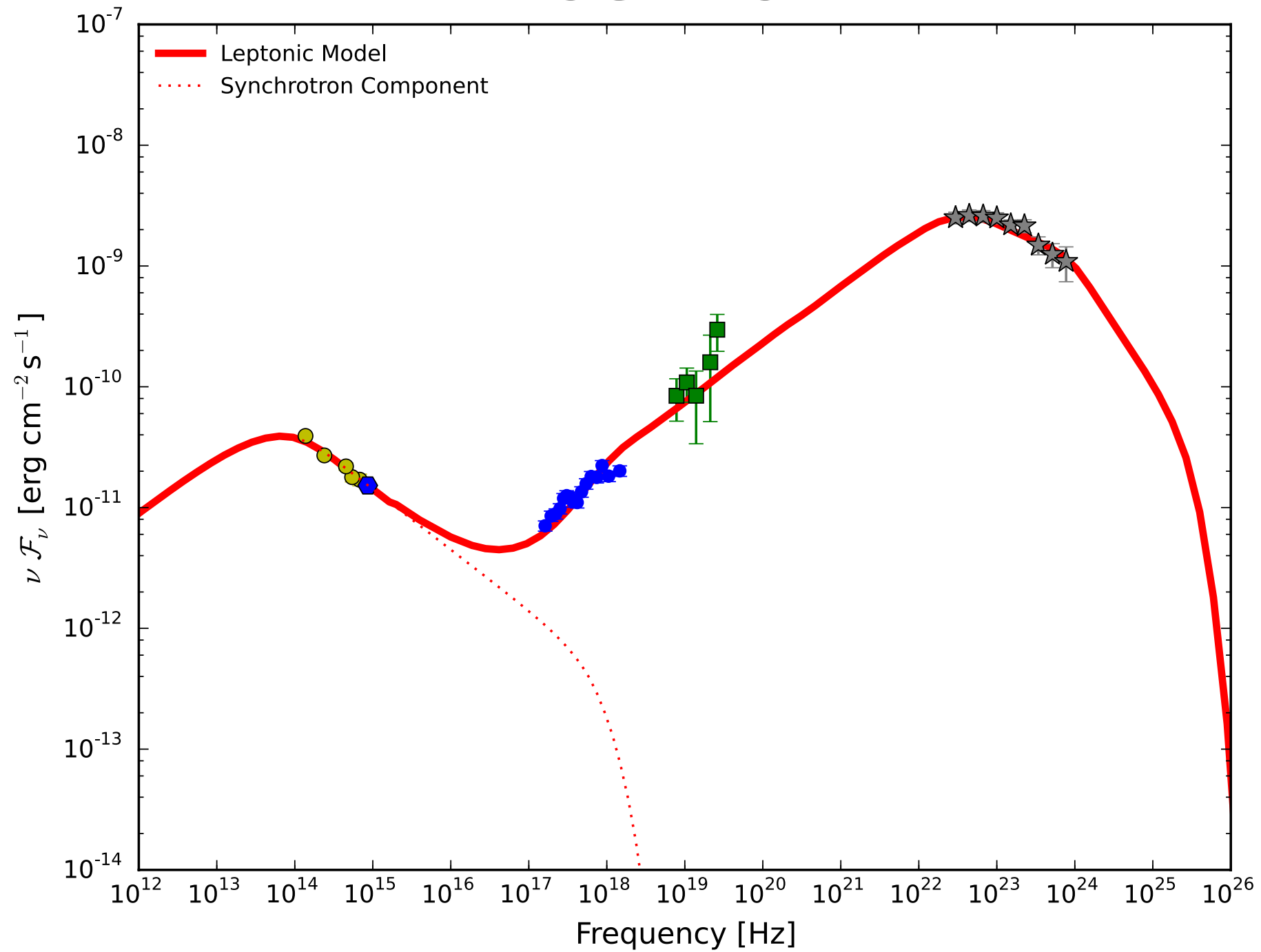
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