



## What is a pulsar?

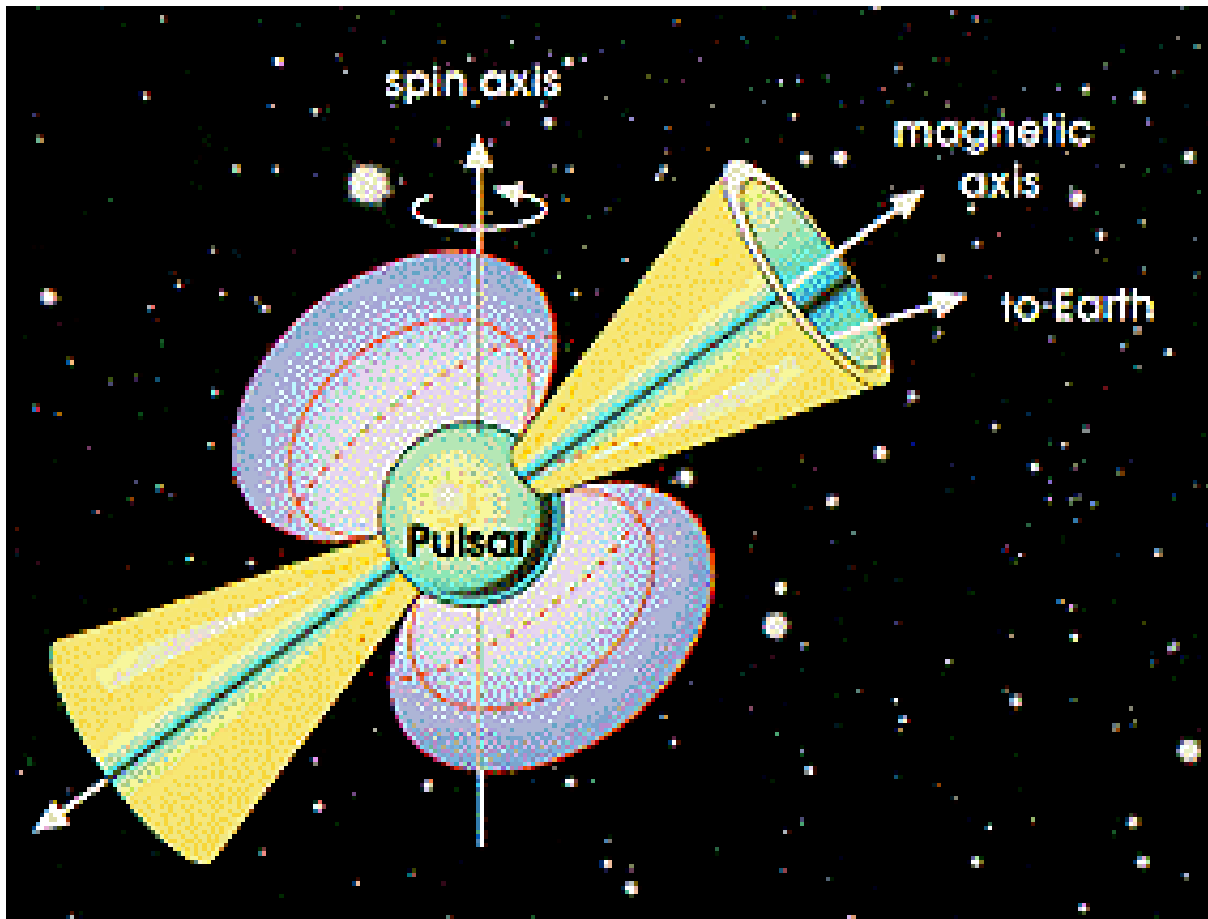
A pulsar is a **highly magnetised neutron star**, with a radius of 10-15 km, having somewhat greater mass than the Sun (which has a radius of approximately 1 million km).

Radiation is beamed by the magnetic field and pulses of radiation are received as the beam crosses the Earth, in the same manner as the beam from a **lighthouse** causes flashes.

Being enormous cosmic flywheels with a tick attached, they make some of the best clocks known to mankind.

