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Radiative L-mode Edge Plasma Regimes in JET and ASDEX Upgrade LEENA AHO-MANTILA, JET-EFDA, Culham Science Centre, OX14 3DB, Abingdon, UK / VTT Technical Research Centre of Finland, FI-02044 VTT, MATTHIAS BERNERT, Max-Planck-Institut fuer Plasmaphysik, D-85748 Garching, SEBASTIJAN BREZINSEK, Energie- und Klimaforschung IEK-4, FZJ, D-52425 Juelich, CHRISTOPHER LOWRY, EFDA JET CSU, Culham Science Centre, OX14 3DB, Abingdon, UK, STEFAN MARSEN, Max-Planck-Institut fuer Plasmaphysik, Teilinstitut Greifswald, D-17491 Greifswald, KENT MCCORMICK, HANS WERNER MUELLER, STEFFEN POTZEL, MARCO WISCHMEIER, Max-Planck-Institut fuer Plasmaphysik, D-85748 Garching, ASDEX UPGRADE TEAM, JET-EFDA CONTRIBUTORS TEAM¹ — Low-Z impurities must be seeded into the edge plasmas of future high-power full-metal devices like ITER and DEMO in order to dissipate the exhaust power through radiation. Extensive studies have been performed in ASDEX Upgrade and JET to understand the effects of N-seeding on the divertor and scrape-off layer plasmas of full-metal tokamaks of different size and different geometry of the W divertor. The radiation patterns and divertor regimes change substantially in L-mode discharges for various levels of seeding and fuelling, and distinct transitions between the different radiative regimes are observed. In this contribution, conditions for these radiative regimes are described with the help of 2D simulations and the physics behind existing scaling laws for power exhaust are discussed.

¹See App. of F. Romanelli et al., Proc. of IAEA FEC 2012, San Diego, US

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