Frequentist Rebuttal

• Useful illustration of blind reliance on $p$-value, but no actual frequentist would set up such an experiment

• aside: set up to confirm impossible things; can be a unicorn detector

• Hypothesis test must control for power. This one purports to detect solar neutrino luminosity, but fails to detect in 35/36 cases. Low power!

• Must set appropriate sample size/rate to overcome low power problem. How many samples? $\approx 10$ per year per 10 billion stars, so $\approx 3 \cdot 10^{-12}$ per day. So sample size must be $\approx 3 \cdot 10^{12}$. i.e., the experiment requires repetition that many times.

• Effect size is important! Seeing large $p$-value when luminosity is small means you should not take $p$-value at face value.

• Only $50$?