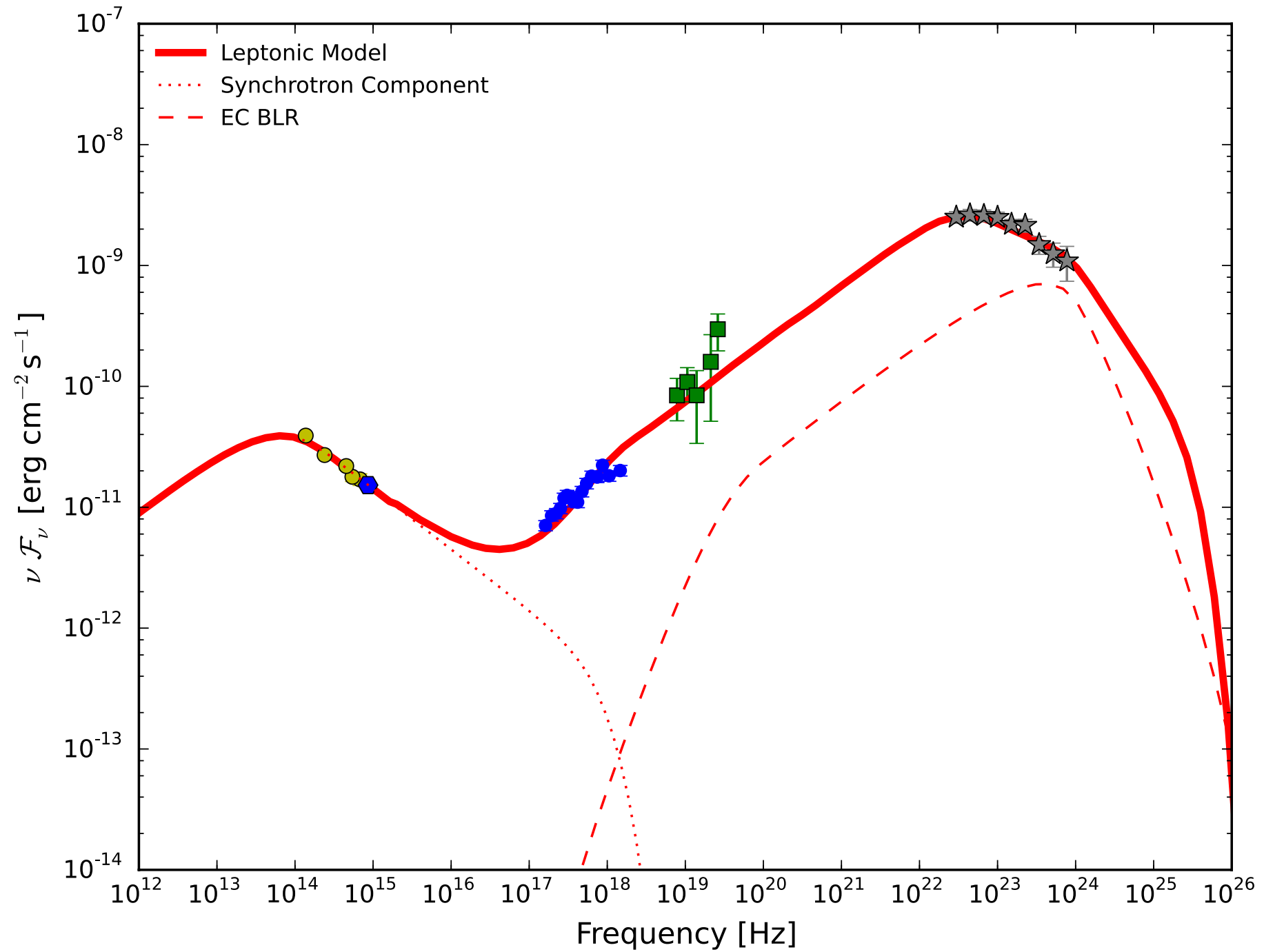
## 3C 279



## 3C 279

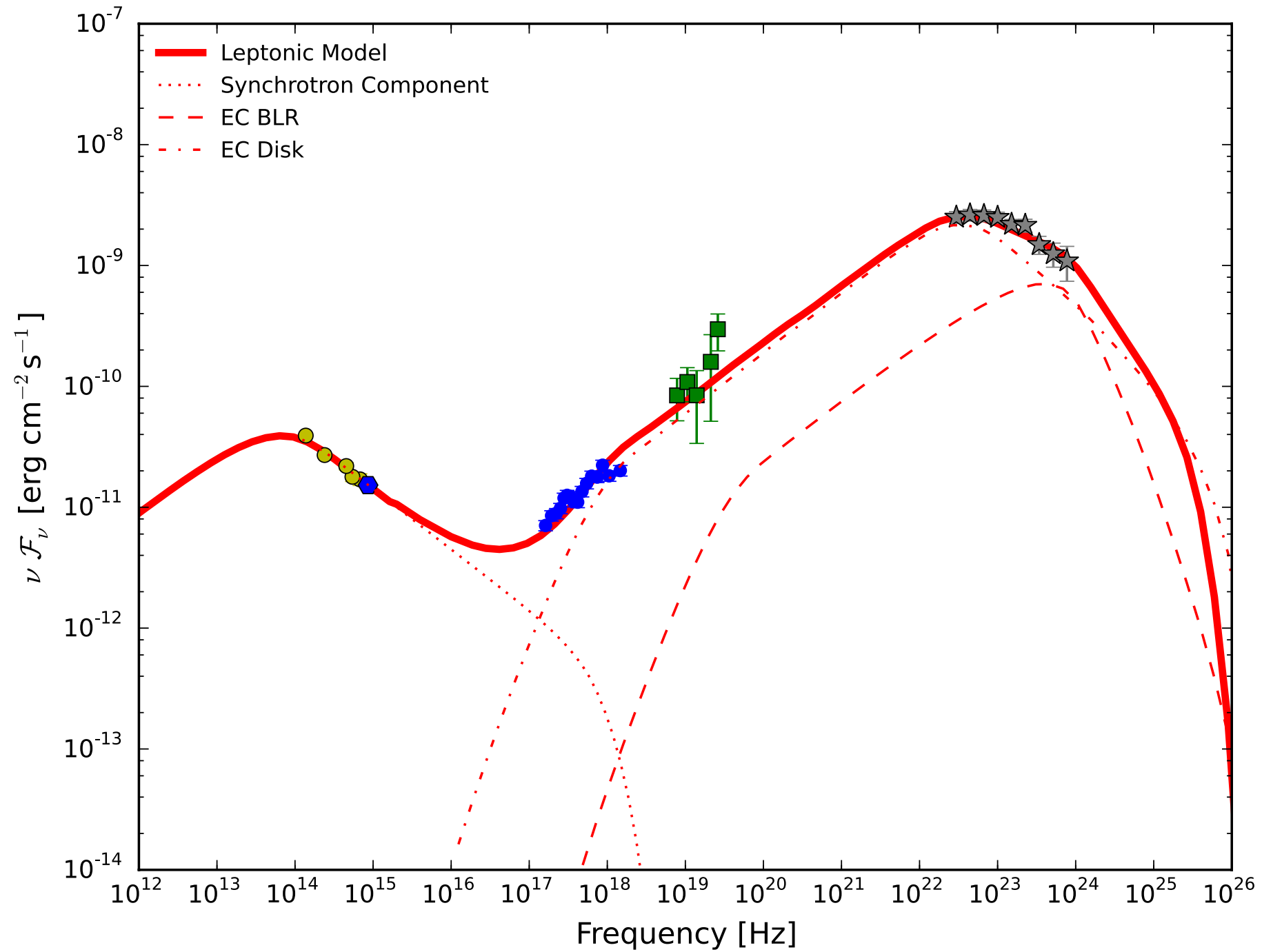


