HEINER MUELLER-ELSNER/FOCUS/EYEVINE

the German Electron Synchrotron near Hamburg and Arizona State University in Tempe.

The X-ray free-electron laser (XFEL) facility near Hamburg, Germany.

POWER PLAY

Midterm elections are approaching in the United States. History suggests that whichever party controls the White House — in this case, the Republicans — is likely to lose seats in Congress. But it's not clear whether Democrats will be able to flip enough positions in the House of Representatives or the Senate to gain a majority in either chamber. Eyes will also be on the record number of scientists running for local, state and federal offices. Elsewhere, the United Kingdom will enter phase two of Brexit negotiations to determine the nation's scientific collaboration with the European Union after the country leaves the bloc in 2019.

SPACE-INDUSTRY BATTLES

Up to five teams competing for the US$30-million Google Lunar XPrize have until 31 March to land and manoeuvre the first privately funded rover on the Moon, then beam back images. And aerospace firms Boeing and SpaceX plan to launch their first crewed flights to the International Space Station for NASA by November.

DISEASE TREATMENTS

Efforts to bring gene-editing tools such as CRISPR–Cas9 to the clinic are growing. The first phase I trial of CRISPR in people — editing immune cells to tackle lung cancer — will end in April. Firms including Locus Biosciences in Research Triangle Park, North Carolina, and Eligo Bioscience in Paris will work towards trials using engineered viruses called bacteriophages to harness the CRISPR system against antibiotic-resistant bacteria. And the first trial using induced pluripotent stem (iPS) cells to treat Parkinson's disease is set to begin in Kyoto, Japan, by the year's end.

PARTICLE SURFING

It's crunch time for a new method of accelerating particles. Scientists with the AWAKE experiment at CERN, Europe's particle-physics lab near Geneva, Switzerland, have shown that the principle behind a proposal to accelerate electrons on a wave of plasma is sound. Now, they must actually do it. If successful, the technique could eventually lead to smaller and cheaper colliders.

OPEN ACCESS

Who will blink first in the stand-off between German scientists and publishing giant Elsevier? Around 200 German institutions will lose access to Elsevier journals from 1 January until the sides can reach an agreement in a long-running battle over subscription prices. Open-access advocates will also watch the fate of the website Sci-Hub — which provides unauthorized free access to millions of paywalled papers — after a US court order in November shut down some of its domains. ■

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