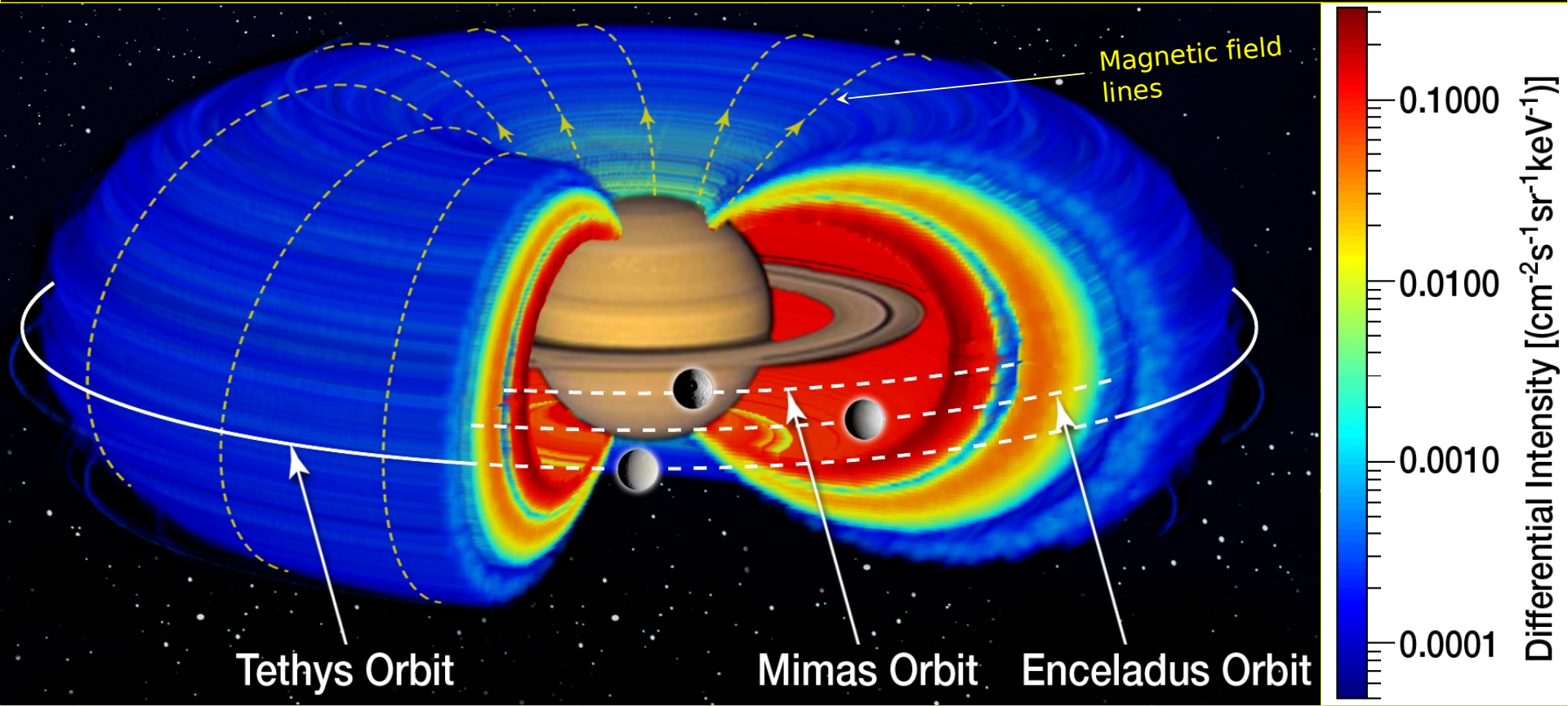


# Saturn's Ion Radiation Belts

Cassini measures their solar-cycle modulation



Fundamental Technologies, LLC



- Saturn's ion radiation belts extend between the main rings and the orbit of Tethys.
- Energetic ions are absorbed from all inner Saturnian moons, resulting in a "sectorized" belt structure, isolated from the outer Saturnian magnetosphere.
- Only Galactic Cosmic Rays (GCRs) can propagate across the moon orbits and impact Saturn and its rings

- Impacts of GCRs on Saturn's rings and atmosphere produce energetic ions that populate the radiation belts.
- The intensity of GCRs in our solar system varies during the 11-year cycle of the solar activity.
- This modulation, which should then be "reflected" in the intensity of Saturn's ionic belts, has now been established using a 6-year dataset of Cassini's MIMI/LEMMS energetic charged particle detector.