

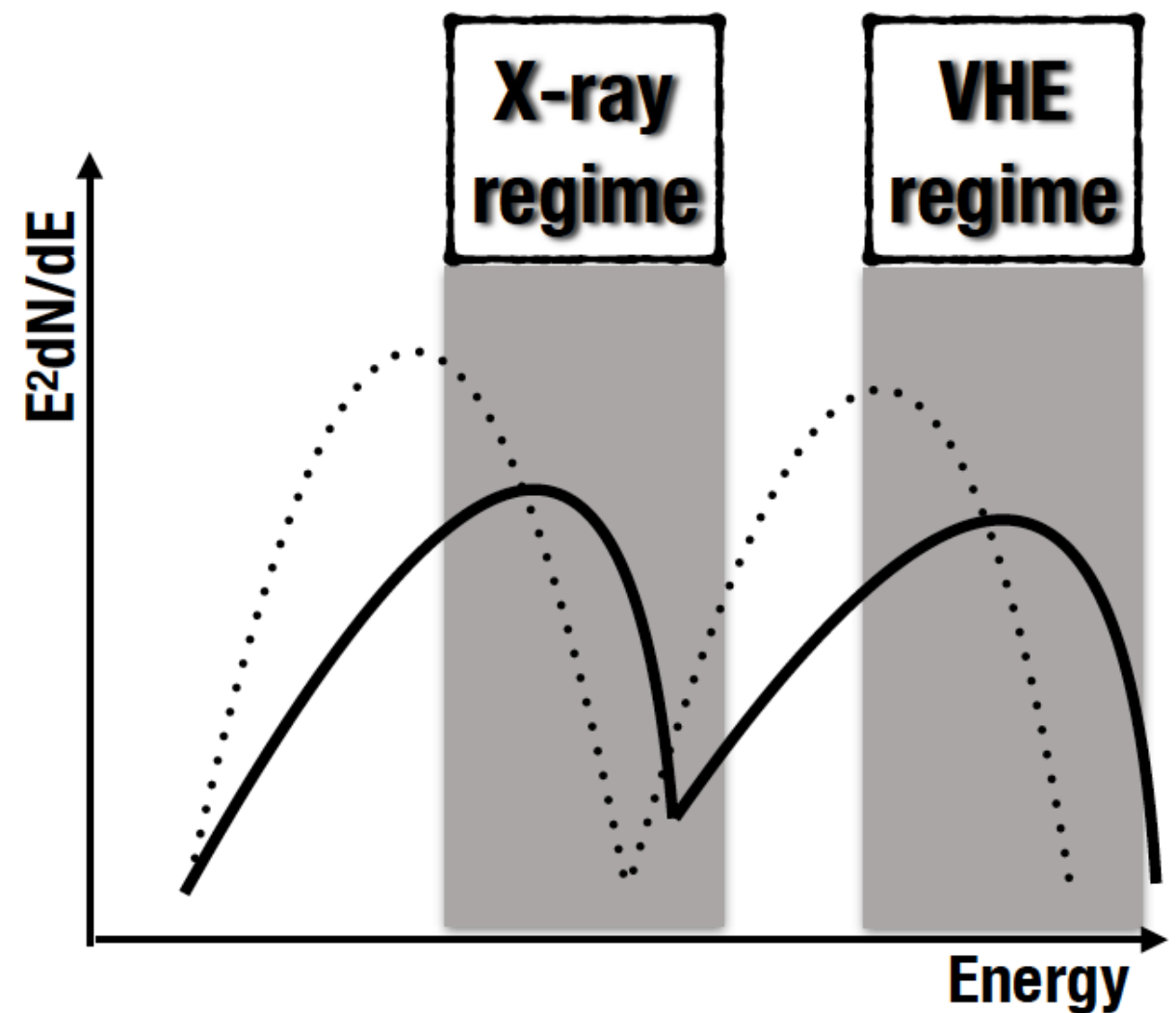
Extreme blazars: prospects for CTA

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Padova F2F INFN-CTA meeting

Extreme blazars in a nutshell

- Extreme blazars aka extreme synchrotron peaked BL Lac objects — EHBLs — with **synchrotron peak above 10^{17} Hz** (Costamante et al. 2001)
- Some objects are also extreme at **TeV** energies (Costamante et al. 2018, Foffano et al. 2019): hard spectrum up to 1 TeV



Latest measurements from MAGIC

- Today in arXiv:

ApJS accepted!

