mum of 15 regions which can be filled with different isotope mixtures. Each mixture can contain up to 10 isotopes.

The geometry routines can treat infinite slabs, staggered rectangular lattices, unstaggered rectangular lattices, hexagonal cells and rods bundles. They were originally written for the N.Y.U. Resonance Escape Probability Code. The calculations can be done for multiregion cells in an infinite lattice array or for a single cell only.

Specifically, the code computes the following quantities:

(a) The fast neutron ratio (γ), defined as the ratio of secondary neutrons to primary neutrons, for each fissionable isotope.
(b) The fast fission factor (ϵ) for the entire system.
(c) The fast fission factor ($\epsilon(1)$) for neutrons scattered only in the region where they were born.
(d) The fast fission factor ($\epsilon(N)$) for neutrons not scattered in the moderator. (The difference $\epsilon - \epsilon(N)$ is the so-called "back scattering effect.")
(e) The fractional absorption as a function of the geometric region and the energy group.
(f) The over-all absorption for equal volume elements in each region. This gives the spatial neutron distribution.
(g) The number of collisions necessary to leave the fast fission region as a function of the energy group in which the neutron started.
(h) The neutron escape probability into a specified region (for single cell calculations).
(i) The fast fission ratio (δ), defined as the ratio of fast fissions to thermal fissions. This ratio δ can easily be computed by the use of the fractional absorptions specified in (e).

4. Typical running times: The running times depend strongly on the number of collisions/history necessary to leave the fast fission energy region. A typical problem might use 2000 histories and require 6–9 min/10,000 collisions.
5. *References:*

H. Rief, An IBM-704 Monte Carlo Code to calculate the fast effects in homogeneous and heterogeneous systems, BNL Report (1960).

R. D. Richtmyer, R. Van Norton, and A. Wolfe, The Monte Carlo Calculation of Resonance Capture in Reactor Lattices, *Proc. 2nd Intern. Conf. Peaceful Uses Atomic Energy, Geneva* **16,** 180 (1958).

6. Availability: Those interested in using MOCCA should contact H. Honeck at Brookhaven National Laboratory.

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Note

The authors of the paper "SM-2 Flexible Critical Experiments" [*Nuclear Sci. and Eng.* **9,** 41 (1961)] wish to acknowledge the many significant contributions made to that paper by Mr. John W. Noaks, former supervisor of the Alco Products, Inc. Critical Facility.