## 3C 279

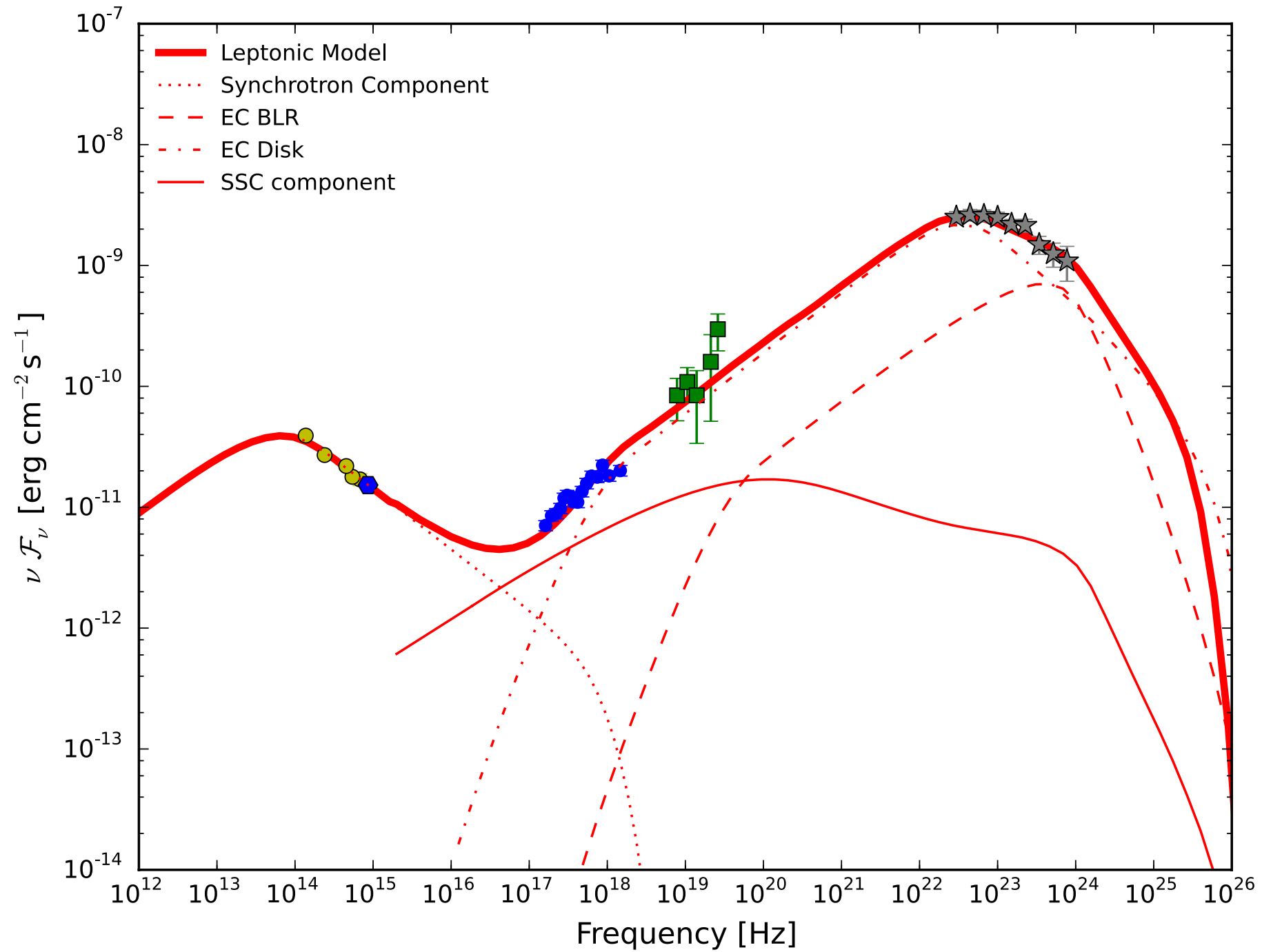




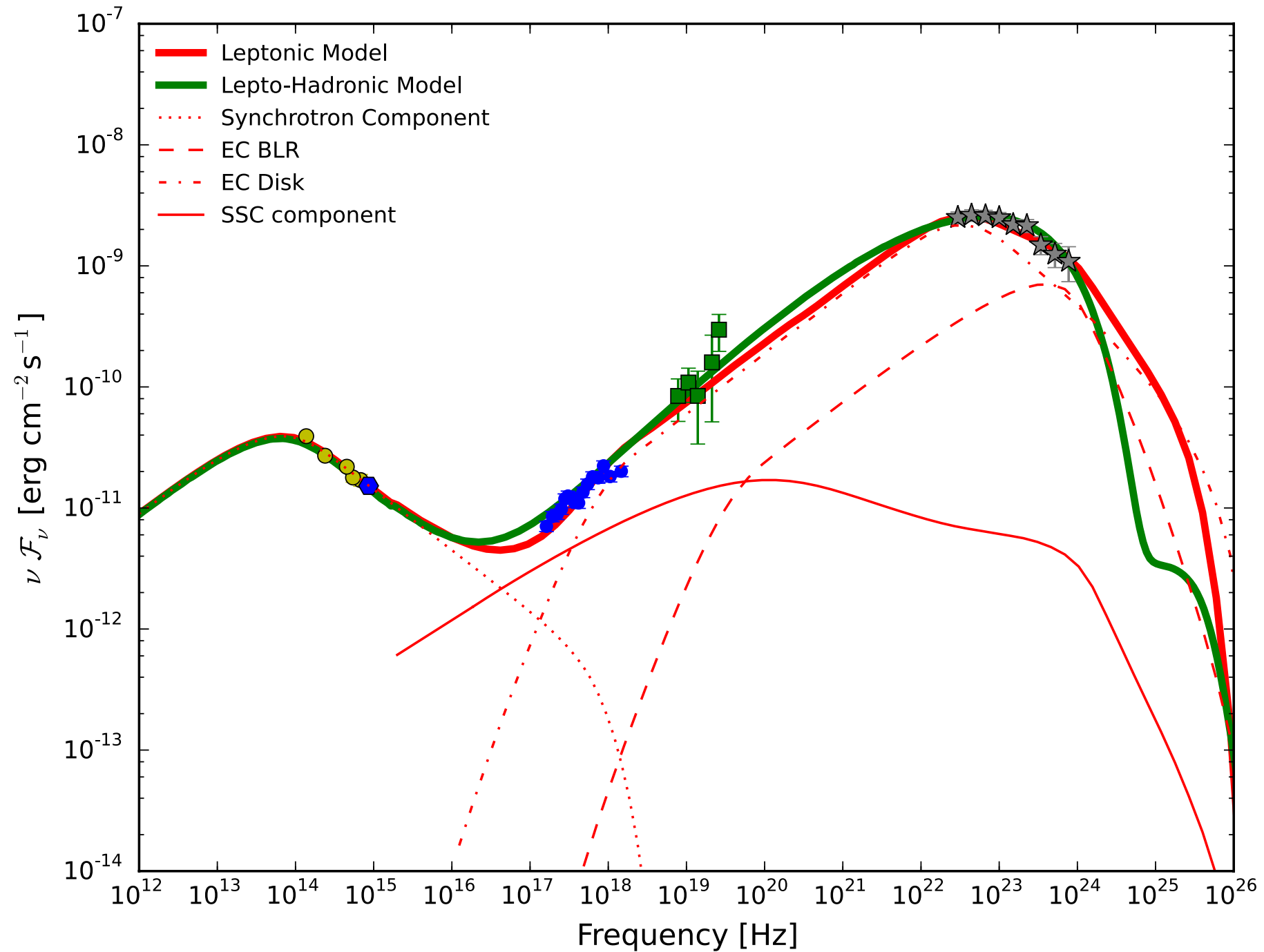