New hard-TeV extreme blazars detected with the MAGIC telescopes

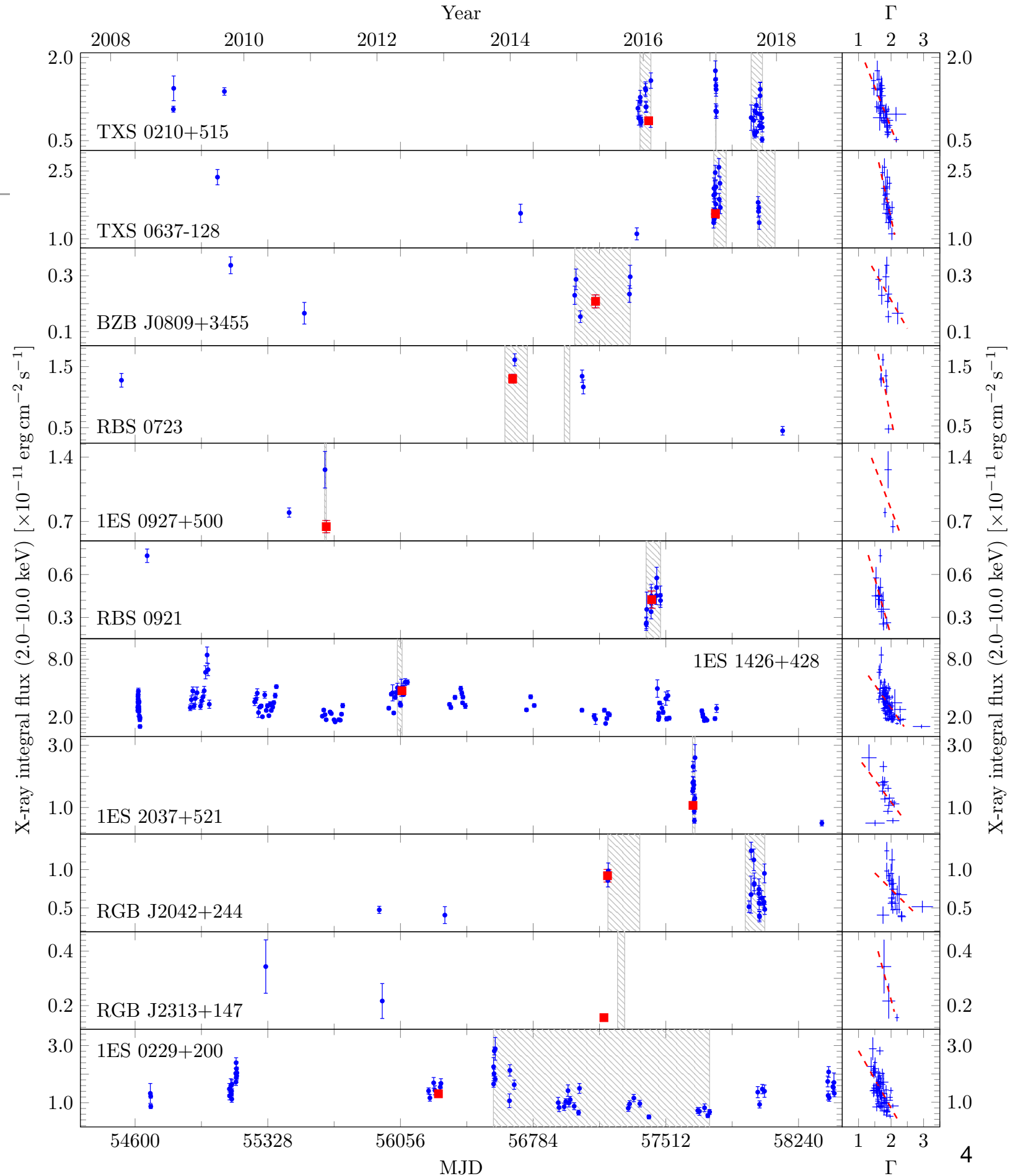
(MAGIC COLLABORATION)

