David's Span

SS 433

AGNs

Relativistic Plasmas

Radiation Processes

GRBs

Spectral lines ("searched in vain for absorption lines")

Coded apertures

Statistics

I would try to keep up with him on GRBs, spectral analysis, and coded apertures.

I don't think I ever won an argument with him.

The Energy Distribution of Gamma-Ray Bursts

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ABSTRACT

The distribution of the apparent total energy emitted by a gamma-ray burst reflects not only the distribution of the energy actually released by the burst engine, but also the distribution of beaming angles. Using the observed energy fluences, the detection thresholds and burst redshifts for three burst samples, I calculate the best-fit parameters for lognormal and power-law distributions of the apparent total energy. Two of the samples include a small number of bursts with spectroscopic redshifts, while the third sample has 220 bursts with redshifts determined by the proposed variability-luminosity correlation. I find different sets of parameter values for the three burst samples. The Bayesian odds ratio cannot distinguish between the two model distribution functions for the two smaller burst samples with spectroscopic redshifts, but does favor the lognormal distribution for the larger sample with variability-derived redshifts. The data do not rule out a distribution with a low energy tail which is currently unobservable. I find that neglecting the burst detection threshold biases the fitted distribution to be narrower with a higher average value than the true distribution; this demonstrates the importance of determining and reporting the effective detection threshold for bursts in a sample.

One of seven papers listed on his CV

Has been cited only 4 times

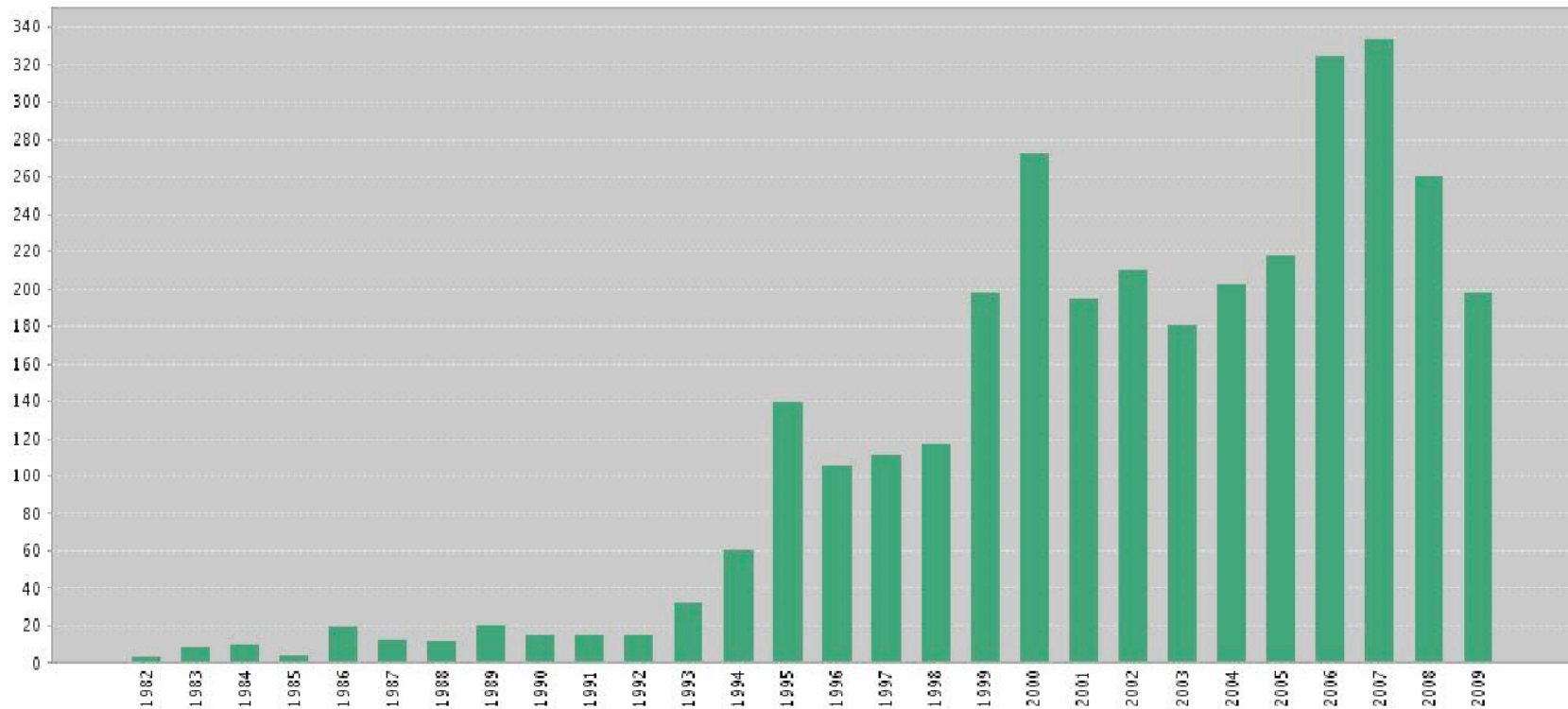Solid, thorough statistical work to determine nature of underlying intrinsic E_{ISO} Distribution.

