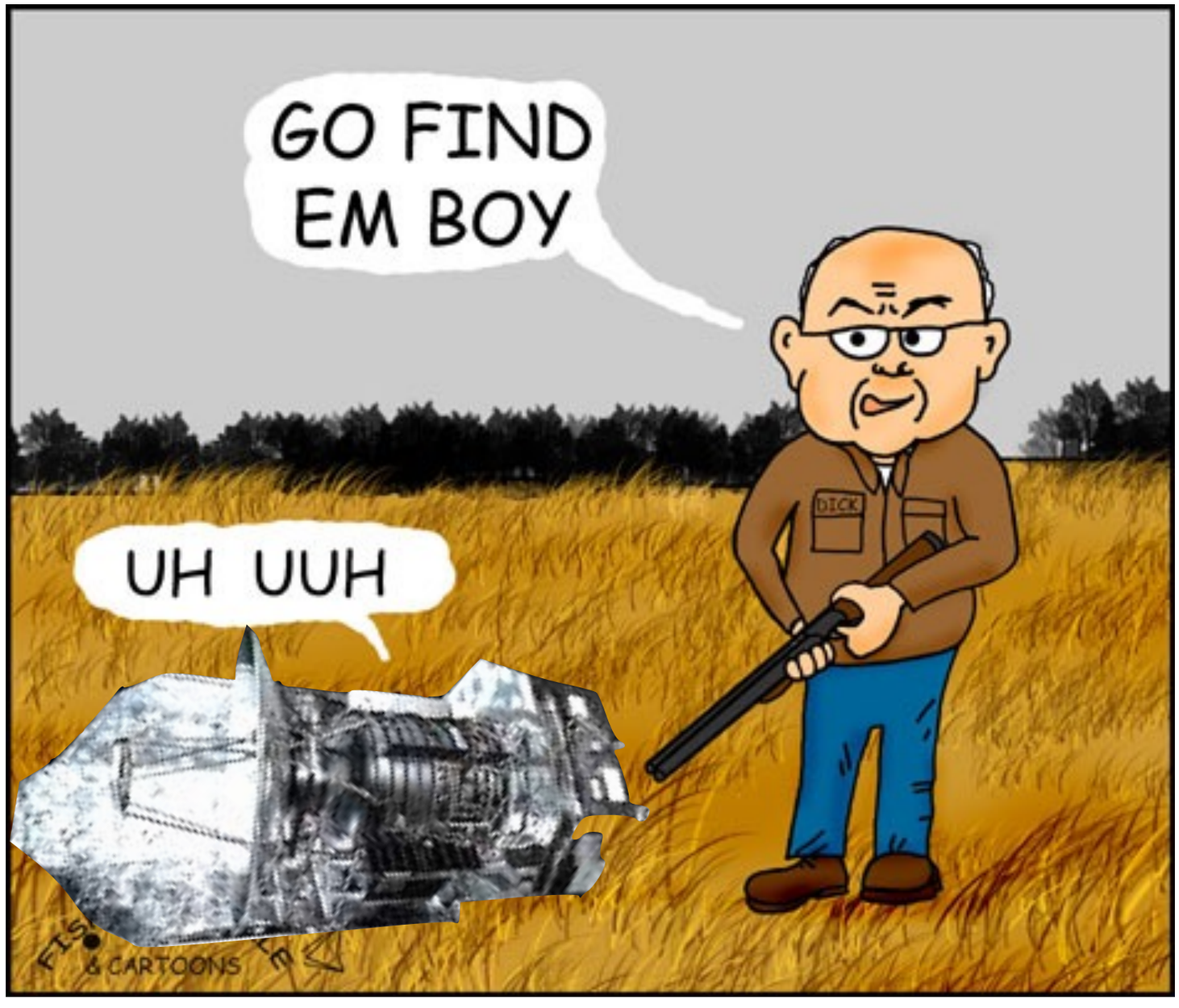
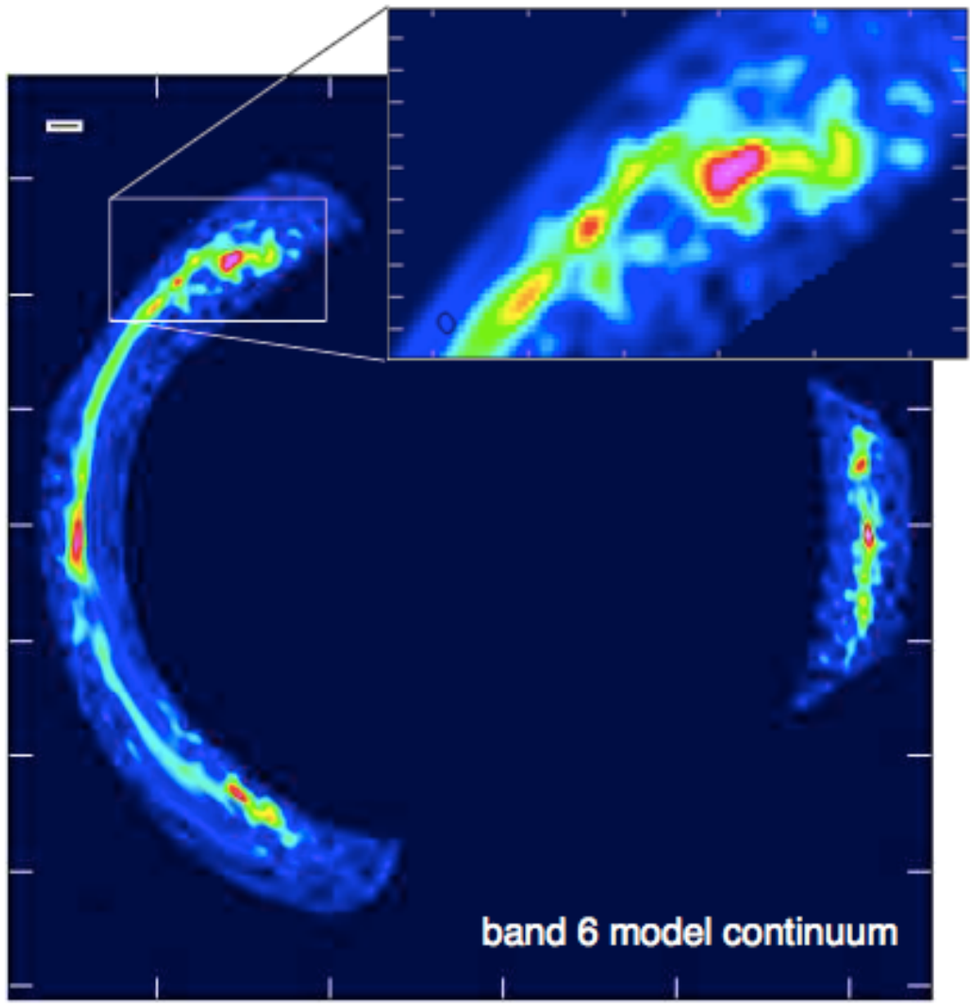
Lens hunting with *Herschel*