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- ~10 hard-TeV extreme blazars known
- very promising for cosmological and fundamental physics study
- 10 (9 new) sources observed by MAGIC, 4 detected (1 hint)

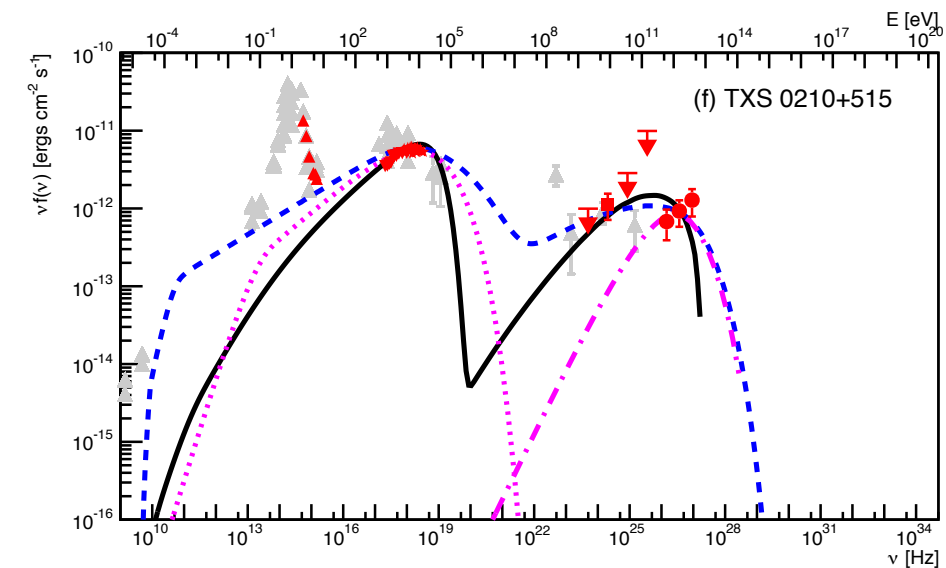
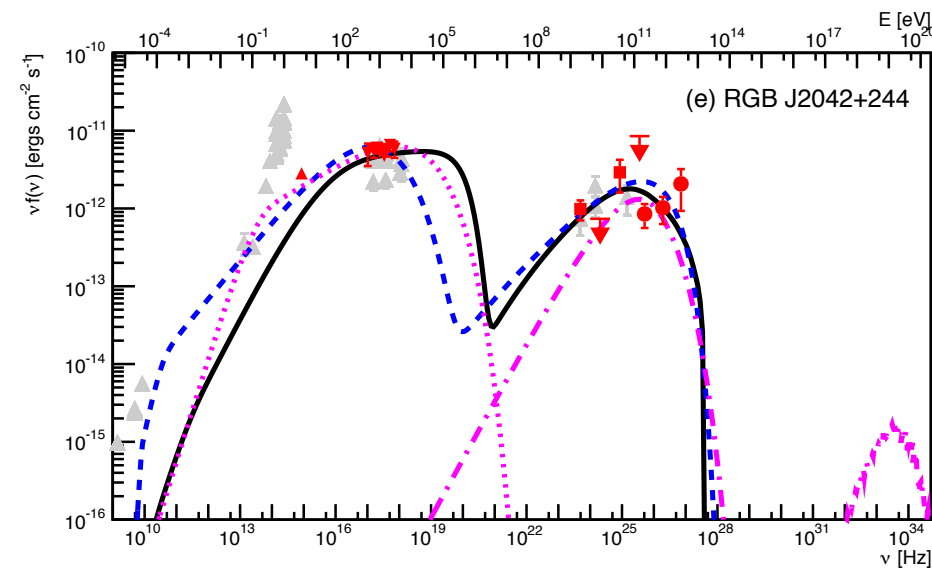
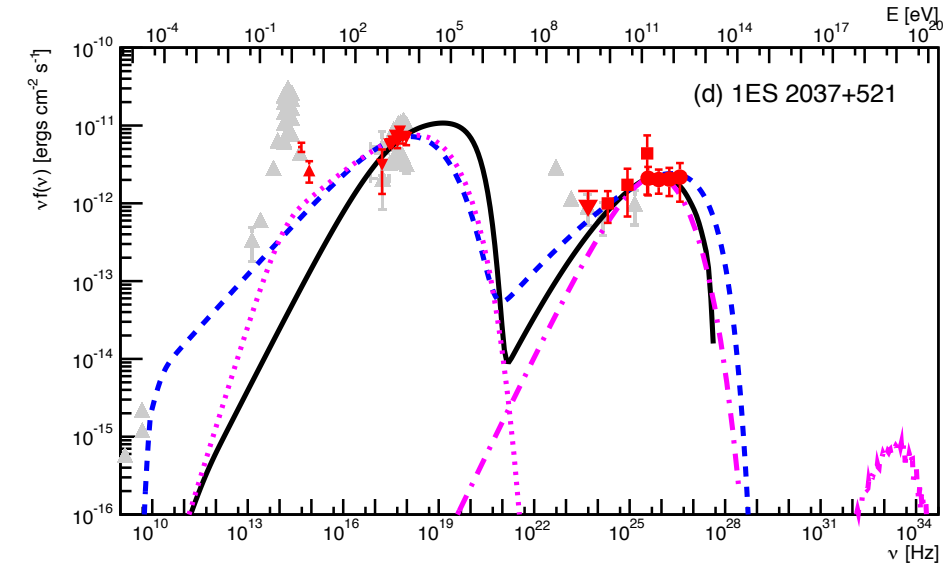
