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Turbulence Suppression Measurements During Radiative-Improved (RI-mode) Plasmas with BES on DIII-D¹ G.R. MCKEE, R. FONCK, M. JAKUBOWSKI, University of Wisconsin-Madison, G.L. JACKSON, G.M. STAEBLER, General Atomics, M. MURAKAMI, Oak Ridge National Laboratory, R. SYDORA, University of Alberta — RI-mode plasmas produced on TEXTOR and DIII-D exhibit improved confinement after Neon gas injection. Beam Emission Spectroscopy (BES) measurements of density fluctuations on DIII-D indicate that turbulence is dramatically reduced after neon injection, coincident with an increase in energy confinement time. This suggests that the turbulence suppression may be partially responsible for the improved confinement in these L-mode edge plasmas. Turbulence suppression is observed over the radial range of $\rho = 0.6-1.0$, with the reduction of density fluctuations occurring within 100 ms of the neon puff. Nonlinear gyrokinetic particle simulations are used to model the turbulence behavior. Results indicate that low neon concentrations (few percent) are able to strongly reduce the ITG growth rates and saturated fluctuation levels, qualitatively consistent with these initial experimental observations.

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- Prefer Oral Session
 Prefer Poster Session

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Special instructions: DIII-D Poster Session I (transport, turbulence, & stability), immediately following Politzer

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