Working to the Beat

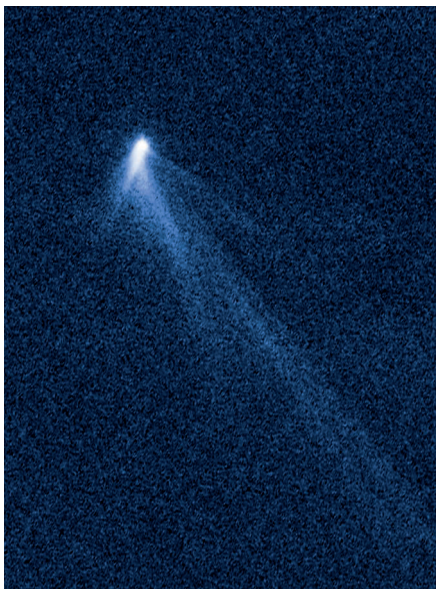
Making music aids physical effort

At first sight, music and hard physical work don't appear to have much in common. Yet the origins of blues and gospel show that that's not true: slaves in the cotton plantations and prisoners sentenced to hard labor sang as they worked, and integrated the sounds of their exertions into their music. In the past, it was supposed that music was simply a distraction. However, scientists at the Max Planck Institute for Cognitive and Brain Sciences in Leipzig have now discovered that music also reduces the actual effort. They made their discovery with the aid of what is known as jymmin technology, using fitness equipment that turns movements into music. The effect is to allow sports participants to make music interactively. In the studies conducted by the researchers in Leipzig, the majority of subjects not only felt the effort less keenly when the jymmin machines were making music, but their muscles also consumed less energy and were therefore more effective. It's possible that the musculature is better controlled at an emotional level as a result of the music-induced ecstasy. This effect of music could even be a previously undiscovered reason for its very origins. (PNAS, October 14, 2013, published in advance online)

"Jymmin" is a combination of "jamming" and "gym", a mixture of free musical improvisation and sport. Training with jymmin machines is more effective than with traditional fitness machines.

Cosmic Oddball

An atypical asteroid is rotating so fast that it is losing mass and forming several tails



An eccentric: Images taken by the *Hubble* space telescope on September 10, 2013 show P/2013 P5 with several tails that surround it like the spokes of a cartwheel.

There are some bodies that have a very disturbing effect on the order in the planetary system – P/2013 P5 is one of them. With at least six tails, it may look like a comet, but it orbits the Sun within the asteroid belt between Mars and Jupiter, and it can't be unequivocally assigned to either category. An international team including scientists at the Max Planck Institute for Solar System Research has been taking a closer look at this puzzling object through the *Hubble* space telescope. Their diagnosis is that P/2013 P5 is an active asteroid that rotates so rapidly under the radiation pressure of the Sun that it emits matter into space. Normal asteroids, in contrast, are robust celestial bodies that already lost their volatile components, such as water, billions of years ago under the influence of the Sun, and now hardly change in appearance. (Astrophysical Journal Letters, November 7, 2013)

Photos: MPI for Human Cognitive and Brain Sciences (top), NASA/HST (bottom)