Space weather study becomes increasingly important for our electronic civilization. One of the main cause of space environmental disturbance is large solar flare. The largest solar flare that our civilization has experienced is Carrington event in 1859, and the total energy of the flare is of the order of $10^{32}$ erg.

We study superflares (whose total energy is more than $10^{32}$ erg) on solar type stars with Kepler space telescope and detected 1,547 superflares on 279 solar type stars. Typical frequency of superflare of $10^{34}$ erg on solar type star is once in 800 years. Our study implies the probability that our Sun exhibits superflare.

### Statistics of Superflare

Kepler space telescope observes photometric light curve of about 80,000 solar type stars. For comparison with solar flare, we define “Sun-like stars” ($5600 < T_\text{eff} < 6000$ K, log $g > 4.0$, $P_{\text{rot}} > 10$ day). 44 superflares are observed on 19 Sun-like stars. The superflare frequency distribution on Sun-like stars is roughly on the same slope as that of solar flare, and locates between that of solar maximum and minimum. Stars more similar to the Sun ($P_{\text{rot}} > 20$ day) have superflare (Table below).