

# LA-UR-13-22817

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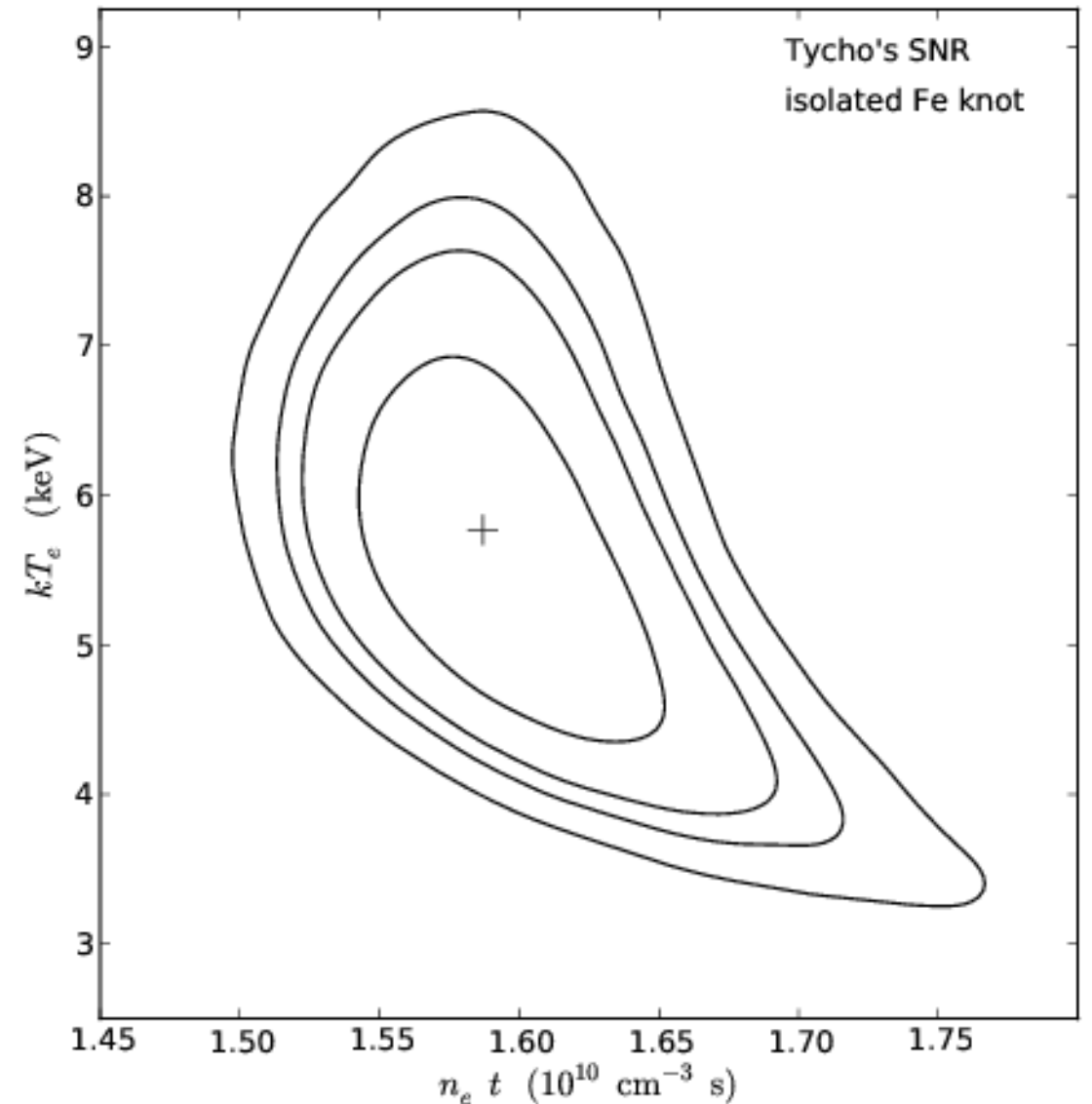
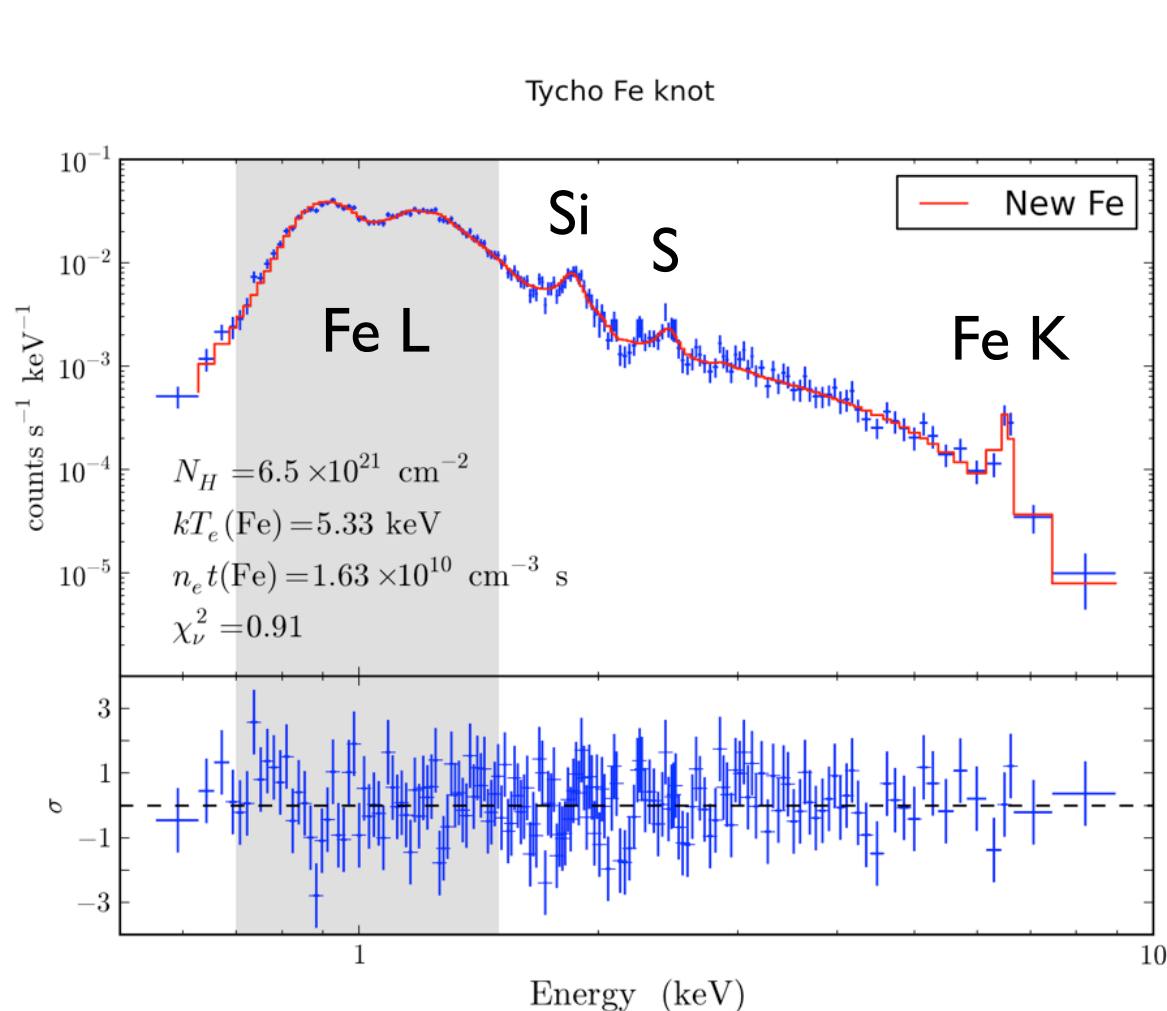
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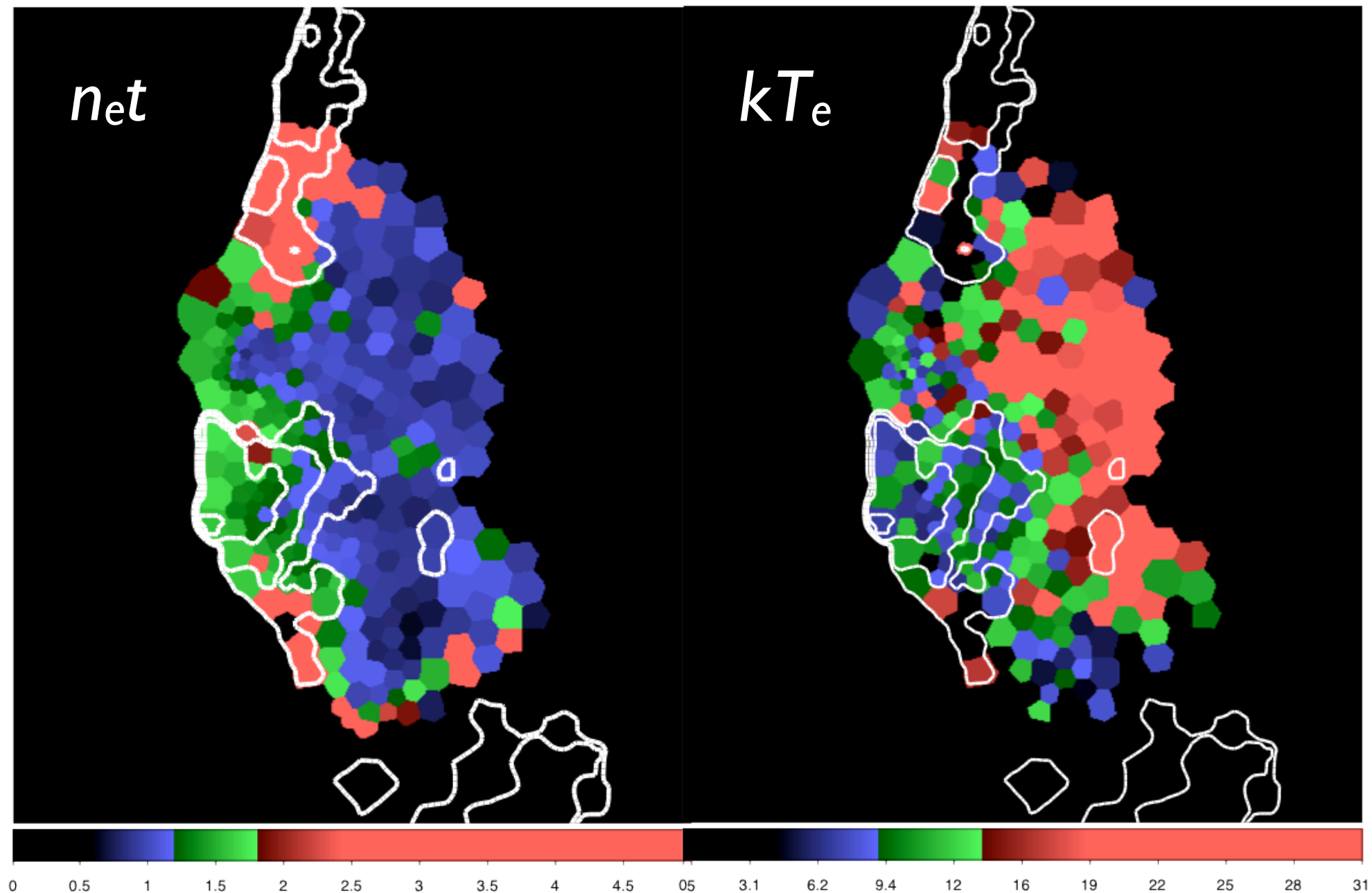
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# Robust Measurement of Iron Plasma Conditions in Tycho's Supernova Remnant



- New atomic data (K. Eriksen XTD-6, C. Fontes XCP-5, J. Colgan T-I, allows for first time high confidence measurement of Fe  $T_e$  and ionization from astrophysical X-ray spectra, important for models of SN Ia
- Markov Chain Monte Carlo parameter estimation on IC machines will allow measurements in thousands of locations in Tycho's SNR, will feedback on SN Ia explosion mech. and 3D sims

# Plasma Parameters in Fe-rich region of Tycho



- Temperature and ionization age from 300+ Chandra X-ray Observatory spatially-resolved spectra in a small portion of Tycho. Mapache runs in the upcoming year will extend to 4000+ spectra over the entire remnant.