Interaction between neutrons and electronic devices: origin, impact and evaluation

Manon LETICHE - *Institut Laue Langevin, France*

Radiation effects on electronic components must be well known if we want to guarantee their reliability. Indeed, this is a major concern for terrestrial and ground floor applications such as, autonomous vehicle, medical, supercomputing or avionic electronics where a single soft error can cause huge safety failures. Among the particles constituting the radiative environment, we can find thermal neutrons. Those neutrons become at risk, because of their nuclear reaction with 10B leading to high rate of soft errors in the electronic. In the continuous progress in developing micro-(nano)-technologies, 10B is often present in the devices. Therefore, careful radiation tests are required to evaluate their radiation robustness, particularly under thermal neutrons. A review of neutron origin and effects in electronics, and solutions to test their reliability under radiation environment is proposed.