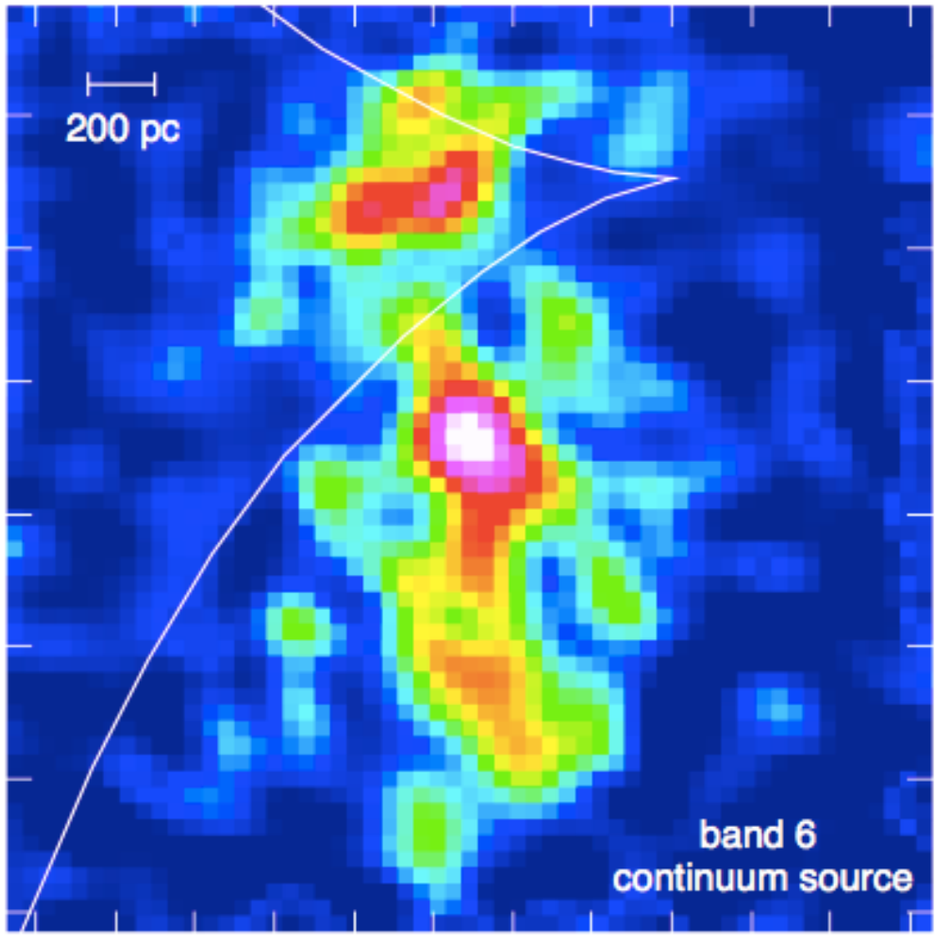
Tom Bakx



Gravitational lenses provide otherwise unreachable levels of detail

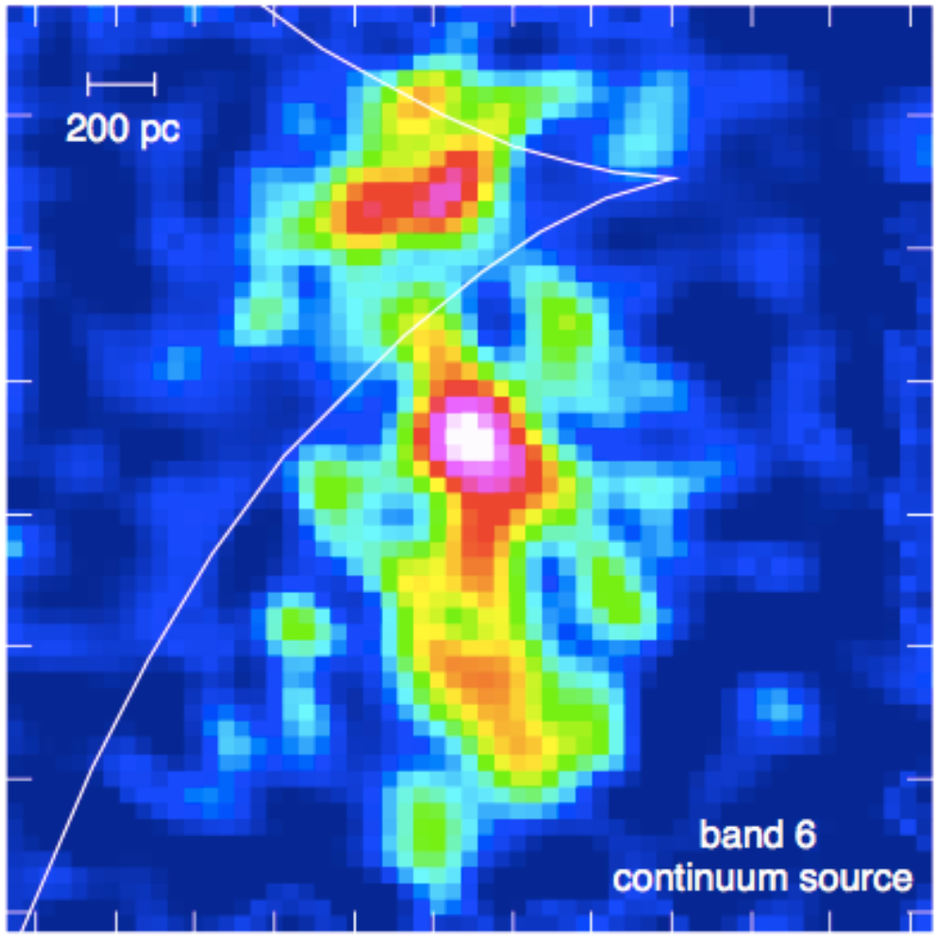


Gravitational lenses provide otherwise unreachable levels of detail

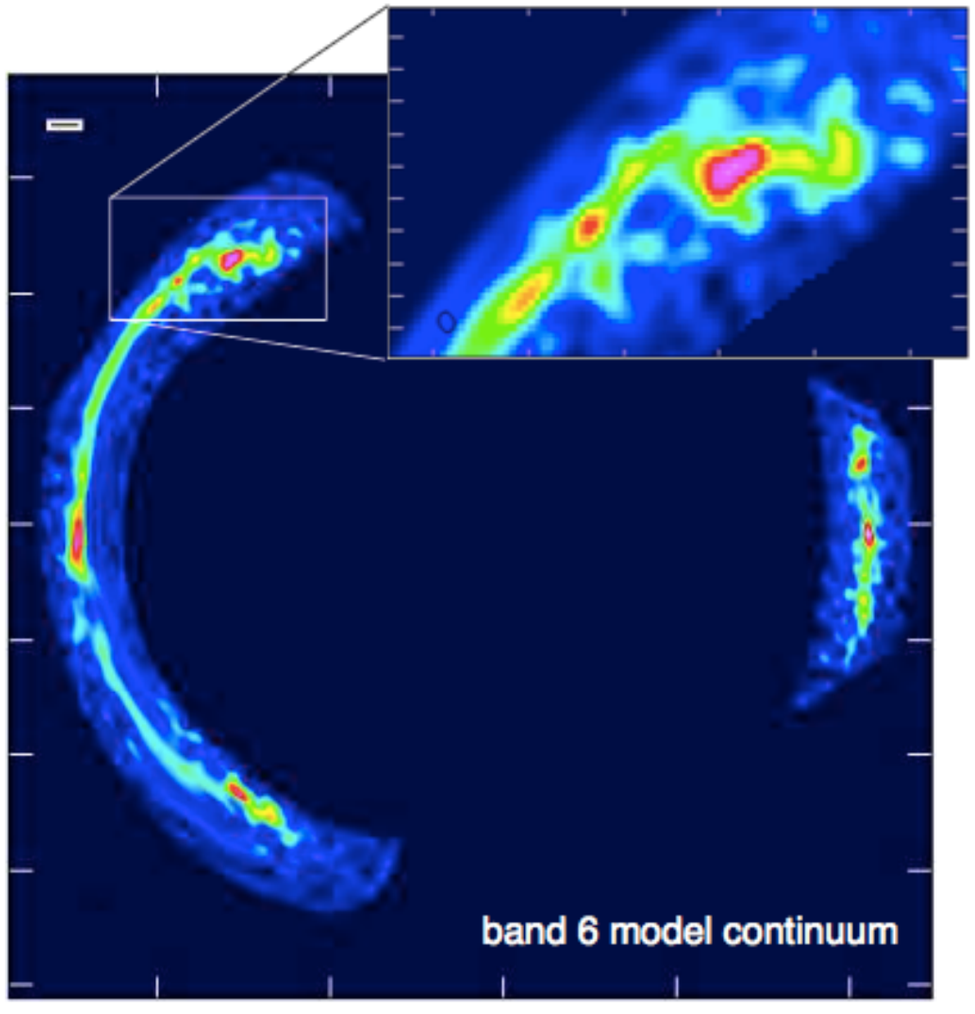


The *H*-ATLAS survey is used to find large samples of lenses

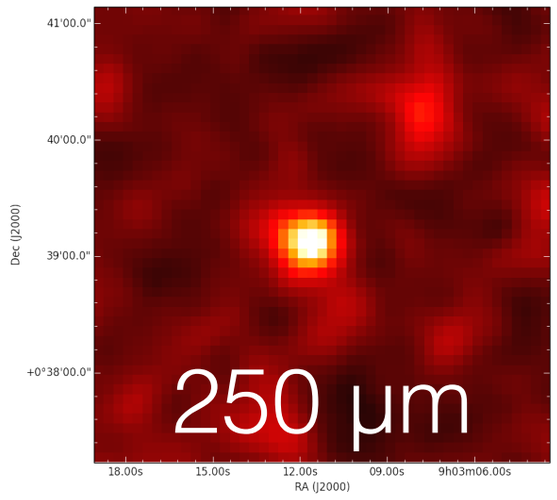
Gravitational lenses provide otherwise unreachable levels of detail