The interval between pulses ranges **from about 4 seconds**, for the slowest, **to about 1.55 milliseconds** for the fastest (which is spinning at 642 times per second!)

## Pulsars: Galactic Lighthouses



## The Crab Pulsar

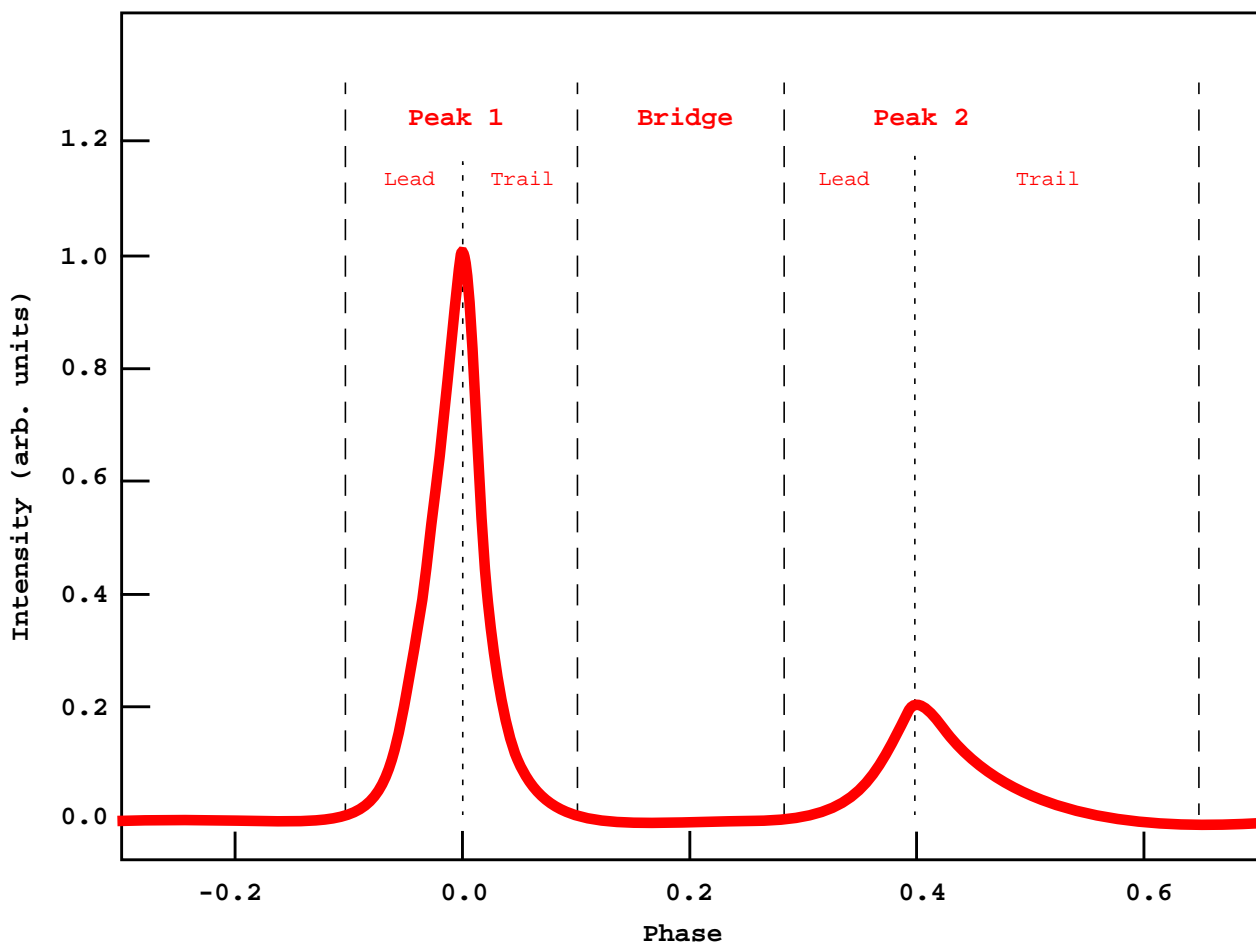


