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Nuclear Security in the 21st Century

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Nuclear security has been a priority for the United States, starting in the 1940s with the secret cities of the Manhattan Project. In the 1970s, the United States placed radiation monitoring equipment at nuclear facilities to detect nuclear material diversion. Following the breakup of the Soviet Union, cooperative Russian/U.S. programs were launched in Russia to secure the estimated 600+ metric tons of fissionable materials against diversion (Materials Protection, Control, and Accountability – MPC&A). Furthermore, separate programs were initiated to detect nuclear materials at the country's borders in the event that these materials had been stolen (Second Line of Defense - SLD). In the 2000s, new programs have been put in place in the United States for radiation detection, and research is being funded for more advanced systems. This talk will briefly touch on the history of nuclear security and then focus on some recent research efforts in radiation detection. Specifically, a new breed of radiation monitors will be examined along with the concept of sensor networks.