

# Partly Clumpy with a Chance of Flurries

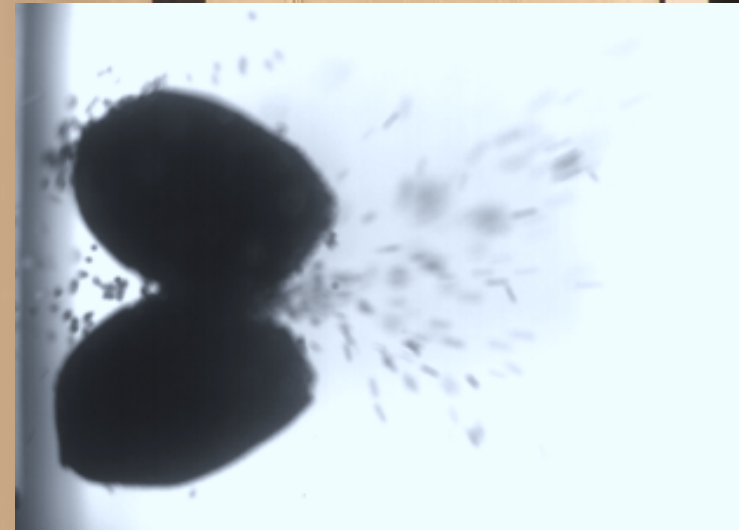
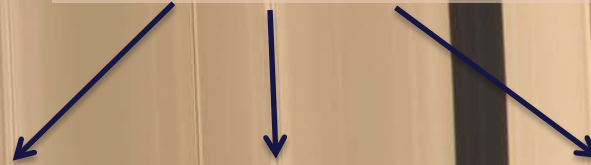
‘Snow storms’ of icy debris from ring particle collisions have been detected in dynamic regions of Saturn’s rings.

Gravitational tugs on ring particles by nearby moons produce **density waves** (highlighted in background image), where ring particles collide energetically and sometimes clump together. Cassini can detect the results of the mayhem occurring because puffs of snow-like debris are produced when particles as large as boulders collide.

Cassini scientists combined both ultraviolet and infrared observations to gain insight into this phenomenon. Within the density waves, the size of the smallest particles drops from about the size of large snowballs to small hailstones, indicating collisional breakup of icy ring particles.

Laboratory collision studies can help untangle the complexities surrounding the age of the rings, as well as giving insight into how solar systems evolve from their own clumpy disks.

Strong Density Waves in Outer A Ring



Simulated ring particles colliding at speeds comparable to those in the ring’s density waves reveal a resulting spray of debris. Imagine millions of similar collisions occurring and sloughing off snow-like clouds.

Photo credit: University of Central Florida, Center for Microgravity Research