**Period:** 33.493528 msec (29.8565144364 Hz)

**Period derivative:** 36.4 nsec/day



## PULSE PROFILE OF THE CRAB PULSAR





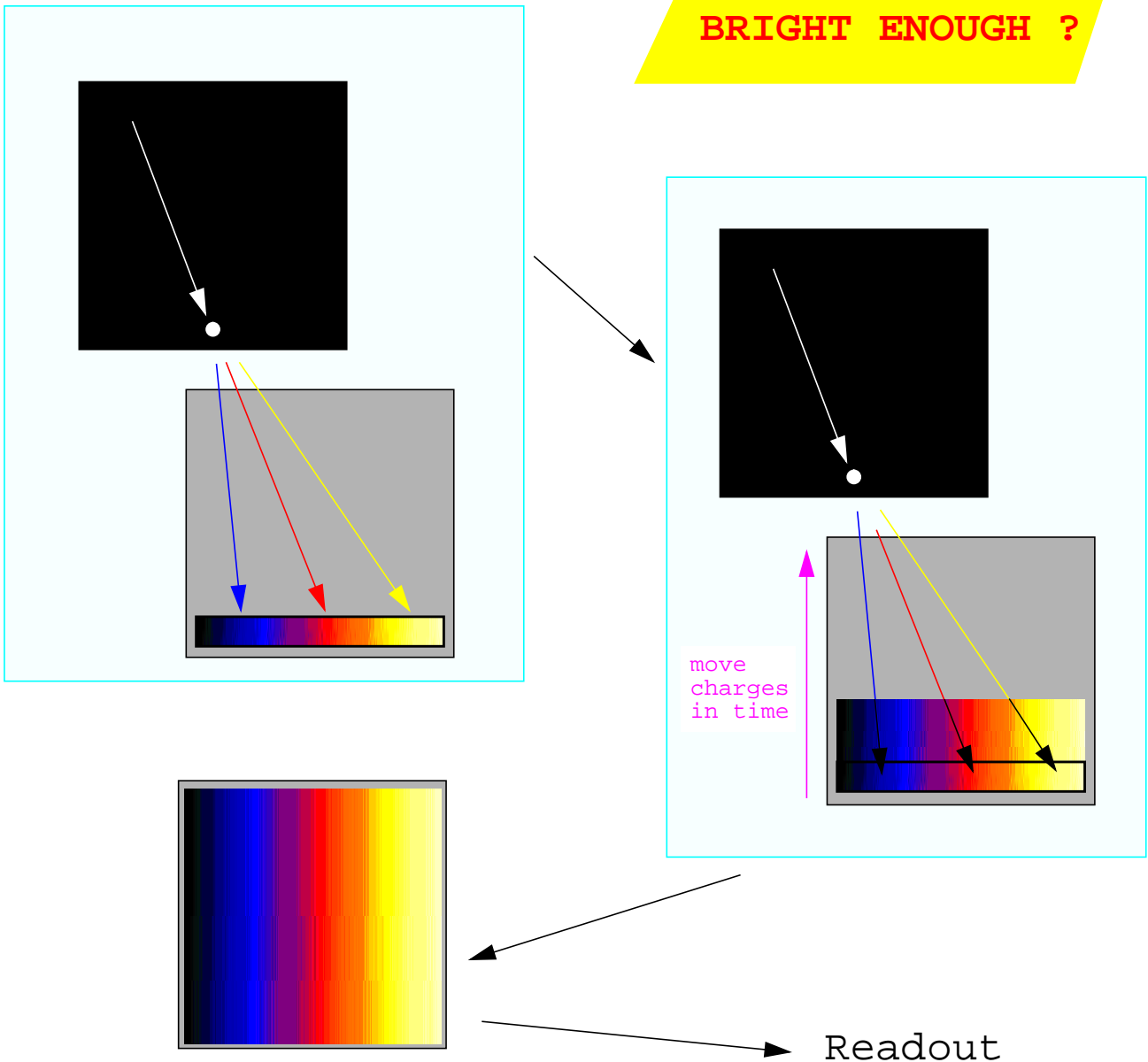
## Phase resolved photometry Major Goals

