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Intense absorbed dose rate measured on-line thanks to specific calorimeters inside research reactors.(ZOOM)

Tuesday 2 July 2024 14:00 (45 minutes)

The presentation will focus on research work carried out on calorimeters for on-line in-core measurements of a key value for specific materials of interest to the nuclear sector. This key value is induced by the interactions between rays and matter and corresponds to intense absorbed dose rate (also called nuclear heating rate in W/g). The context and the challenges of the work conducted within the framework of the joint laboratory between Aix-Marseille university and the CEA (LIMMEX laboratory) will be given. The sensor principle will be explained. Then the comprehensive approach developed from the design of this type of sensors to their characterizations in real nuclear environments will be detailed. This approach includes experimental work, analytical calculations and numerical 3-D simulations under laboratory conditions without nuclear ray and under irradiation conditions in research reactor abroad. Several examples of results and sensor prototypes will be shown.

Presenter: REYNARD-CARETTE, Christelle