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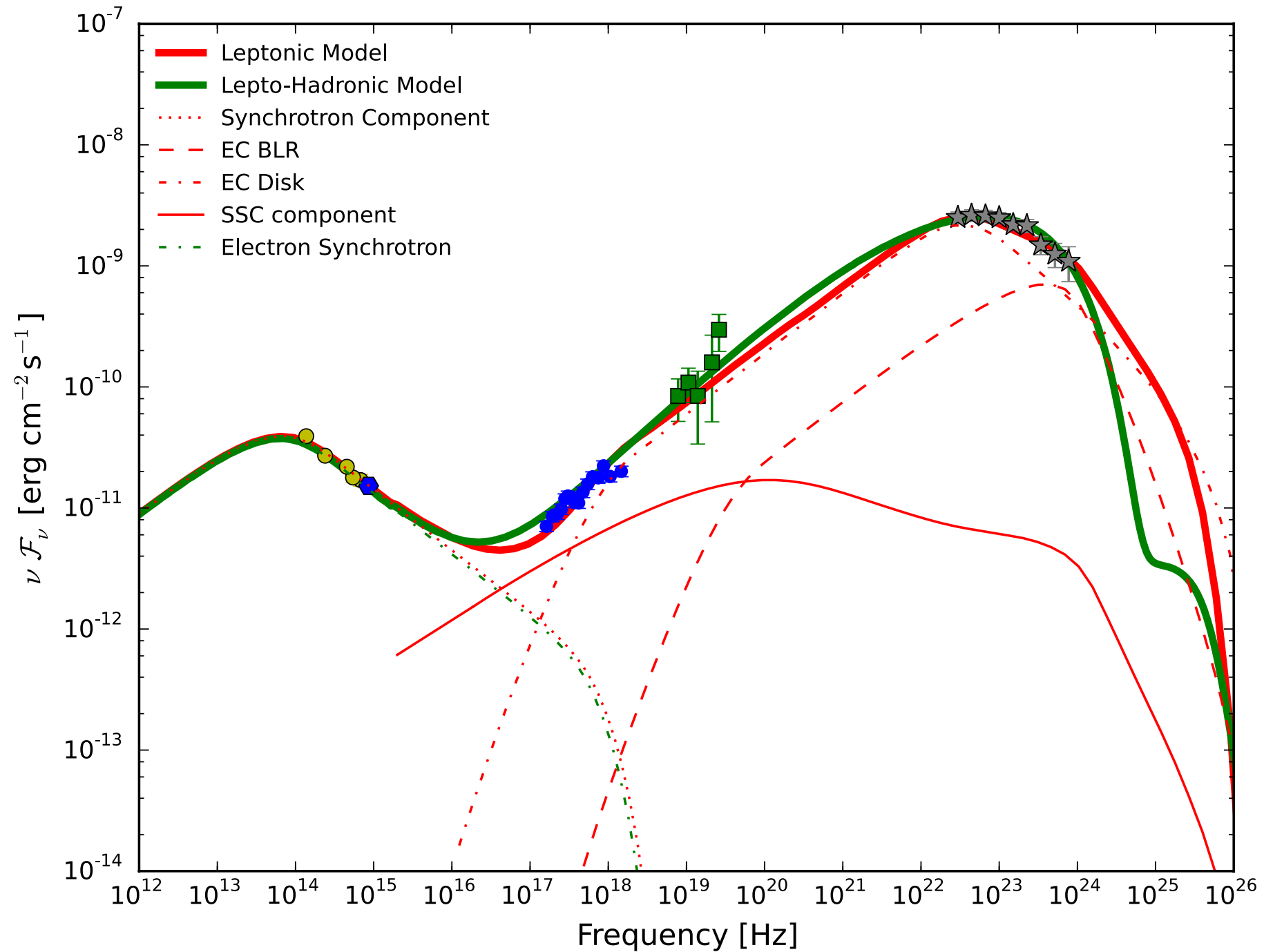