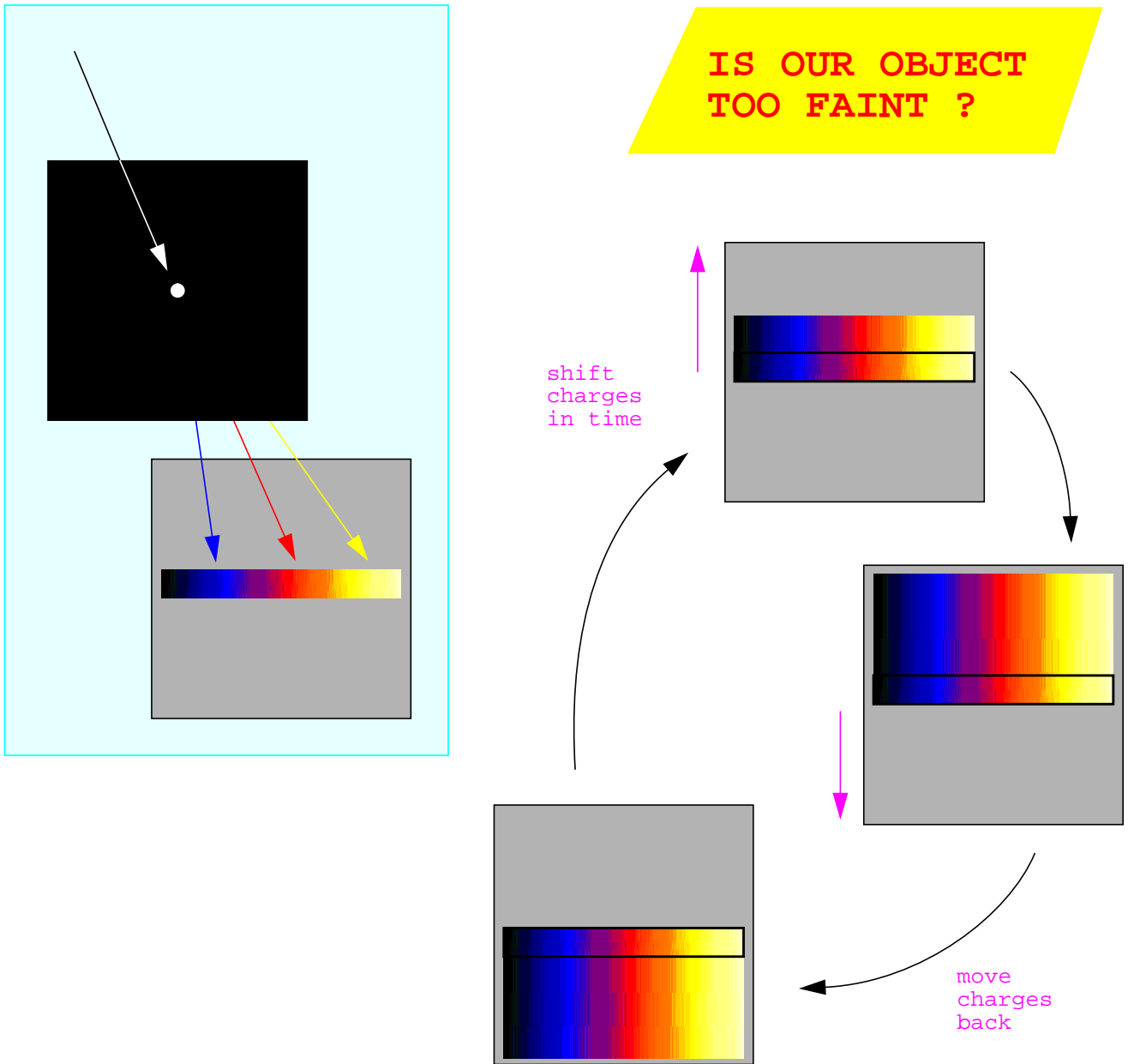
- get a reliable mean optical flux distribution of the Crab pulsar, comparing the results with the theoretical models,
- get phase resolved spectra of the Crab pulsar, searching for phase dependent spectral features.