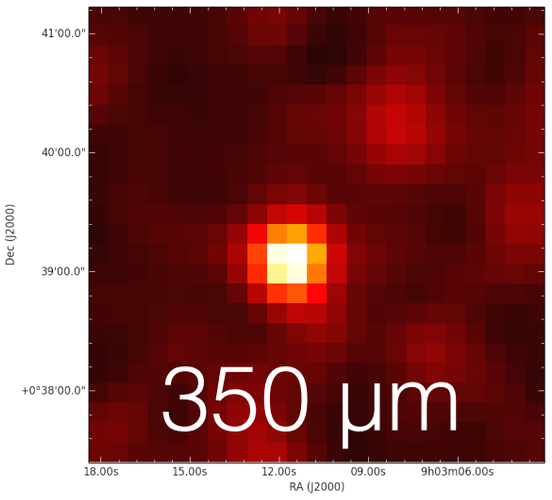


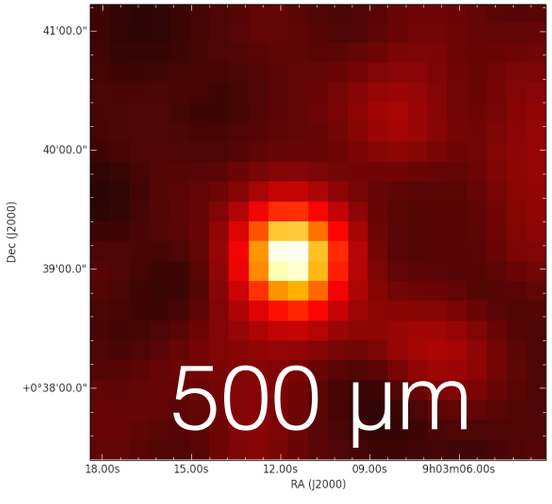
Large surveys don’t have the detail of ALMA observations



ALMA

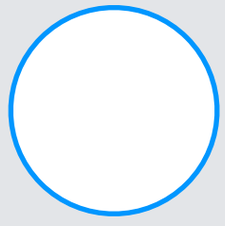
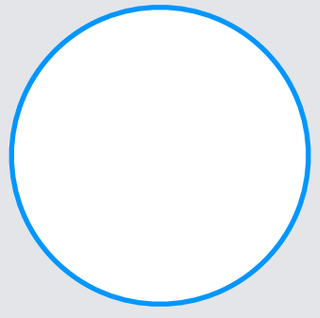




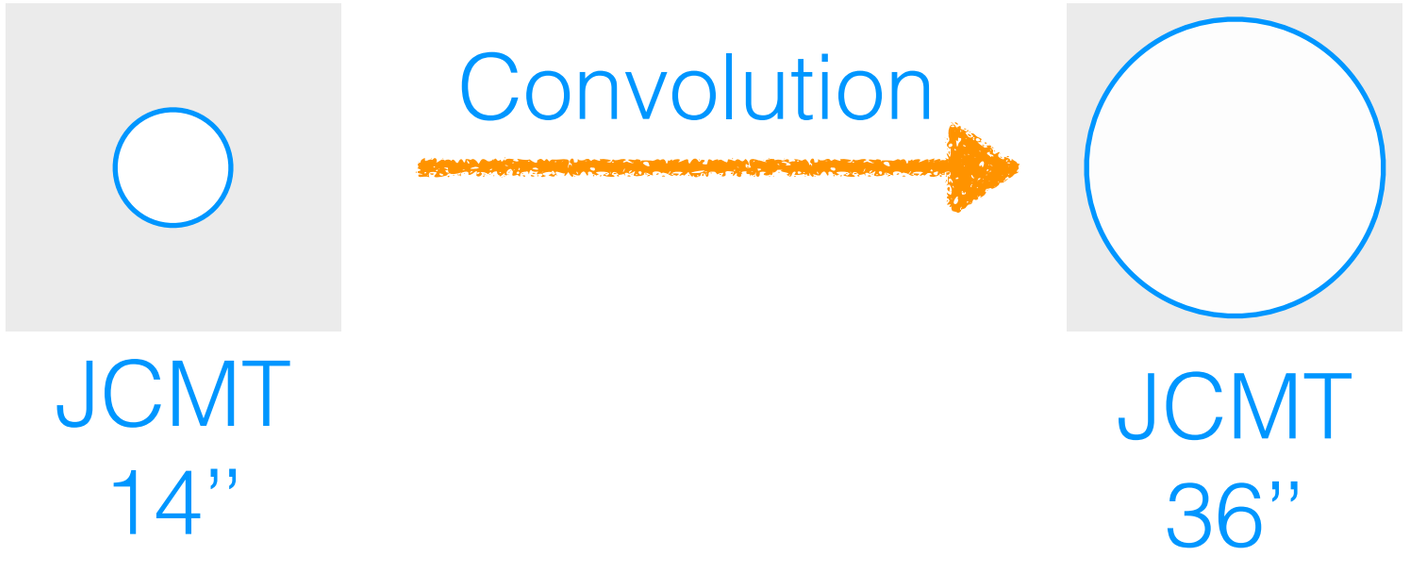


Herschel

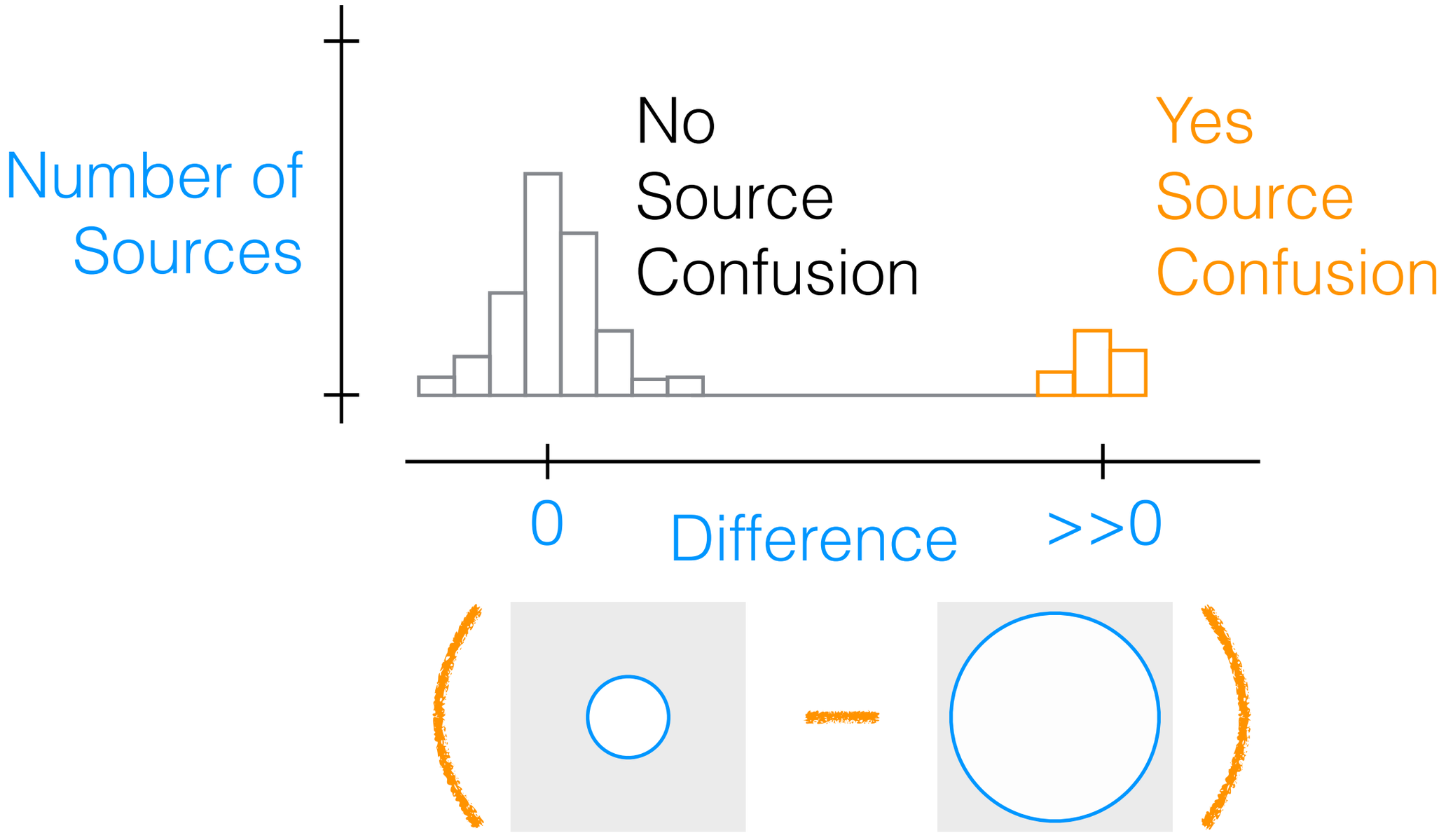
Source confusion effects need to be measured