## 3C 279



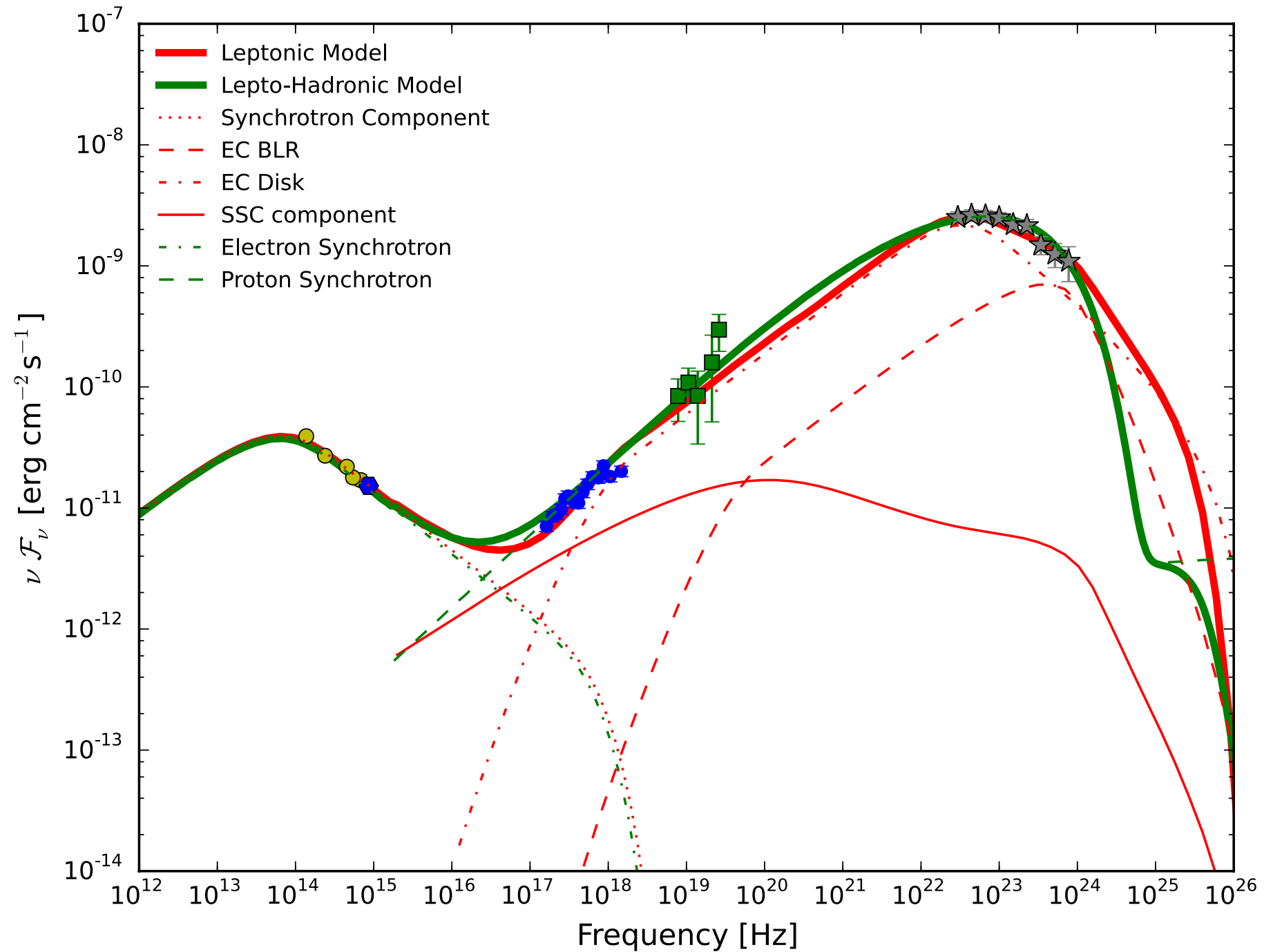
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