# Phase resolved high speed photometry and spectrophotometry of Pulsars with the ESO FIERA CCD Controller

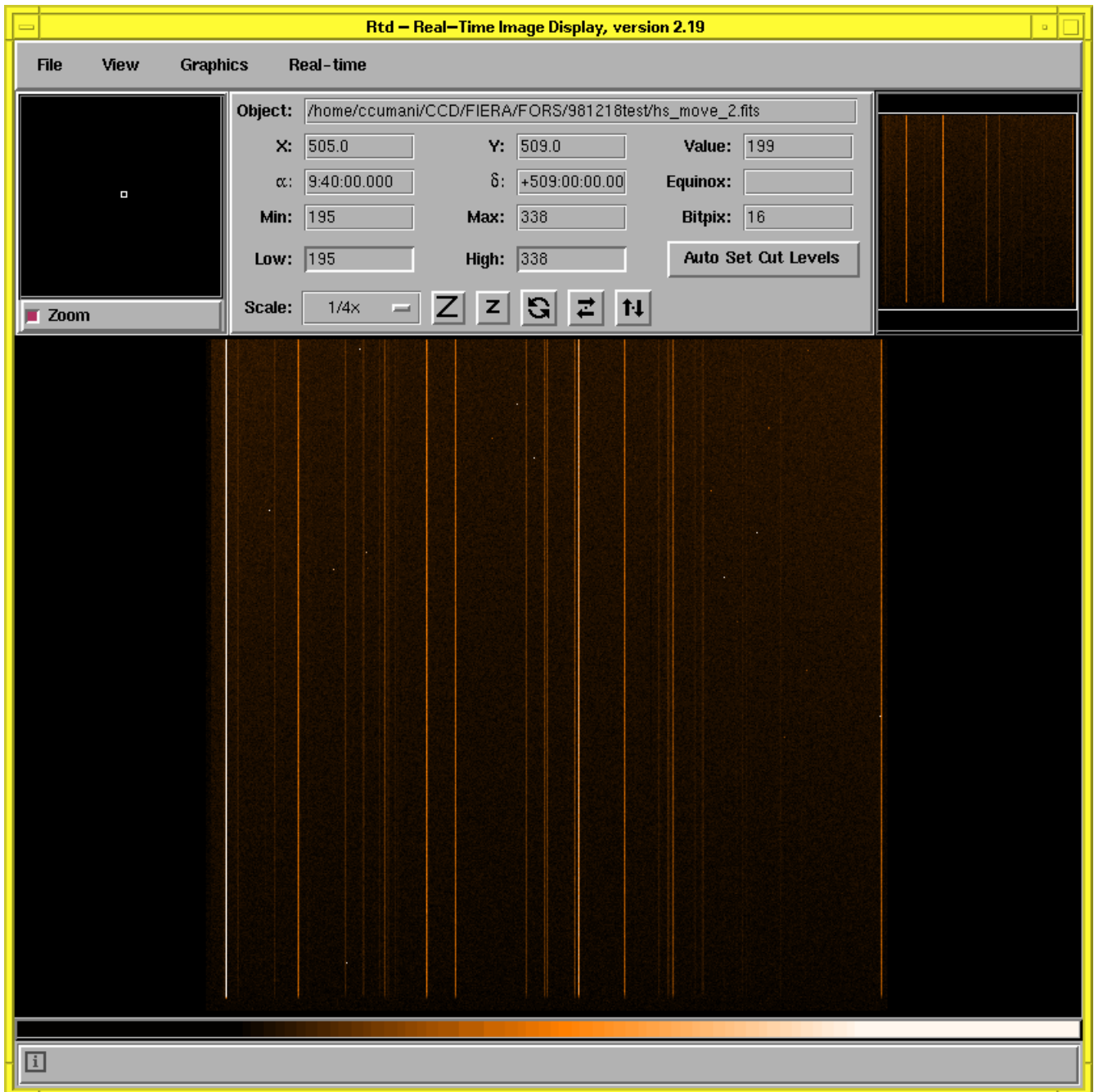


IS OUR OBJECT  
BRIGHT ENOUGH ?



