Three-dimensional computer models such as this one help researchers explore the mechanisms behind core-collapse supernovae, the violent death of short-lived massive stars. In the image, tubes represent paths of gas falling into a supernova, deflected by an accretion shockwave (horizontal width of 600 km); colors represent different velocities. The question of how stars explode is one of the “Mysteries of Astronomy” described in a special News package beginning on page 1090.

Visualization: Hongfeng Yu and Kwan-Liu Ma, University of California-Davis and the SciDAC Institute for Ultra-Scale Visualization; Simulation: John Blondin, North Carolina State University
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A general computational method allows the design of proteins that self-assemble into a desired symmetric architecture.

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The structure of the APP transmembrane domain allows processive cleavage and cholesterol binding that may enhance cleavage.

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A general computational method is used to design protein building blocks that self-assemble into target architectures.

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Experiments in yeast confirm that statistical indicators can signal the approach of population crashes.

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A rehabilitation program involving robotic neuroprosthetics restores previously paralyzed hindlimb function.