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Modeling of pedestal and core radiation in nitrogen seeded H-modes at ASDEX Upgrade LIVIA CASALI, EMILIANO FABLE, RALPH DUX, MATTHIAS BERNERT, FRANCOIS RYTER, Max-Planck-Institut für Plasmaphysik, Boltzmannstras. 2, 85748, Garching, Germany, ASDEX UPGRADE TEAM — This work presents the time dependent modeling of the radiation and impurities in the presence of ELMs using the ASTRA transport code coupled to the impurity and radiation code STRAHL. The modeling focuses on the nitrogen seeded discharges of ASDEX Upgrade which exploits the high radiation scenario necessary for next step devices. ASDEX Upgrade has a full tungsten wall and therefore the impurities considered in the model are N and W. The modeling results highlight the importance of non coronal effects induced by transport for low-Z impurities in the pedestal, while tungsten radiation is not affected by transport. Diffusive and convective ELM models are investigated and a comparison between the modeled and the measured radiation suggests a dominant diffusive contribution in the ELM crash. The different values of the neoclassical pinch for N and W result in different reactions to the ELM frequencies and explain the fact that a sufficiently high ELM frequency is required to prevent W accumulation in the confined region.

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