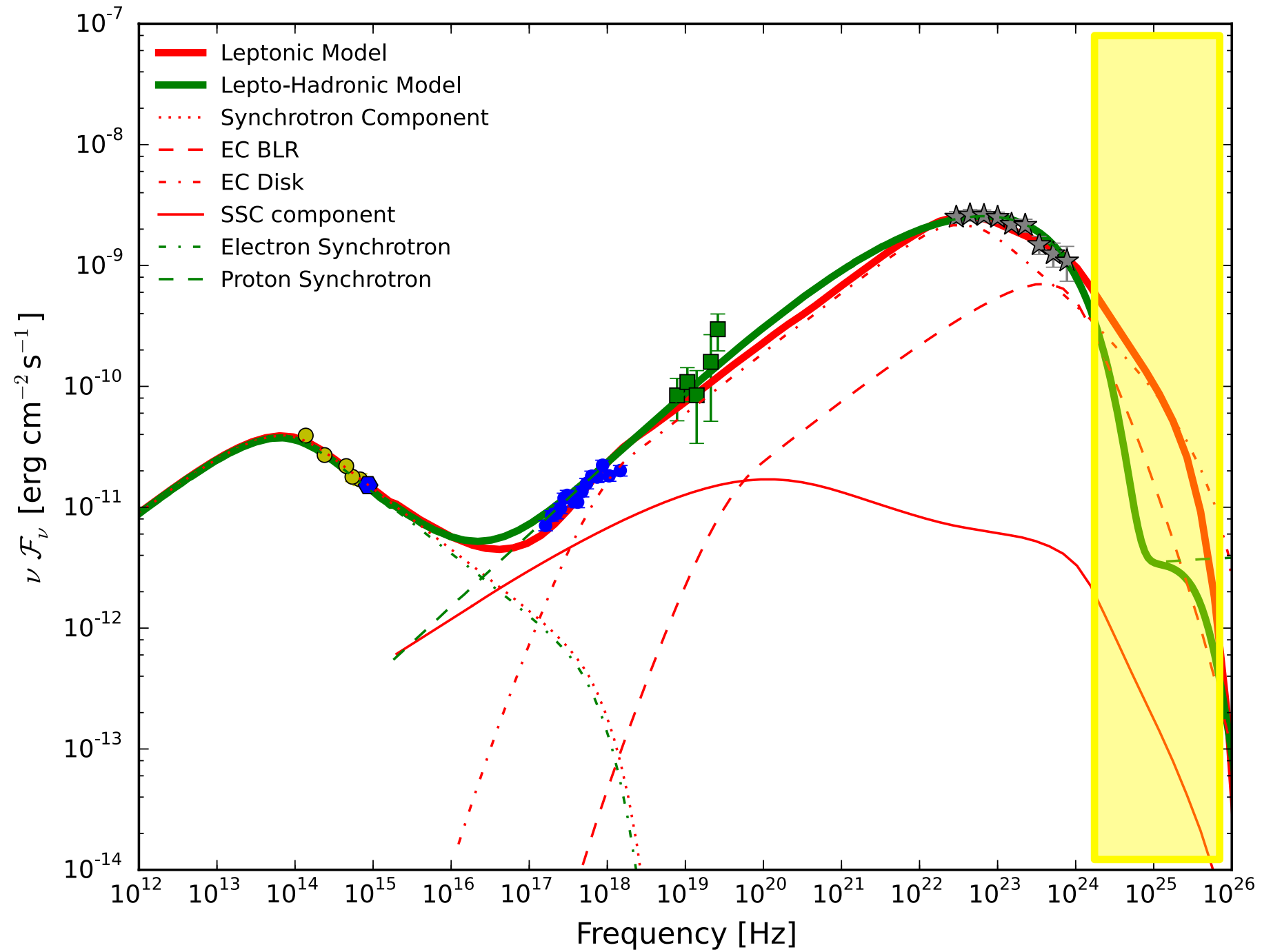
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