		Herschel	
λ [μm]	250	350	500
Angular size	18”	25”	36”
Surface	158%	306%	634%
Beam size			

JCMT's luminosities at different resolutions estimate source confusion



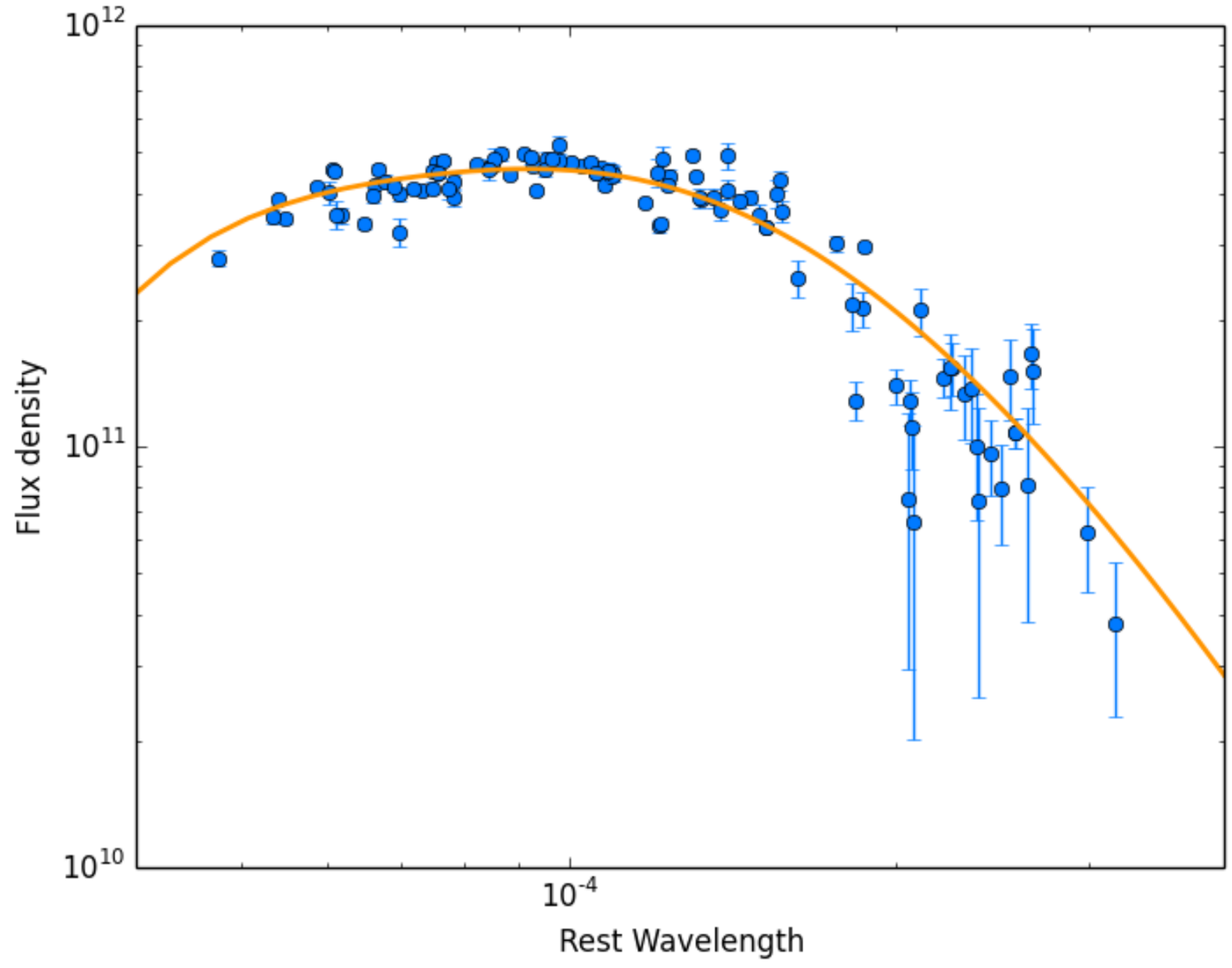
JCMT's luminosities at different resolutions estimate source confusion



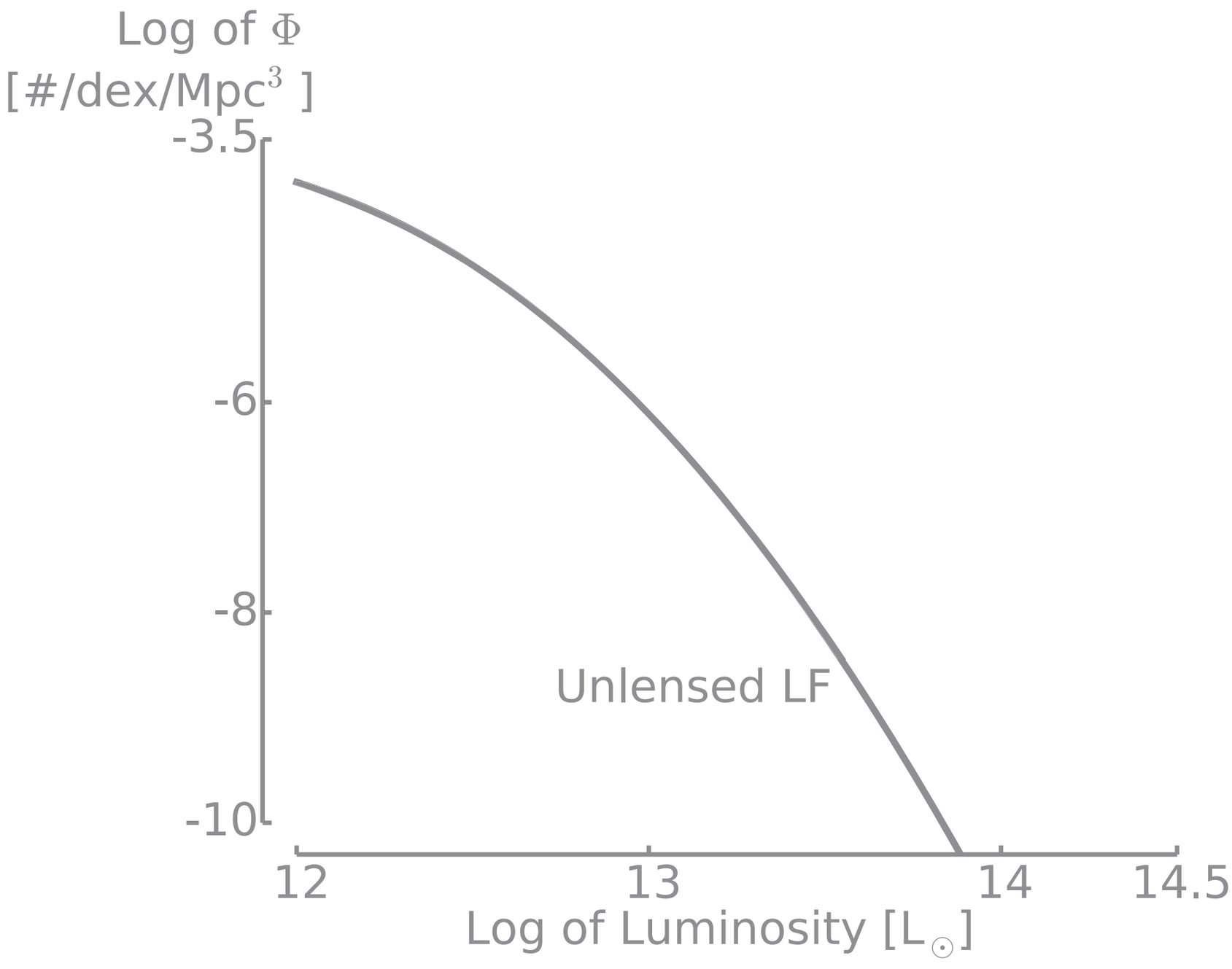
Template SED made from 26 spectroscopic sources

