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Radiation asymmetry and MHD activity in gas jet rapid shutdowns on Alcator C-Mod[1] GEOFFREY OLYNYK, ROBERT GRANETZ, DENNIS WHYTE, MIT Plasma Science & Fusion Center, THE ALCATOR C-MOD TEAM — Radiative rapid shutdown via massive noble gas injection (MGI) is an integral part of the ITER disruption mitigation system (DMS). However, observations have shown that the radiation during MGI rapid shutdowns may be spatially asymmetric, particularly during the initial phase when the plasma's thermal energy is converted to radiation. ITER requires the radiation peaking factor (PF) to be less than approximately 2.0 to 2.5 in this thermal quench (TQ) phase in order to prevent melting of the beryllium wall even in the case of a successful MGI rapid shutdown. We report on observations of rotating MHD modes in single- and multiple-gas-jet rapid shutdowns on Alcator C-Mod, and discuss the role of mode rotation during the TQ in setting the radiation peaking factor. The implications for the ITER DMS are discussed.

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