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DNA damage induced by low energy electron collision and new experimental setup for further studying DNA damage by plasma YE-UNSOO PARK, National Fusion Research Institute, LEON SANCHE, RICHARD WAGNER, University of Sherbrooke — Low energy electrons (LEEs; below 10 eV) are the most abundant among the radiolytic species generated along the high energy radiation track in living cell. And these electrons are also one of major components with ions and photon in plasma. Interestingly, it has turned out that LEEs can create DNA damages such as base release, single- and double- strand breaks (SSB and DSB) via indirect action named dissociative electron attachment (DEA). The purposes of this study are to further find out exact mechanisms of DNA damage by LEEs at the molecular level and to verify new DNA damage like structural alteration on DNA subunits. And we will expand our study to DNA damage by plasma source to develop plasma-based new medical and biological applications. We are currently setting new experimental system for reaching our goals. We will show some recent results about new finding DNA modification damage and some experimental designs and working principles.

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