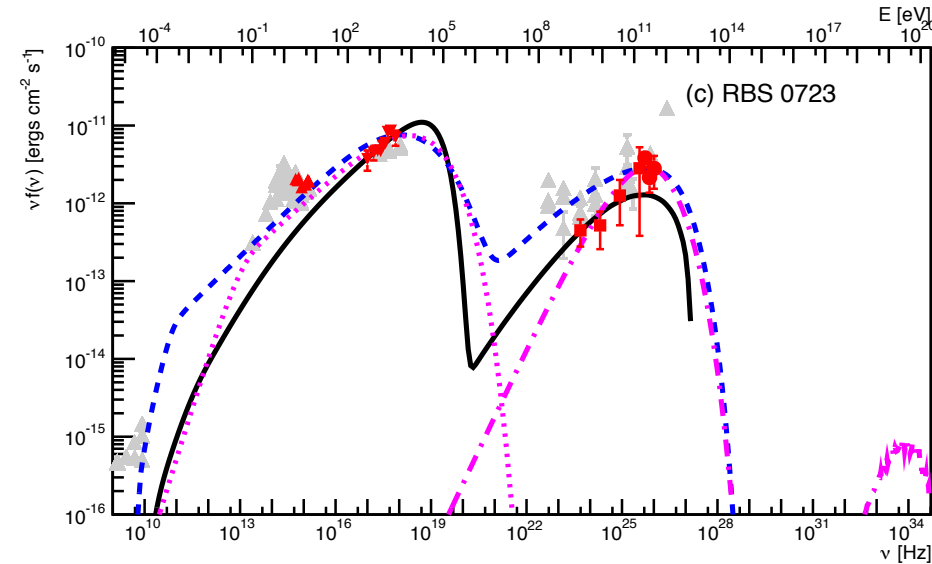
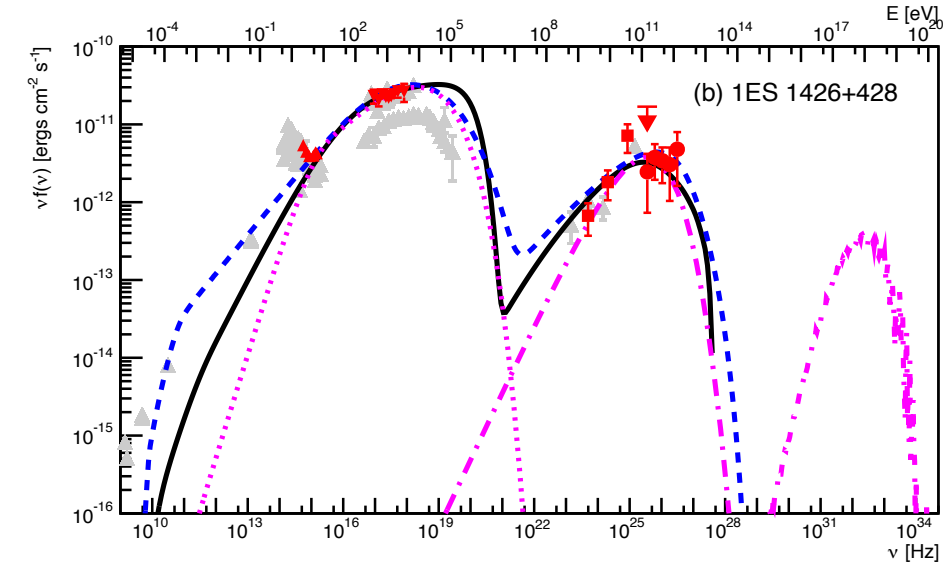
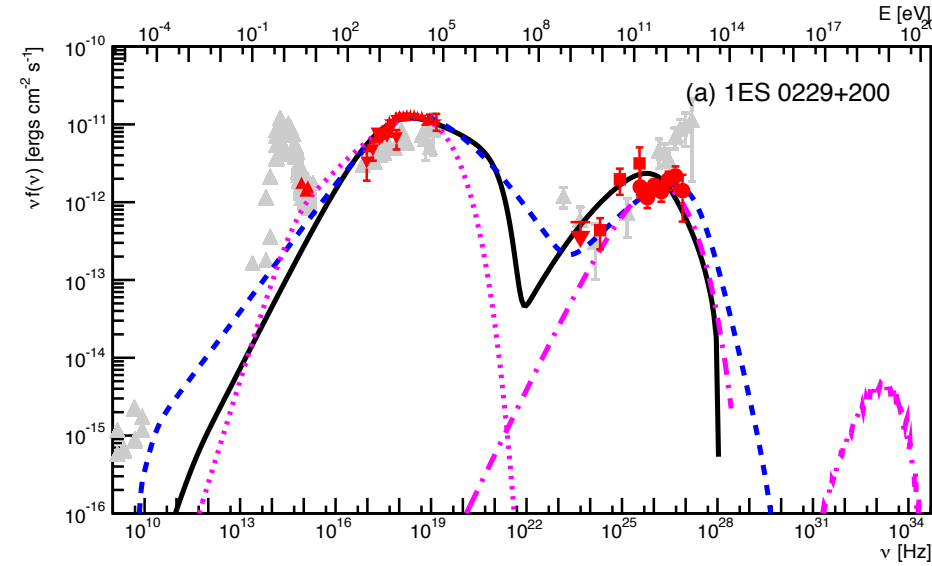
Variability (in X-ray)

