Errors caused by energetic alpha particles and neutrons in the terrestrial environment have been an issue for the past three decades in consumer memory and logic applications. Recent discoveries are challenging some of past assumptions about test and mitigation techniques:

• The contribution of lower energy neutrons (<10MeV) to soft errors in technologies below 100nm and the possibly of direct ionization from protons below 45nm.

• Changes in soft error cross-sections from a simple Weibull saturation distribution to more exponential-like behavior.

• The impact of thermal neutrons does not appear to be going away with the elimination of boro-phososilicate glass (BPSG) in new technologies.

• Charge sharing or multi-node upset effects will negate many of the conventional design mitigation techniques, such as dual interlocked cell (DICE).