Two-temperature grey-body SED fit

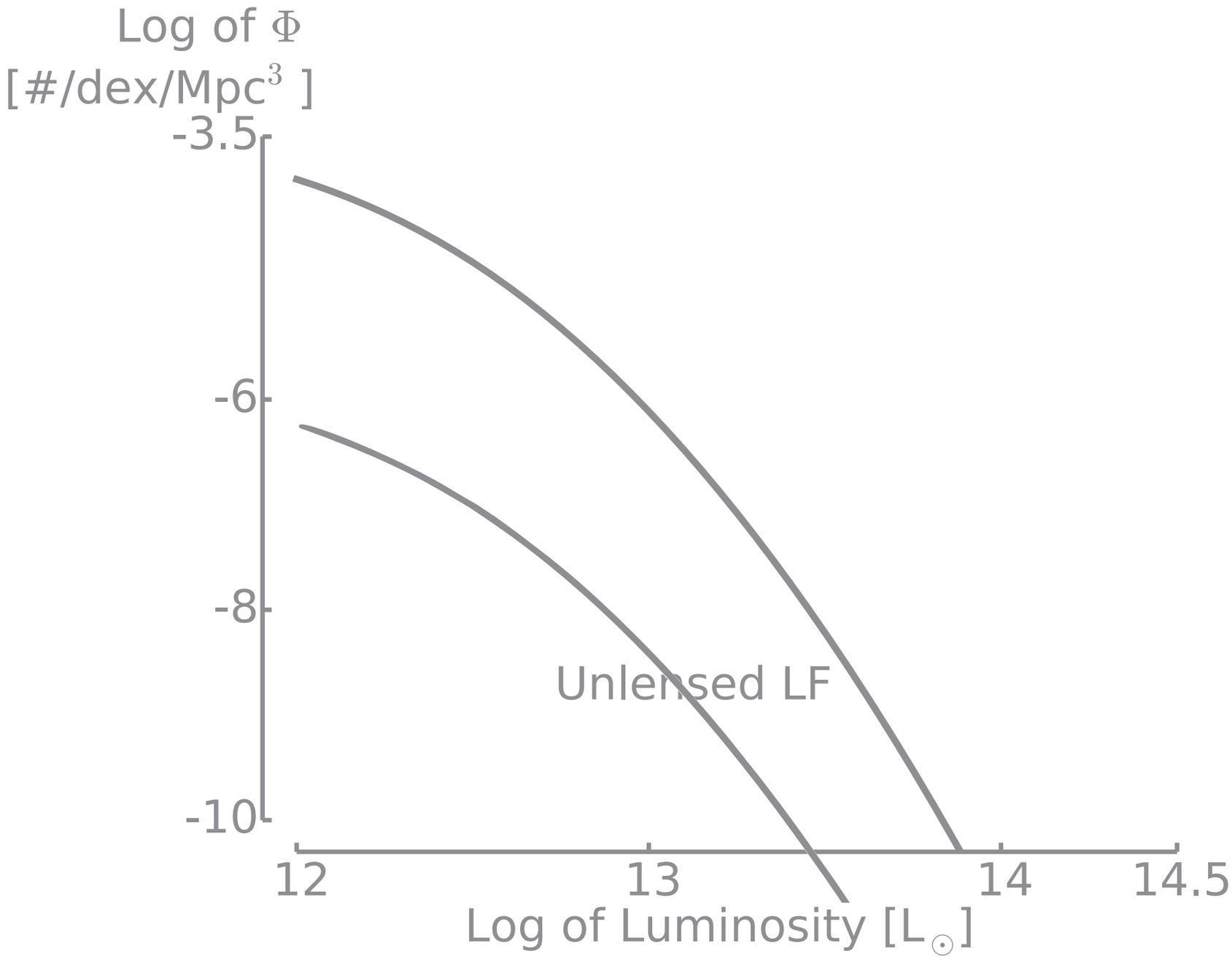
$$S_\nu = A\left[B_\nu(T_h)\,\nu^\beta + \alpha B_\nu(T_c)\,\nu^\beta\right]$$



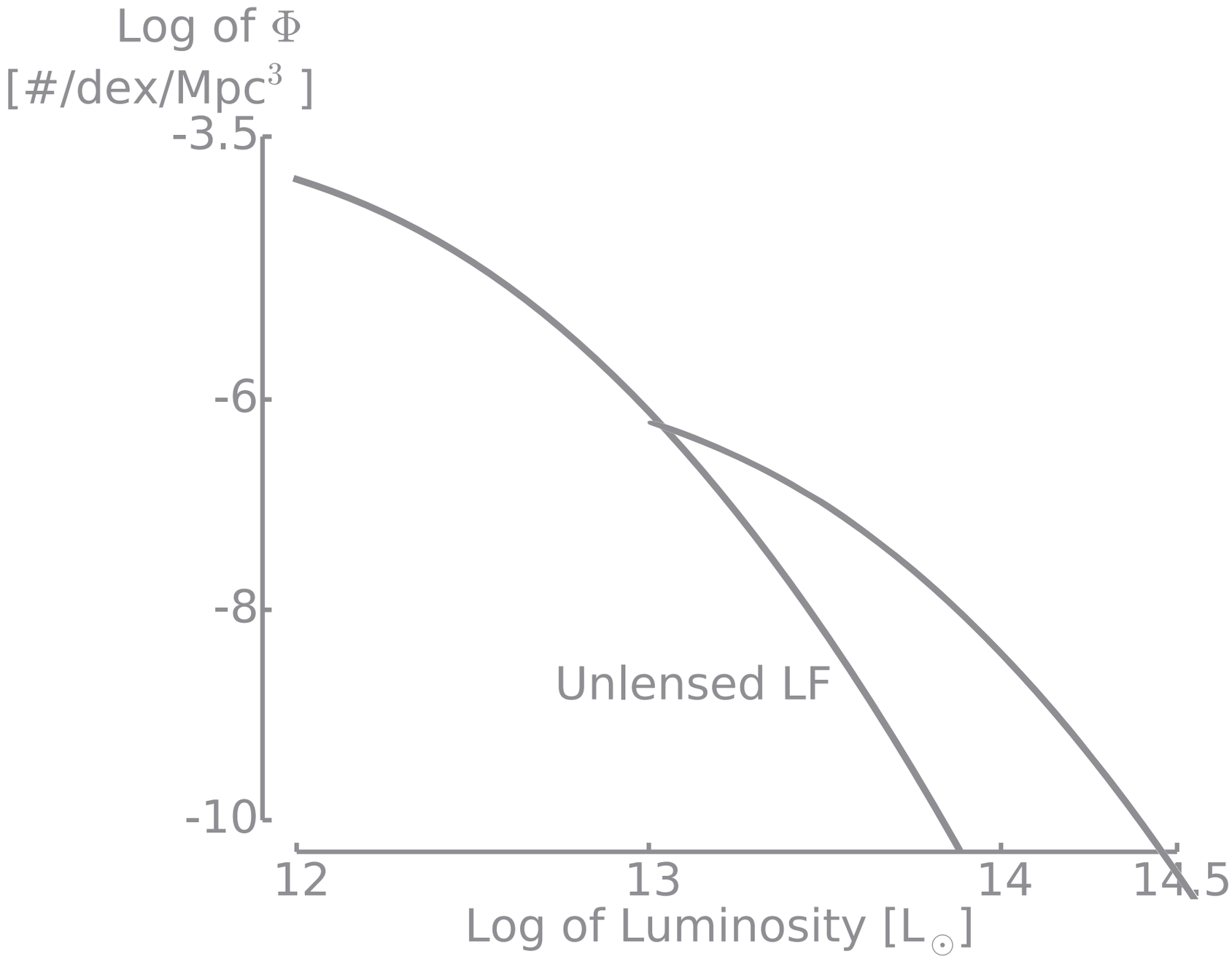
Luminosity functions provide global information on lensing



