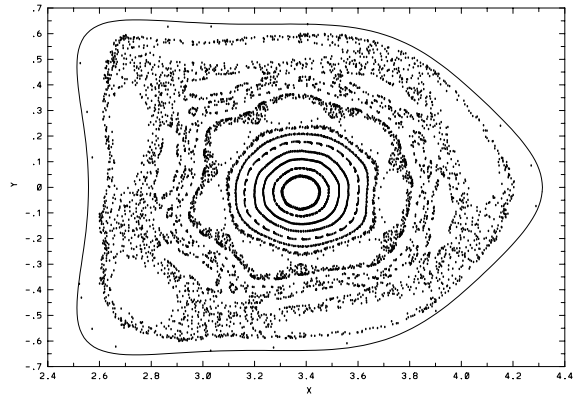


Figure 3: Magnetic puncture plots (top) and equi-spaced ion fluid velocity flow contours (bottom) for three ratios of the equilibrium ion to electron pressure p_i/p_e , for the same total β , at $t = 85.8$ ($p_i/p_e = 1$ at $t = 76.2$). Similar to early flow pattern.

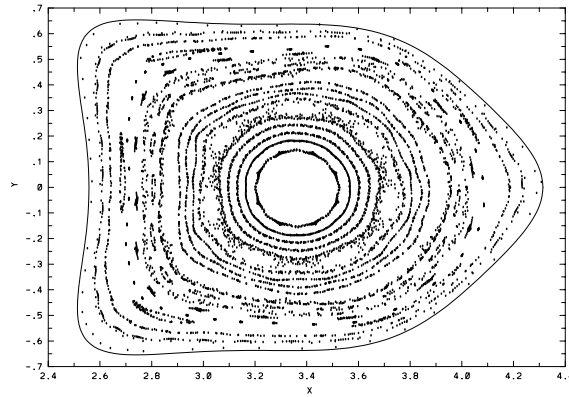
$$p_i/p_e = 1/19$$

Poincare t= 88.74



$$p_i/p_e = 1$$

Poincare t= 76.19



$$p_i/p_e = 19$$

Poincare t= 85.77

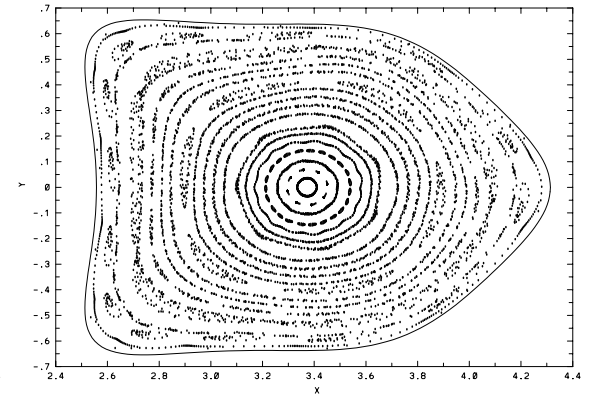


Figure 5: Magnetic puncture plots for the long-time two-fluid cases of Fig. 5 at $\beta = 7\%$. Magnetic reconnection at interior low-order rational surfaces is enhanced by the electron 2F terms.

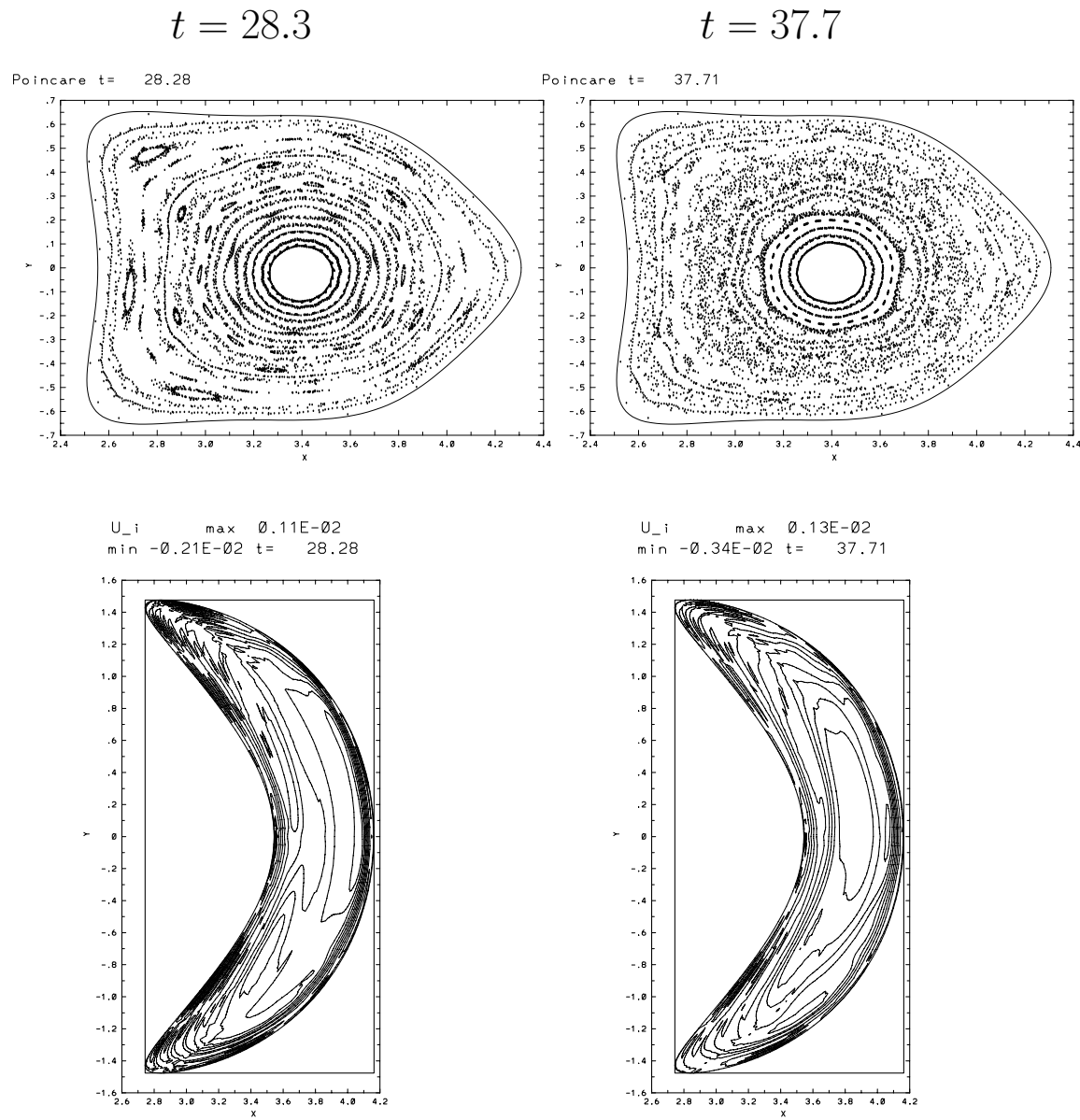


Figure 6: Two-fluid island growth increases with beta, shown for $\beta = 8\%$, $p_i = p_e$. Ballooning is ideal MHD unstable, but the mode grows more slowly than the two-fluid islands at low-order rational surfaces and is not visible here.