

Abstract Submitted
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Building a Lyman- α detector for measurement of recycling rates in LTX¹ JONGSOO YOO, ROBERT KAITA, RICHARD MAJESKI, PPPL, JILL FOLEY, ENRIQUE MERINO, Nova Photonics — The measurement of the particle recycling rate is essential for understanding the performance improvements of lithium PFC devices like CDX-U and LTX. Recycling is usually measured by using atomic H- α (Balmer- α) emission, but the signal can be difficult to interpret because H- α has a high reflectivity for many wall materials including lithium. In contrast, Lyman- α is known to have a low reflectivity at a lithium wall. To measure recycling rates for LTX, a Lyman- α detector with a photodiode and a directly deposited 117-131nm pass-band filter has been developed. The detector has been tested with collisional beam excitations with a background of hydrogen gas. Based on known inelastic collision cross sections of a hydrogen beam, the relative intensity of Lyman- α collisionally induced fluorescence (CIF) to H- α CIF has been calculated. By comparing the theoretical ratio with the measured one, the detector can be calibrated.

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