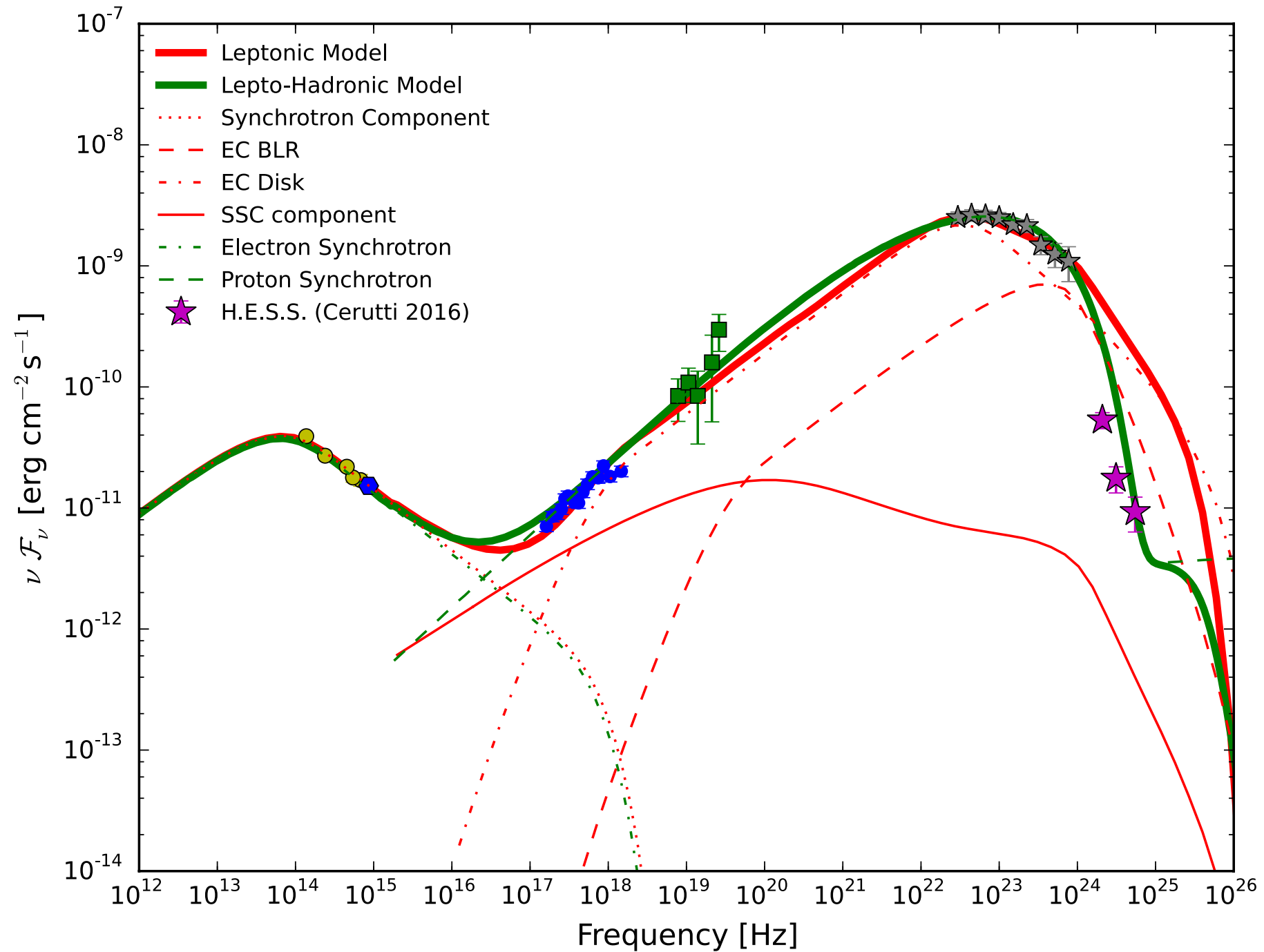
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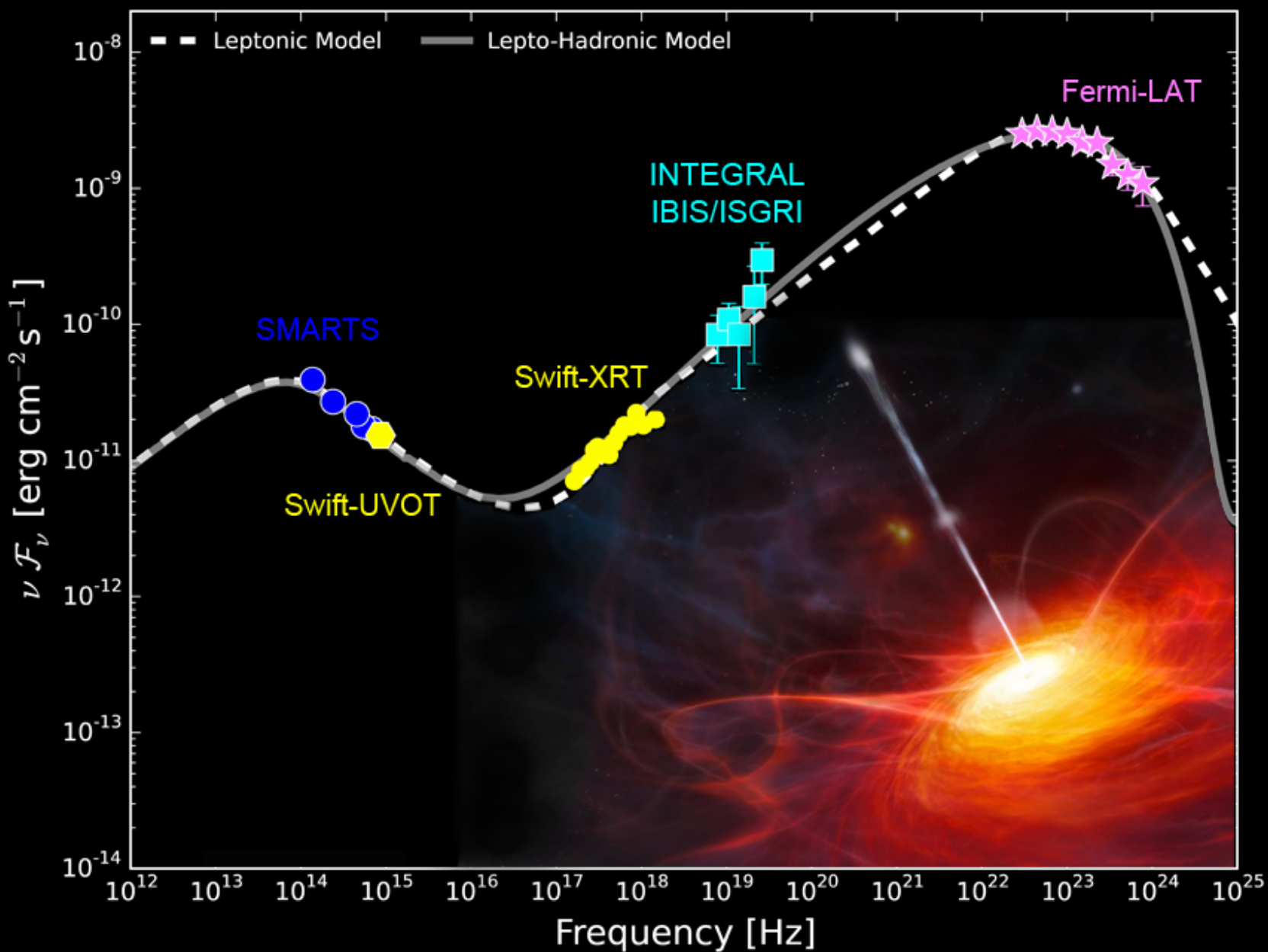
## 3C 279



## 3C 279



# Conclusions



**Bottacini et al. (2016, ApJ, 832, 17)**