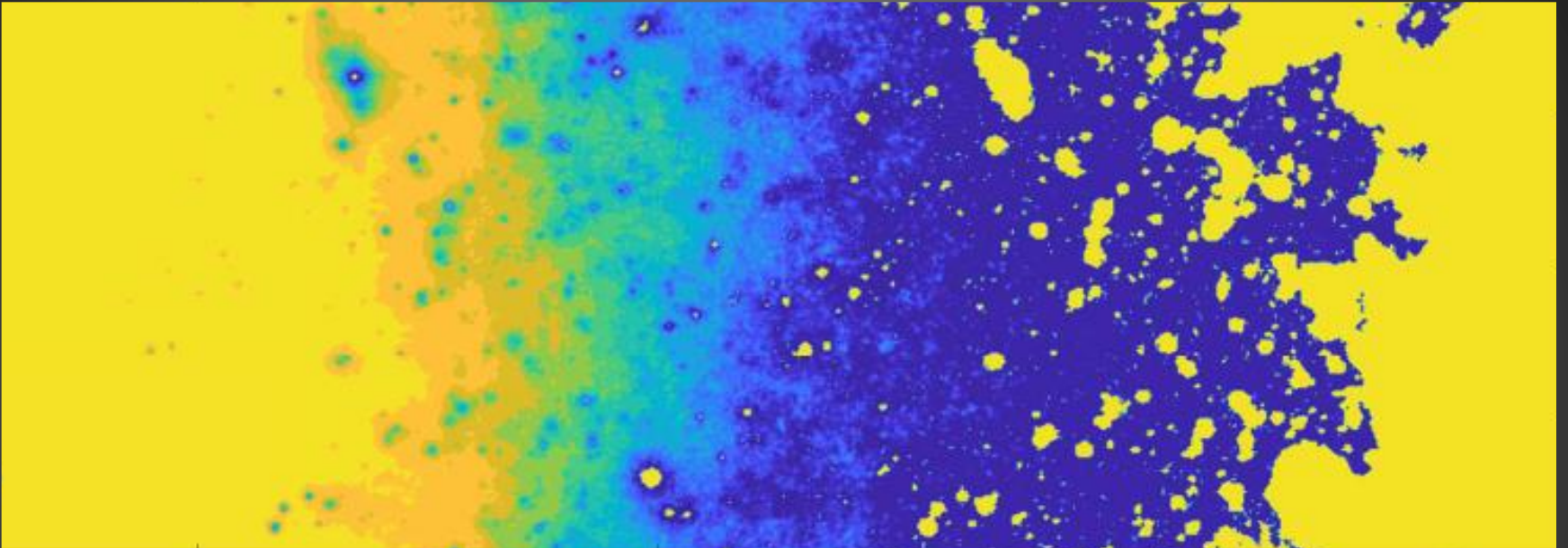


# Science with 21-cm line



Anastasia Fialkov

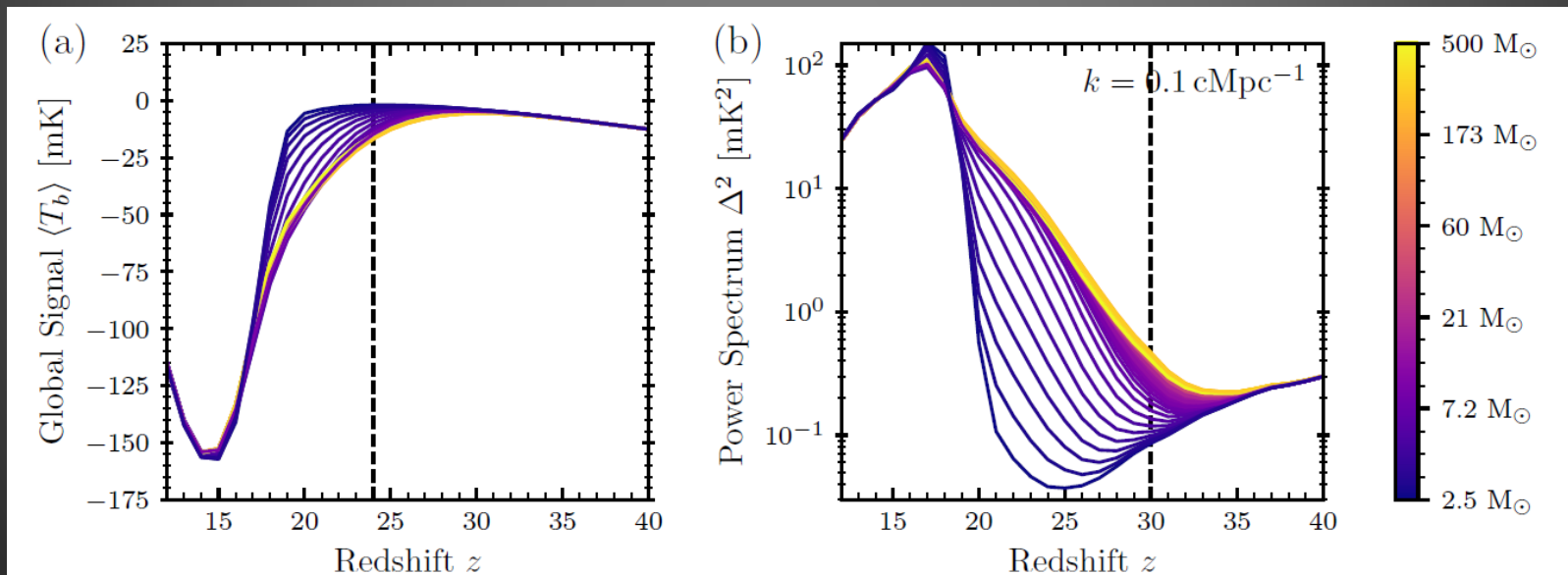
07.12.2022

KICC

# Theory

## Active model building

- 21-cm signal from cosmic dawn: IMF dependence, PopIII-PopII transition, impact of first X-ray binaries.
- Signal from the EoR.
- Alternative dark matter scenarios.



# Interpretation: Global Experiments

SARAS2, SARAS3, REACH pipeline development

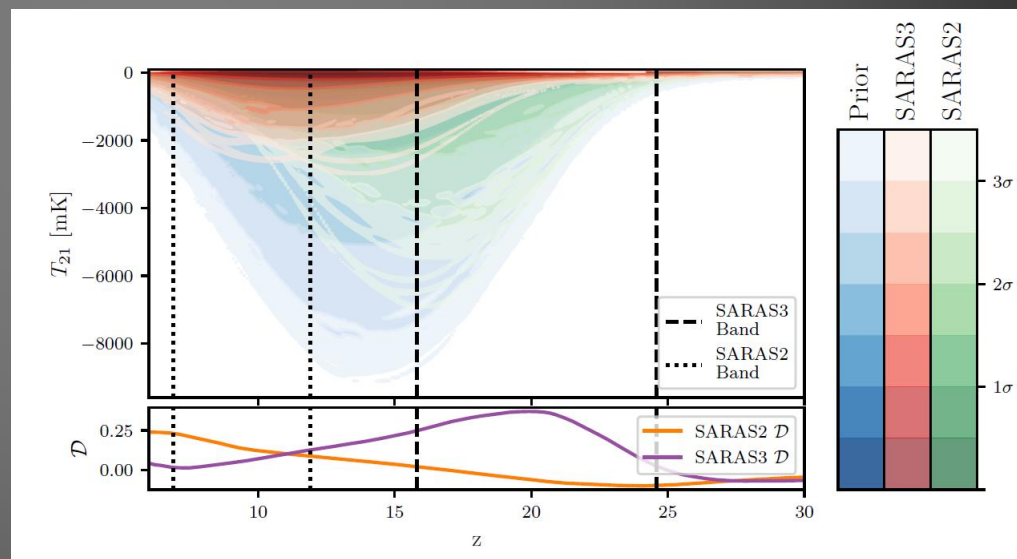
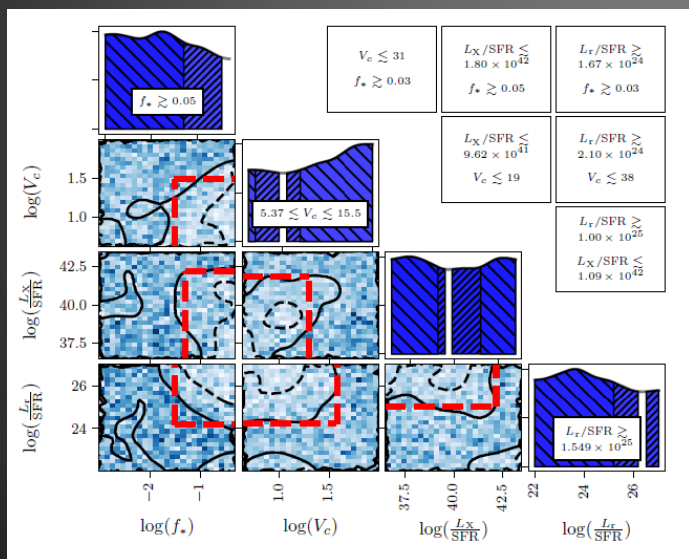
# Interpretation: Global Experiments



SARAS2, SARAS3, REACH pipeline development

SARAS3 in disagreement with EDGES

We used SARAS2 and SARAS3 upper limits to place constraints on models (Bevins et al. 2022a, 2022b)



Published in Nature Astronomy + press release!

# REACH update

International collaboration led by Cambridge (PI de Lera Acedo). 40 people in 10 countries: UK, Canada, India Netherlands, Germany, Italy, Switzerland, South Africa, France, Malta.

Status: shipping the last receiver part to be installed the first week of January. Q1 start of observations is very realistic!

REACH overview paper was published in Aug in Nature Astronomy (de Lera Acedo et al. 2022)



# Interpretation: Interferometers

We are directly involved in HERA, SKA, LEDA, NenuFAR

# Interpretation: Interferometers

We are directly involved in HERA, SKA, LEDA, NenuFAR

Interpretation of HERA upper limits (HERA collaboration 2022)