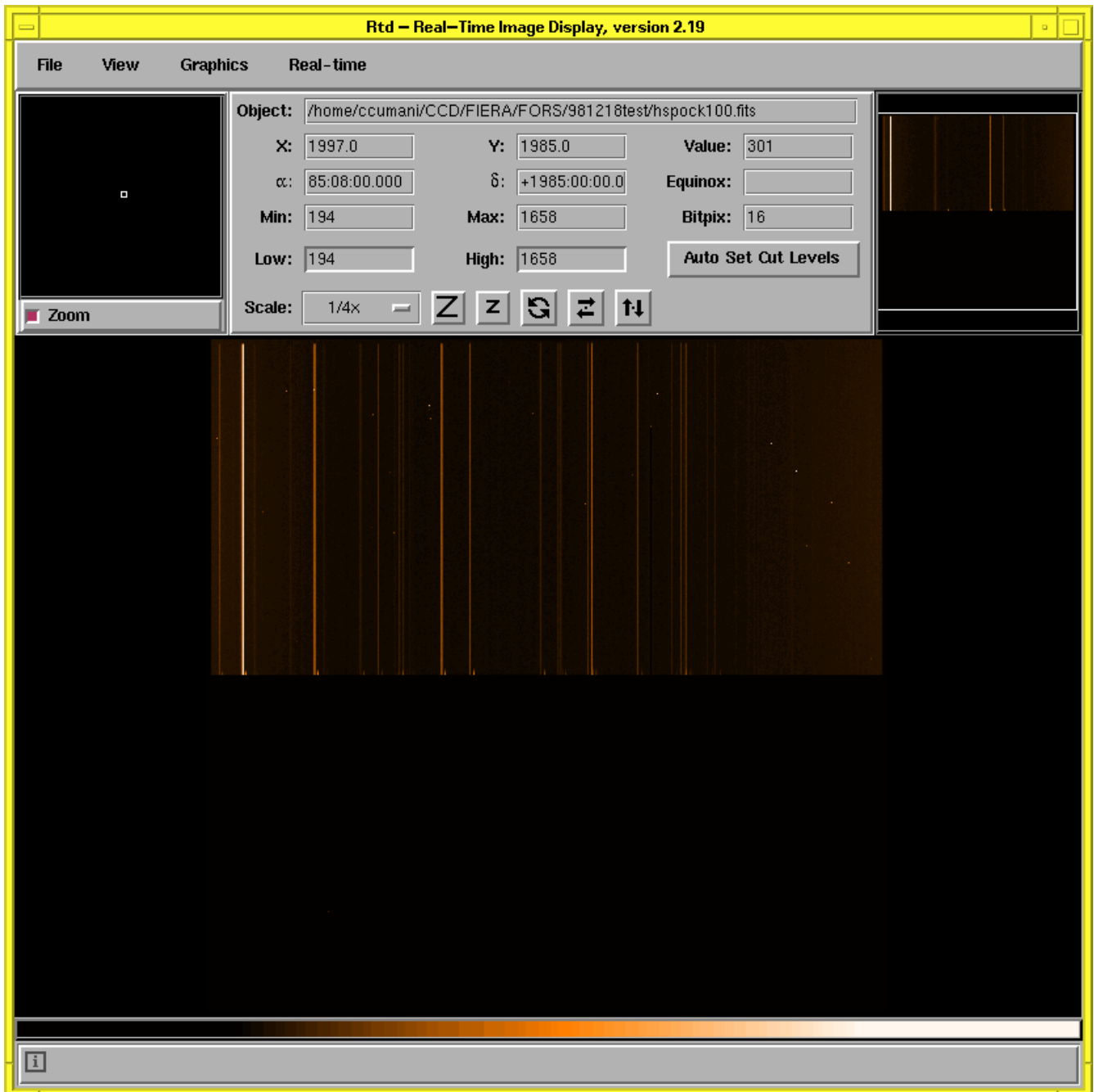


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“The universe is not only  
queerer than we imagine,  
it's queerer than we  
can imagine.”

– J.B.S. Haldane