

# ICECUBE SEARCH FOR HIGH-ENERGY NEUTRINOS FROM ULTRA-LUMINOUS INFRARED GALAXIES

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## ULTRA-LUMINOUS INFRARED GALAXIES

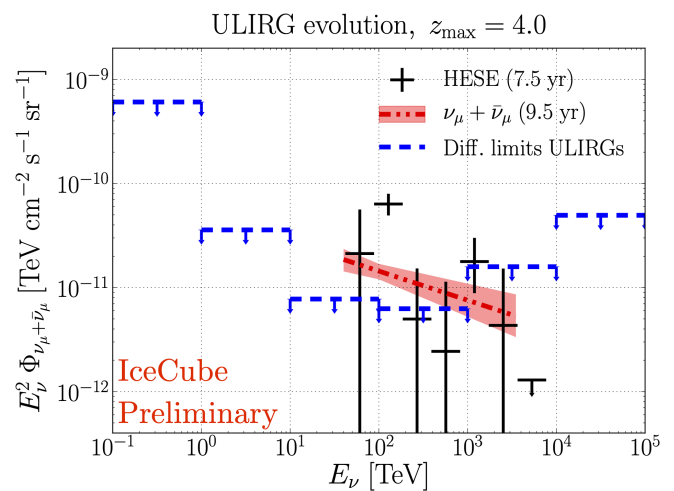
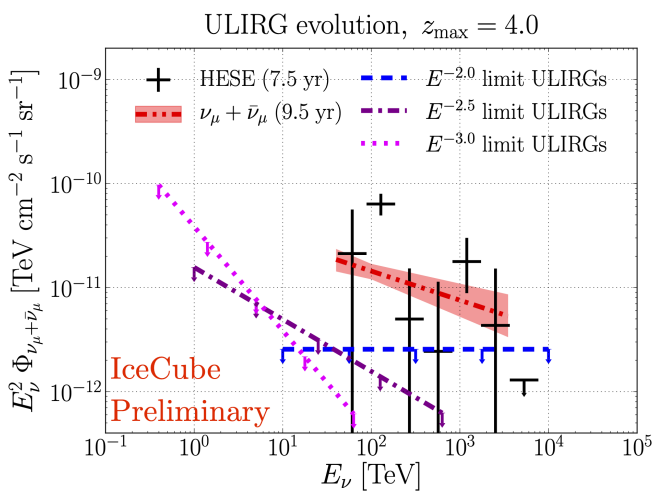
- IR luminosity  $L_{\text{IR}} \geq 10^{12} L_{\odot}$  (8–1000  $\mu\text{m}$ )
- Contain **starbursts** producing  $\gtrsim 100 M_{\odot} \text{yr}^{-1}$
- Possible **AGN** contribution
- **Numerous** source population
- Strong redshift **evolution**  $\sim (1+z)^4$
- Could explain fraction of diffuse **neutrino** flux

## ANALYSIS METHOD

- **75 ULIRGs** with redshift  $z \leq 0.13$
- **7.5 years** of data
- **Maximum-likelihood** method
- **Time-independent** analysis
- **Stacking** search
- Source **weights**: IR flux (8–1000  $\mu\text{m}$ )

## RESULTS

- **No neutrinos** found from ULIRGs
- Set **upper limits** on ULIRG neutrino flux
- ULIRGs **excluded** as sole neutrino sources
- Model predictions **constrained**



Integral (*left*) and differential (*right*) upper limits on the diffuse neutrino flux from the ULIRG source population.