- Modest variability
- Harder-when-brighter behaviour



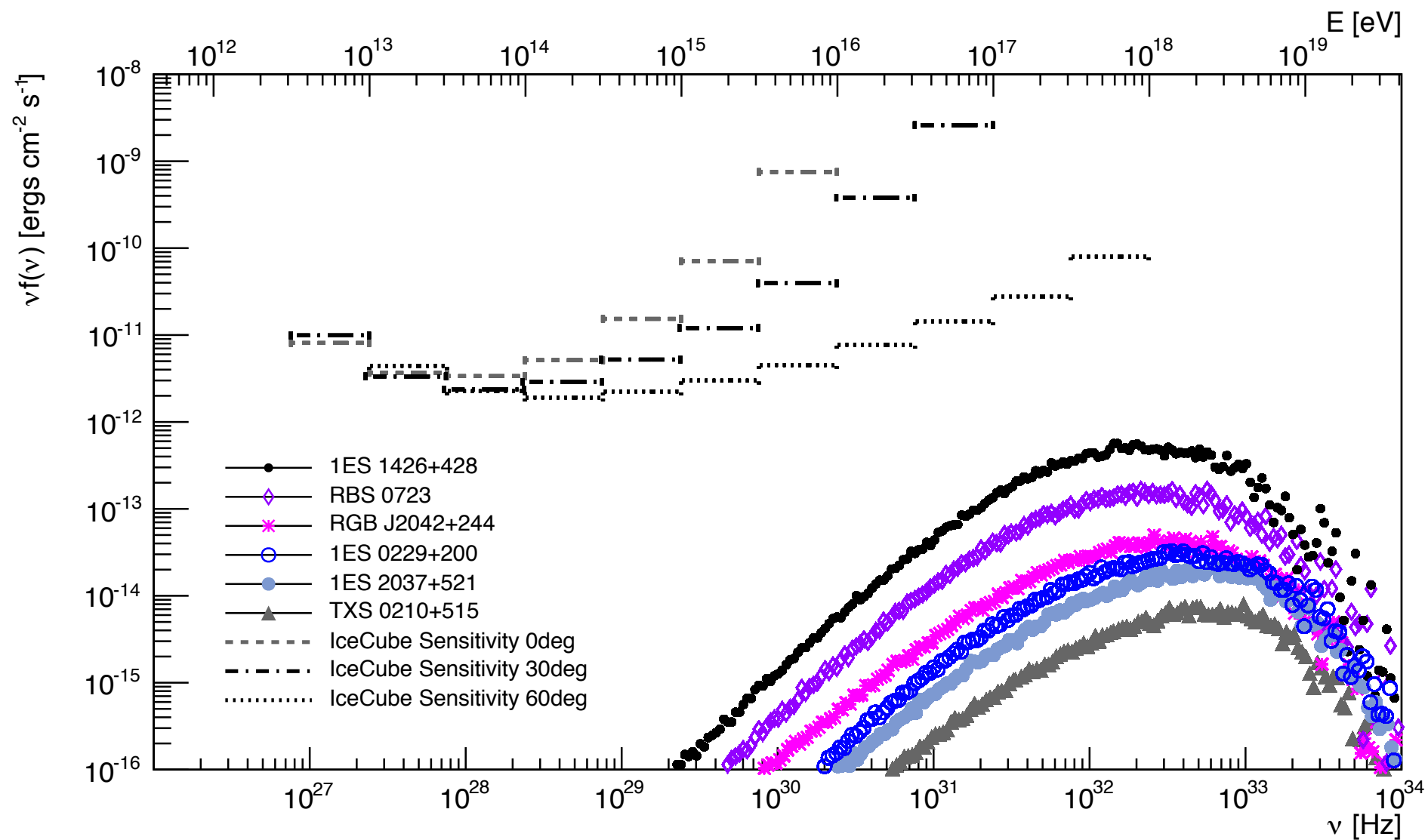
Modelling Extreme blazars

- **SSC one zone**
- **SSC 2-zone (spine layer)**
- **Proton synchrotron**



Neutrino predictions (from proton synchro)

- All below IceCube sensitivity



Prospects for CTA

- Probe for the first time variability at VHE
- Essential to discriminate models!
 - proton synchro: no correlated variability
 - leptonic model: correlated variability

