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Pellet-fueled, high-β, improved confinement RFP plasmas K.J. CASPARY, M.D. WYMAN, B.E. CHAPMAN, A.F. ALMAGRI, J.K. ANDERSON, D.J. DEN HARTOG, F. EBRAHIMI, D.A. ENNIS, G. FIKSEL, S. GANGADHARA, J.A. GOETZ, S.T. LIMBACH, R. O'CONNELL, S.P. OLIVA, S.C. PRAGER, J.A. REUSCH, J.S. SARFF, H.D. STEPHENS, UW-Madison, F. BONOMO, P. FRANZ, Consorzio RFX, D.L. BROWER, B.H. DENG, W.X. DING, T. YATES, UCLA, S.K. COMBS, C.R. FOUST, ORNL, D. CRAIG, Wheaton College — Pellet fueling of improved confinement MST plasmas has resulted in a fourfold increase in the density, reaching 4x10^{19} m^{-3}, and a total beta of up to 26%. At high beta, the Mercier limit for interchange stability is exceeded, but there is as yet no experimental evidence of interchange modes. The linear stability threshold for pressure-driven tearing modes is also exceeded, and one does observe increased tearing mode amplitudes. At high density, the energy confinement time is still improved, but the degree of improvement is reduced. This may be due to the tearing modes, suggesting that pressure-driven tearing could ultimately limit the achievable beta in the RFP. MST's pellet injector has now been upgraded to accommodate pellets with roughly twice the particle inventory used to achieve the above results. Tests with these larger pellets are underway. Work supported by U.S.D.O.E.

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