RECALCULATING THE SIZES OF ATOMS OF ELEMENTS
Scientists at Cornell University have completed an estimate of the atomic and ionic radii of the periodic table’s first 96 elements. They used electron density as the measure of atomic radii; their results match well with radii observed experimentally in crystal structures.

PRODUCING 3D BONE IMAGES WITHOUT USING X-RAYS
By attaching luminous compounds to gold nanoparticles, researchers have developed nanoagents that are attracted to calcium-rich surfaces, such as those exposed when bones crack – even if the crack is very small. A 3D image of the crack can then be produced.

MODEL SUGGESTS GIANT PLANETS HARBOUR EXOTIC COMPOUNDS
The high pressures inside giant planets such as Uranus and Neptune may allow a range of exotic compounds to exist in stable forms. Computational studies suggest carbonic acid and orthocarbonic acid, both highly unstable under normal conditions, can be found.

RAMAN SPECTROSCOPY DETECTS SEX OF CHICKEN EMBRYOS
A new technique uses Raman spectroscopy to observe differences in blood composition, which helps determine the sex of chicken embryos. Male chicks are often killed days after hatching, as they develop too slowly for meat; the new technique could help halt this practice.

PRIMITIVE ORGANIC COMPOUNDS IN COMET 67P DUST
Mass spectrometry analysis of organic compounds found in comet 67P’s dust has shown the comet is likely to be older than the oldest meteorites to have reached Earth. The hydrogen content of dust grains from the comet was higher than in the meteorite grains.