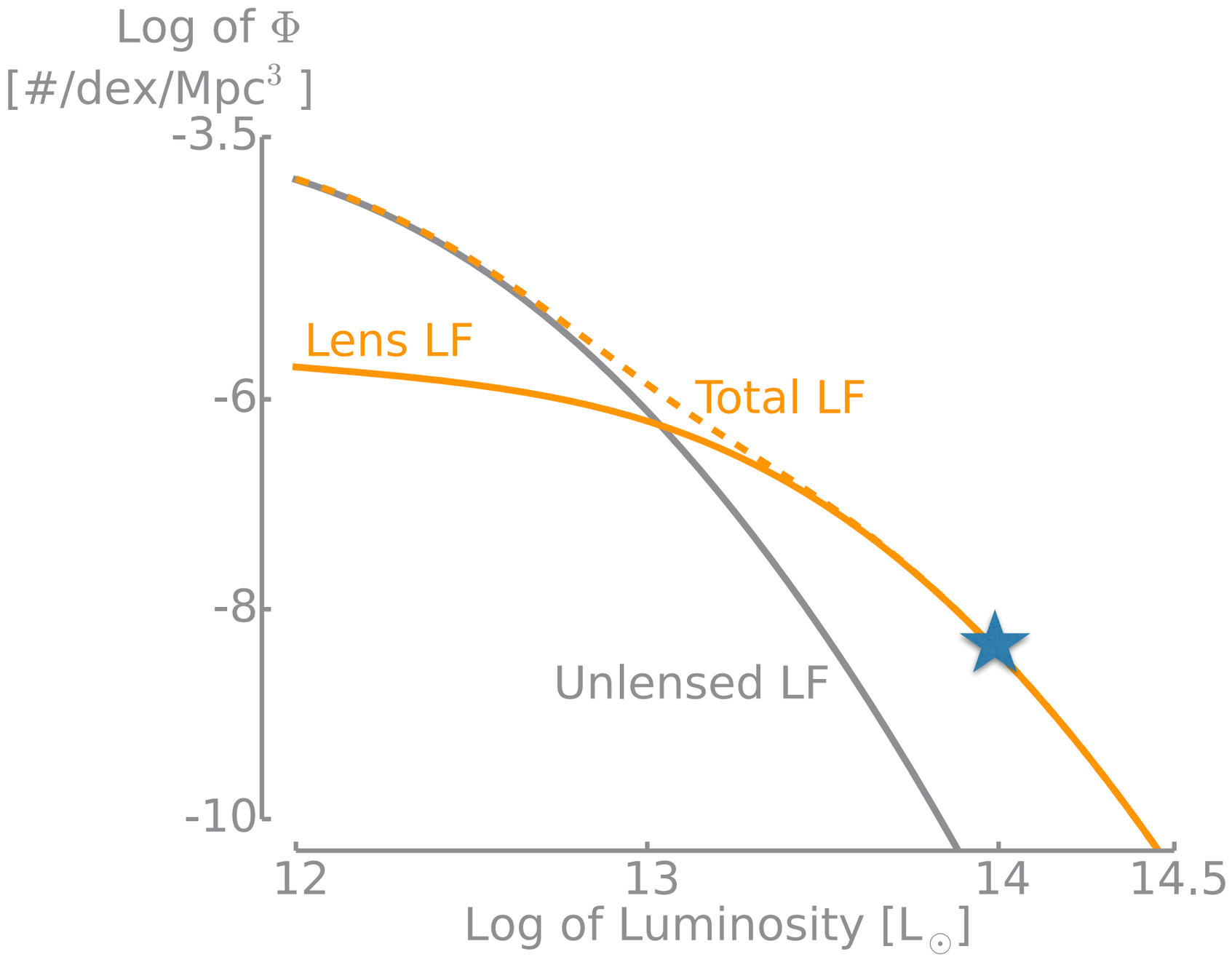
Luminosity functions provide global information on lensing



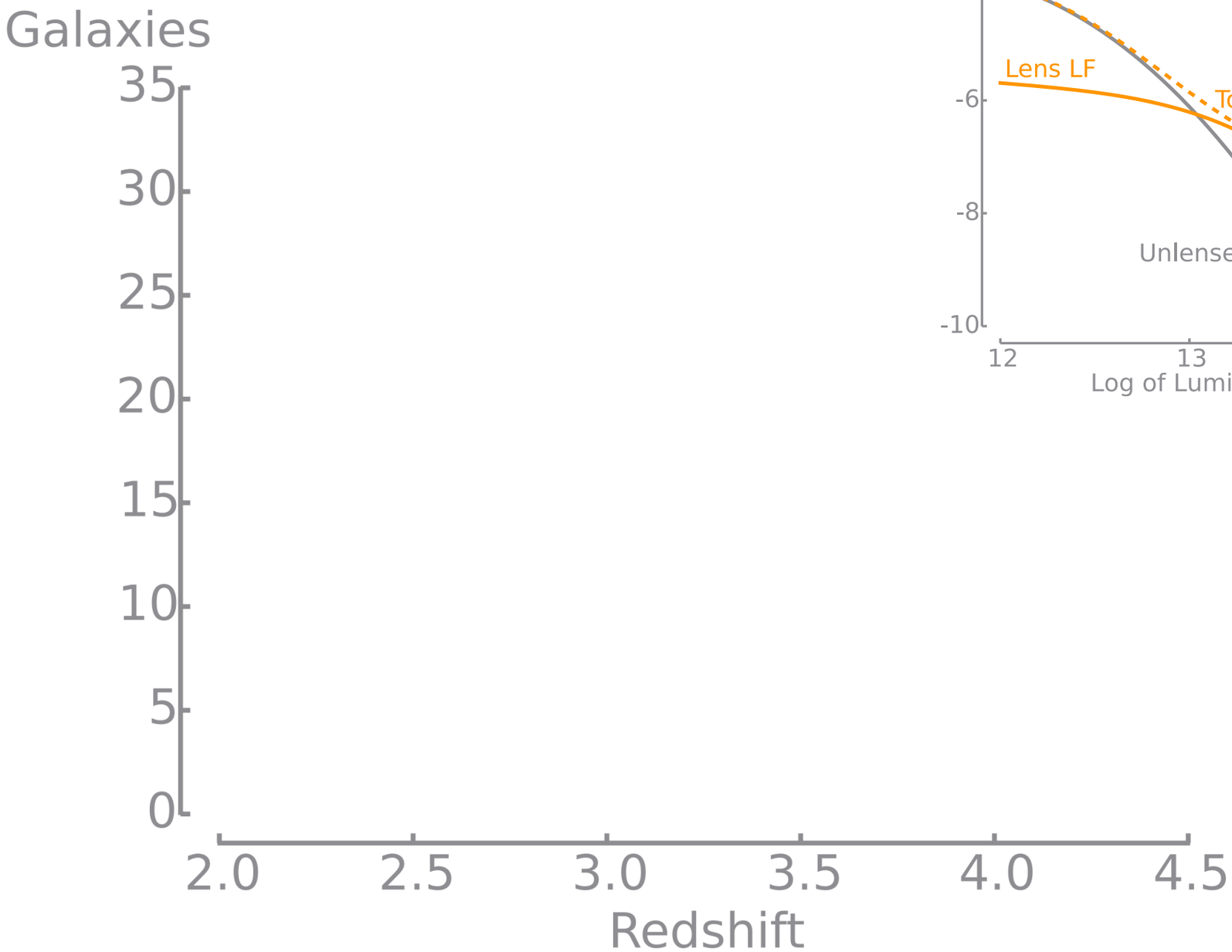
Luminosity functions provide global information on lensing

