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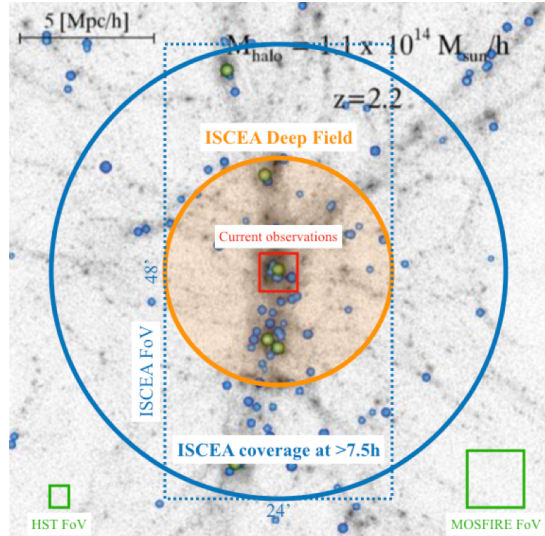
Science Goals and Objectives

The *ISCEA* Science Goal is to discover how galaxies evolved in the cosmic web of dark matter.

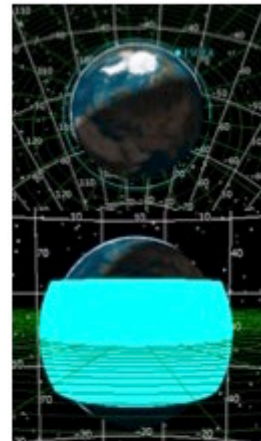
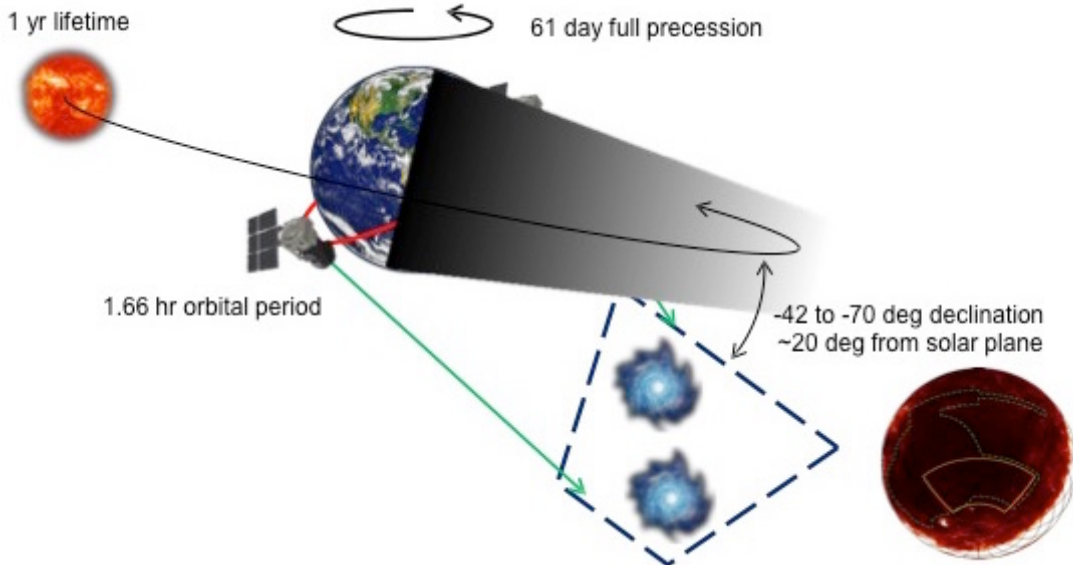
Science Objectives:

- Study galaxy evolution at the peak of galaxy formation.
- Map the cosmic web environment around clusters at this critical epoch.

ISCEA FoV (large blue box) compared to current observations (small red square), for a simulated protocluster at $z = 2.2$. Background grayscale shows dark matter filaments. The blue and green filled circles highlight star-forming and passive galaxies in the protocluster, respectively.



Mission Overview



Mission Design

ISCEA will be launched as a secondary ESPA class payload into a Low Earth Orbit for a prime mission of 1 year. *ISCEA* will achieve a pointing accuracy of $2''$ over 200 sec.

Spacecraft Characteristics

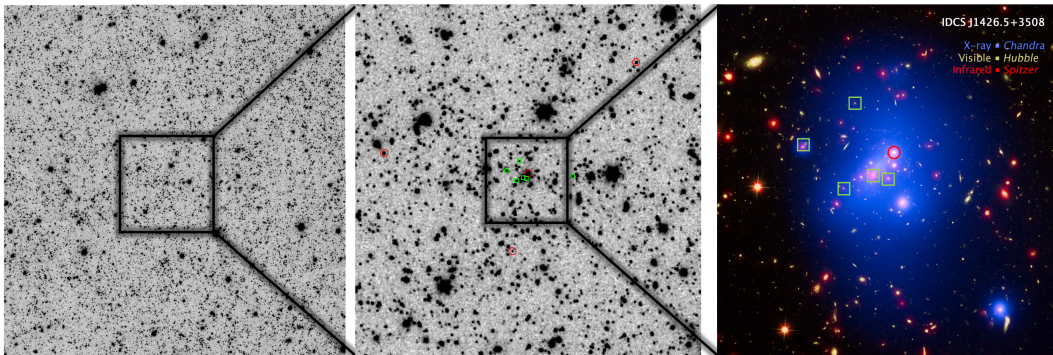


Class	Up to 250 kg
Available Payload Volume	45 x 45 x 80 cm
Pointing Accuracy	$\pm 0.002^\circ$ (1-sigma), 3 axes, 2 Trackers
Energy Storage	300Whr
Solar Panels	400W
Mass / Volume for Avionics	25 kg / 40 cm x 40 cm x 20 cm
XACT-Bus Nominal Power	< 10 W (Excluding RF Comm)
Orbit Altitude / Orbit Lifetime	LEO and GEO / > 5 years

Instrument Characteristics

Spectroscopic resolution: $R=1000$
Wavelength range: 0.9-1.7 microns

Spectroscopic multiplex factor: 500
Field-of-View: 0.32 sq deg



Left: 30' x 30' Spitzer IRAC [3.6] image of $z = 1.75$ cluster IDCS J1426.5+3508, showing $\sim 1/2$ of the large ISCEA FoV. Middle: 8' x 8' image subset illustrating the limited spectroscopic sampling currently possible (red circles: Keck LRIS & MOSFIRE; green squares: HST/WFC3 grism redshifts). Right: A Great Observatories image of the 1.9' x 1.9' core from the middle panel (with the same red circles and green squares).

Time for ISCEA is now.

- Push the envelope for “Big Science” at an extraordinary value from a SmallSat.
- Deliver game-changing science of cosmic evolution.
- Demonstrate a key innovative instrument technology that will be available to future satellite mission.
- Valuable Guest Observatory beyond the prime mission.
- Produce a legacy data set that will enable future explorations in galaxy evolution science.