formulation is that the quaternion elements are mathematically very well behaved and are not subject to singularities, such as those encountered with Euler angles when the directions about which the angles are measured nearly coincide.

The quaternion method can easily be made part of the treatment of a many-body problem, such as that of a spacecraft containing spinning angular momentum wheels, which are often operating during ascent.

Reference

1. H. S. Morton, *J. Astro. Sci.* **41**, 569 (1993).

Robert D. Furber
(rd.furber@gte.net)
Manhattan Beach, California

Another Fermi Tale

During a lecture at Los Alamos around 1945, Enrico Fermi was at the chalkboard discussing how a dependent variable—it may have been a cross section—varied with the independent variable, which may have been energy. Initially, the independent variable rose steeply, but when a criterion was satisfied, the steep rise ceased and the dependent variable thereafter remained approximately constant. To show this graphically, Fermi drew an x-axis and a y-axis on the chalkboard. He then drew the curve, which initially rose steeply and then leveled off.

Thus far, Fermi had drawn three lines to illustrate his point and had given them no markings of anything quantitative. He then stepped back from the board, thought for a moment, took a six-inch slide rule from his shirt pocket, and did a quick calculation. The result of the calculation prompted him to say that the level part of the curve was not as high as he had drawn it. Going back to the board, he used his fingers to erase the horizontal part of the curve and then carefully redrew it an inch or two lower than it had been initially. The room was silent for a moment, and then laughter erupted. Fermi smiled and continued the lecture.

Albert A. Bartlett
(albert.bartlett@colorado.edu)
University of Colorado
Boulder

Correction

November 2002, page 27—The person at left in the photograph was incorrectly identified as Henri Becquerel. He is Mr. Petit, a laboratory assistant. ■