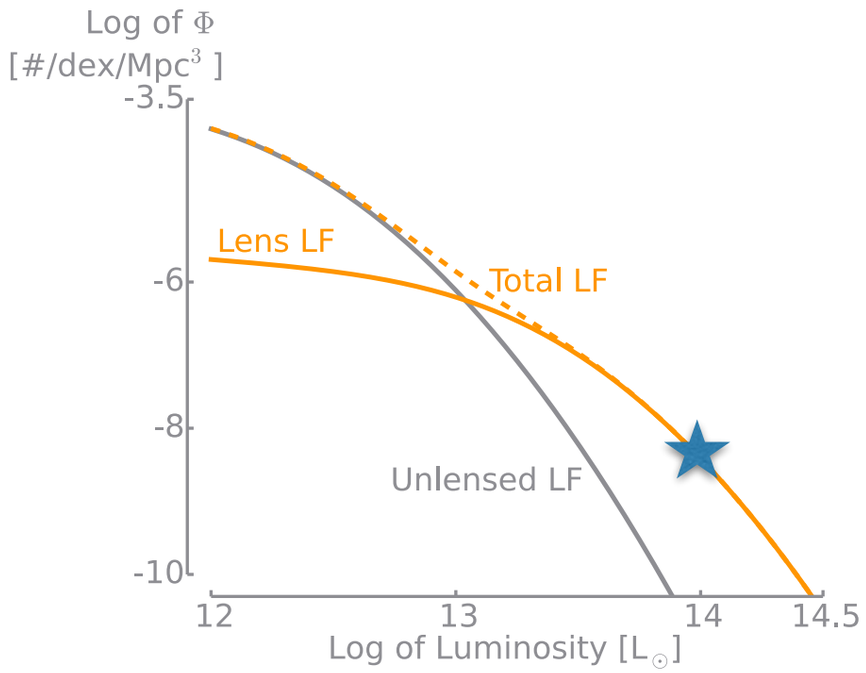


Luminosity functions provide global information on lensing

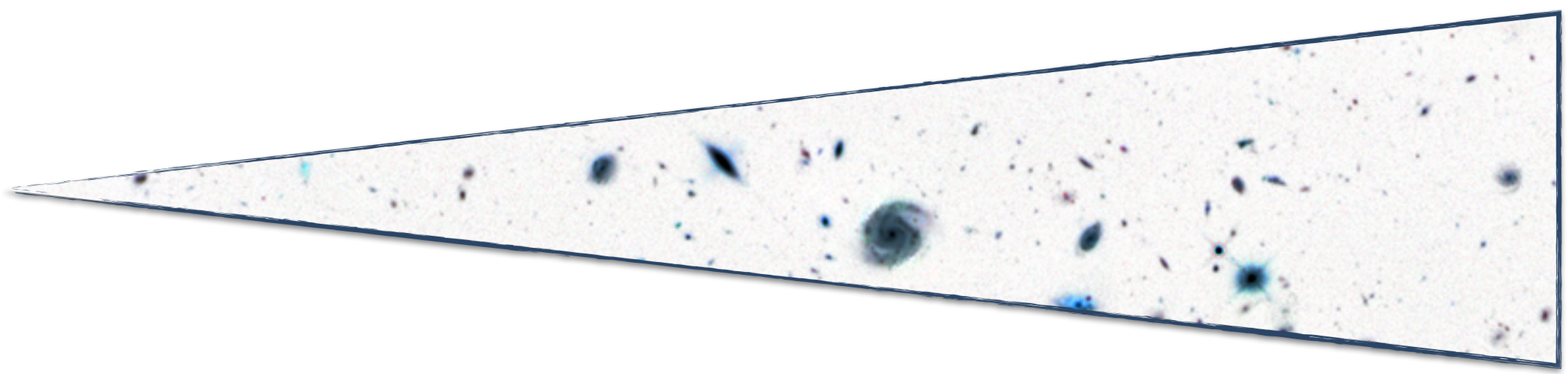


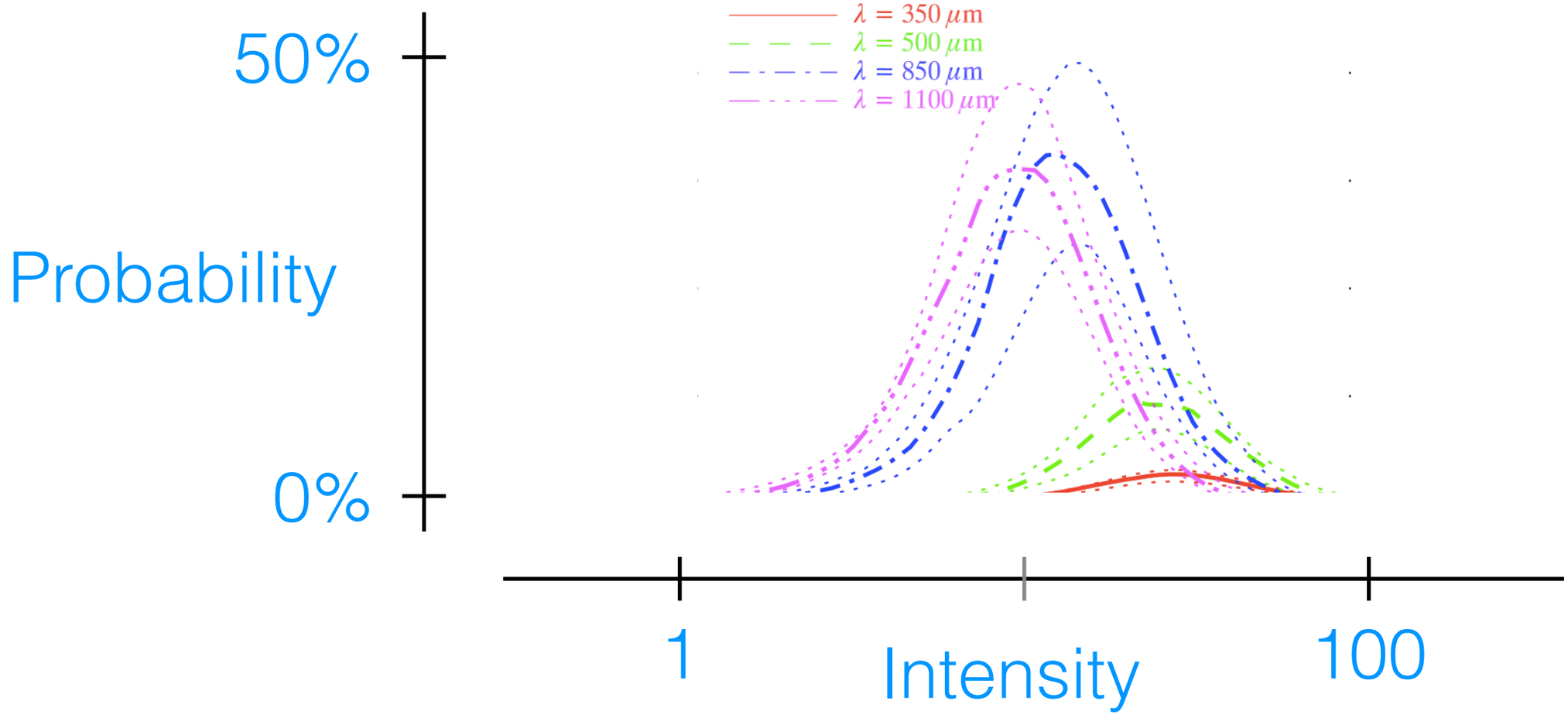
First analysis of the sources suggest a lensed sample bias