Used three different databases of E_{iso} and do 500 simulated databases to understand errors. Combined cosmology with instrumental response.

Did not say "Band Function", but rather "GRB function"

Published Items in Each Year
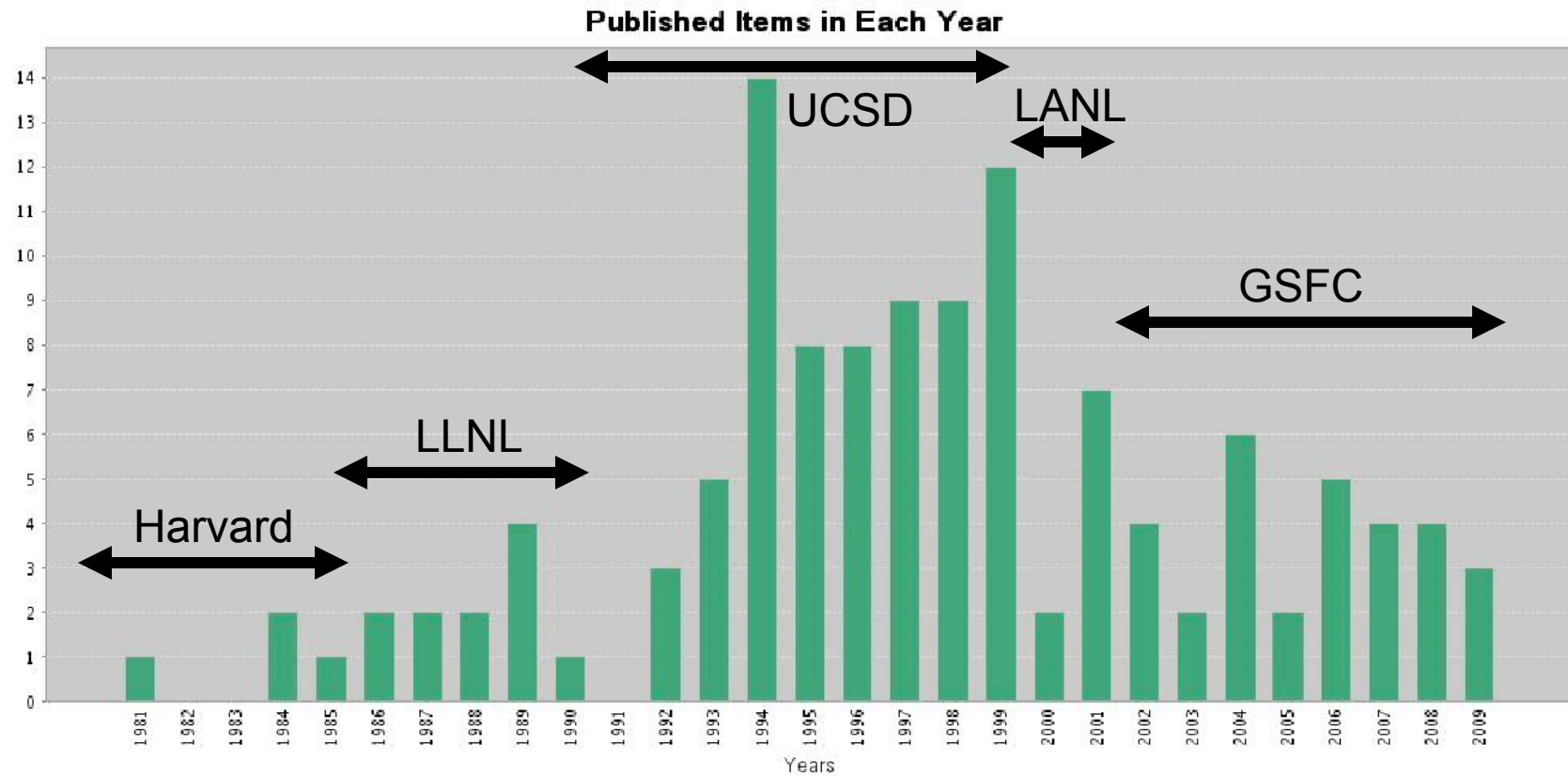
122 papers

Citations in Each Year

3300 citations

Citations are continuing and are years after the work

About once per day someone quotes from David's Legacy