Video: Supersonic gas jets blast off

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Supersonic gas jets sound like science fiction, but they are actually found throughout our solar system: for example, fast jets of sulfur dioxide stream from the surface of Jupiter's moon Io and water vapor sprays from the surface of Saturn's moon Enceladus.

These jets often have enough speed and energy, called escape velocity, to free themselves from the gravitational pull of their host moon.

In studying these jets, Hans Hornung, the C. L. "Kelly" Johnson Professor of Aeronautics, Emeritus, recently made a surprising discovery: supersonic gas jets actually have a much lower escape velocity than originally calculated, because gases can turn internal heat energy into kinetic energy, giving these jets a speed boost.

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