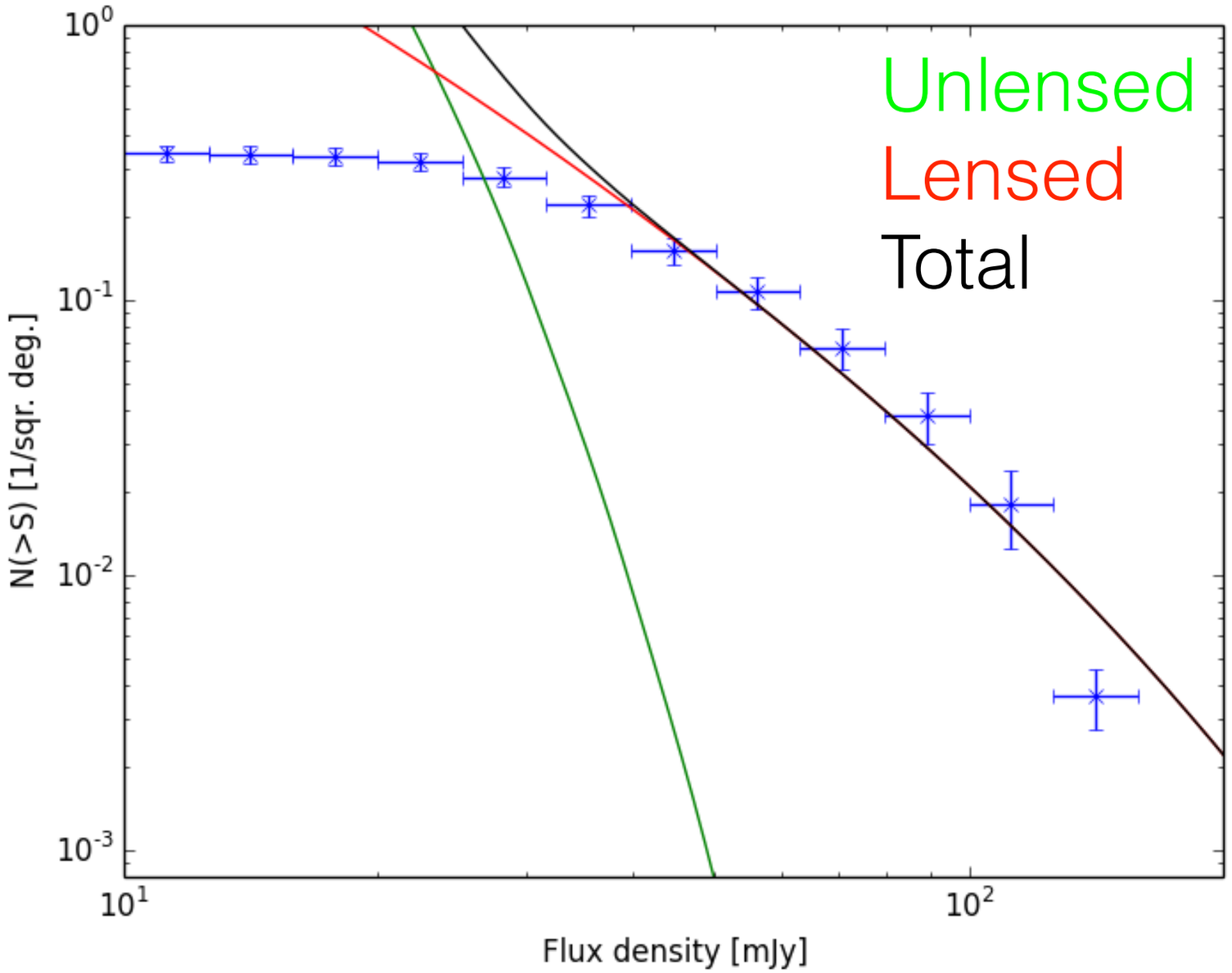


Cosmological models provide lensing probabilities





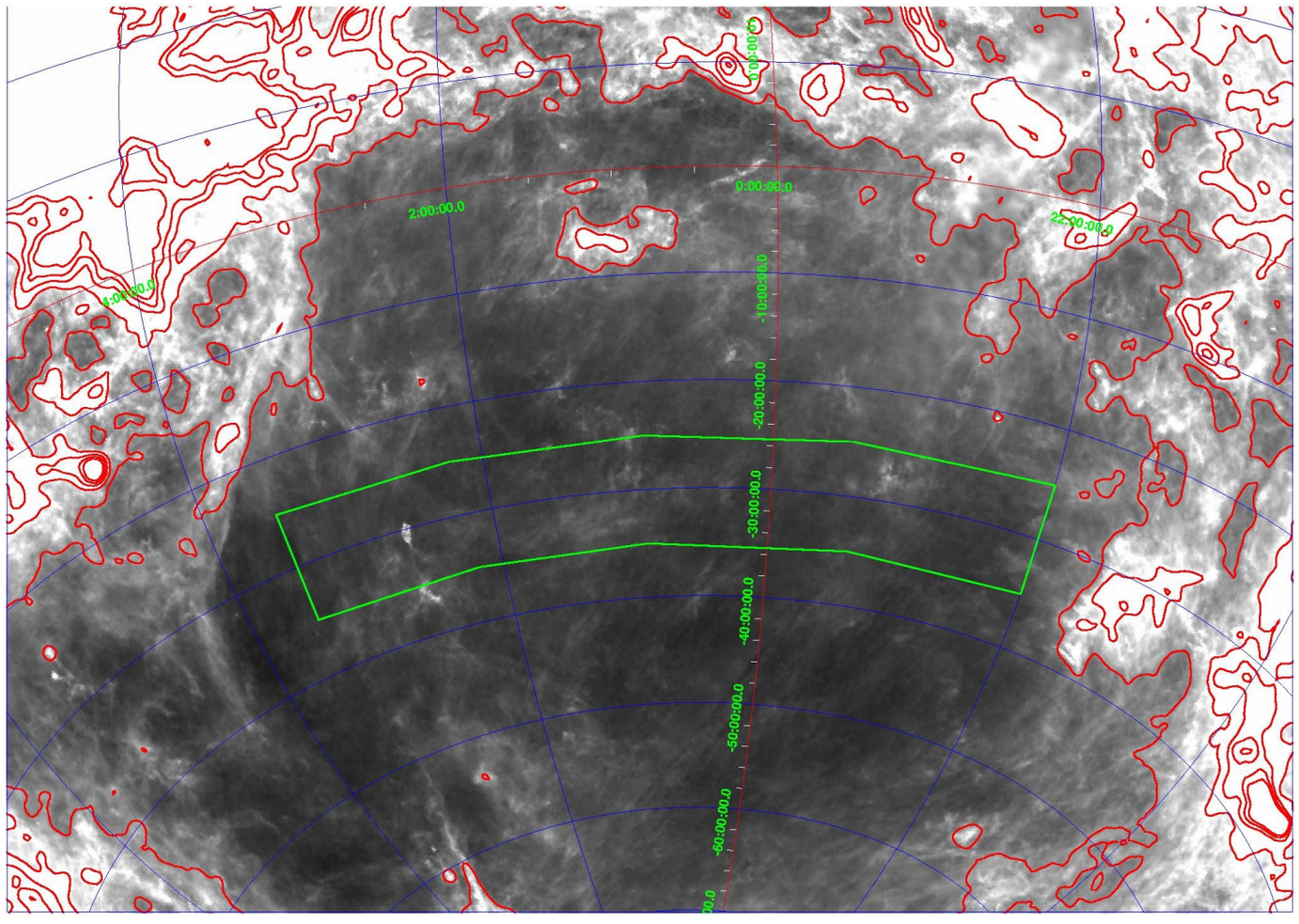
Preliminary results show a lensing-biased survey



Resolved images are necessary for definitive lensing evidence

KIDS and VIKINGS surveys
will provide information
on the lenses

This will help us
improve lens-finding
algorithms



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