

- $\delta f$  simulation of neoclassical transport:  
axisymmetric, circular,  $Z_{\text{eff}}=1$

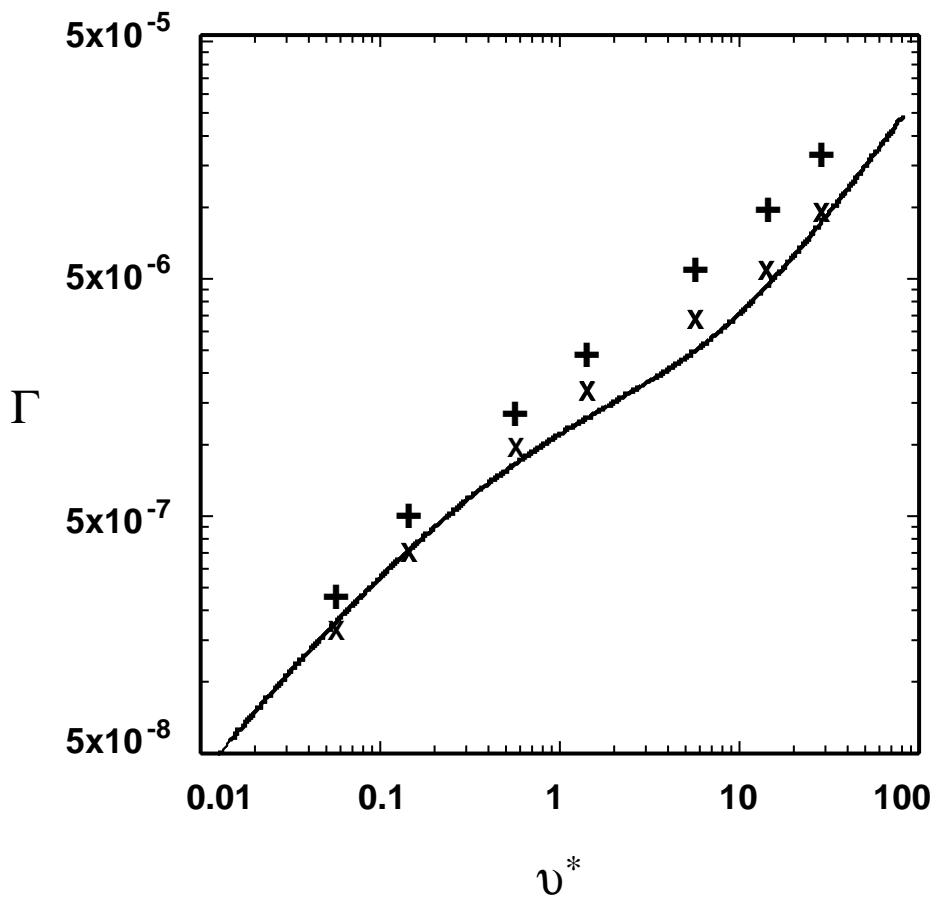


Fig 13. Electron article fluxes from electron-ion and electron-electron collisions with momentum conservation (  $\times$  ) and without momentum conservation (  $+$  ). The solid line represents the analytical result of Hinton and Hazeltine (1976).

*Lin, Tang, and Lee, Phys. Plasmas 2, 2975 (1995)*

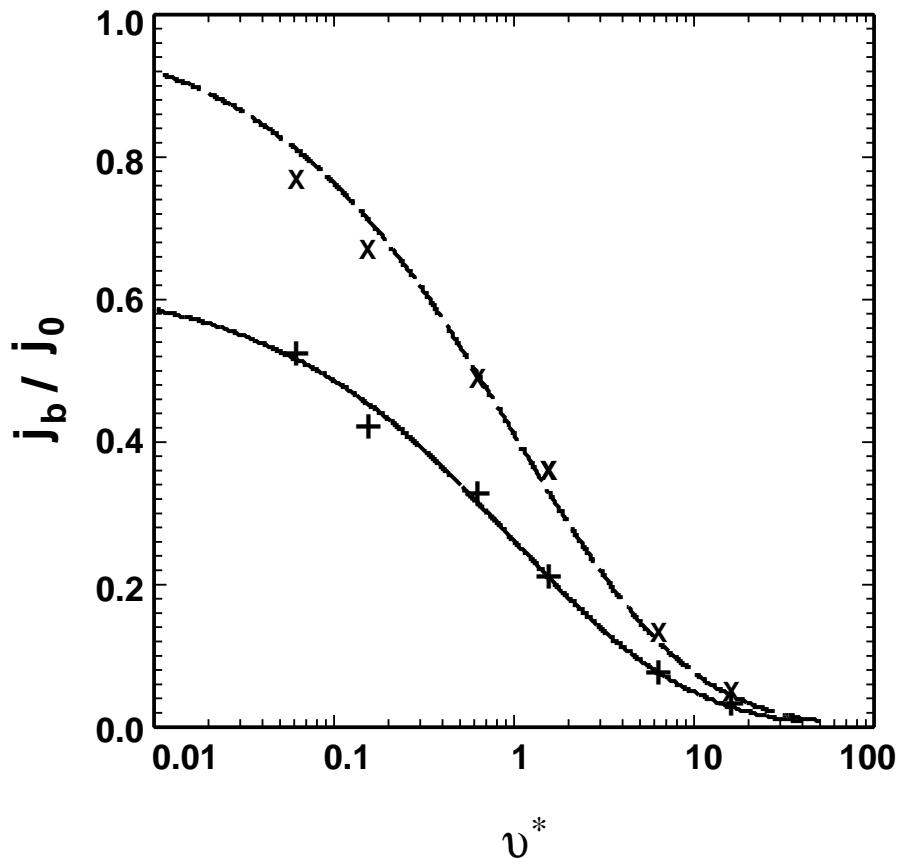
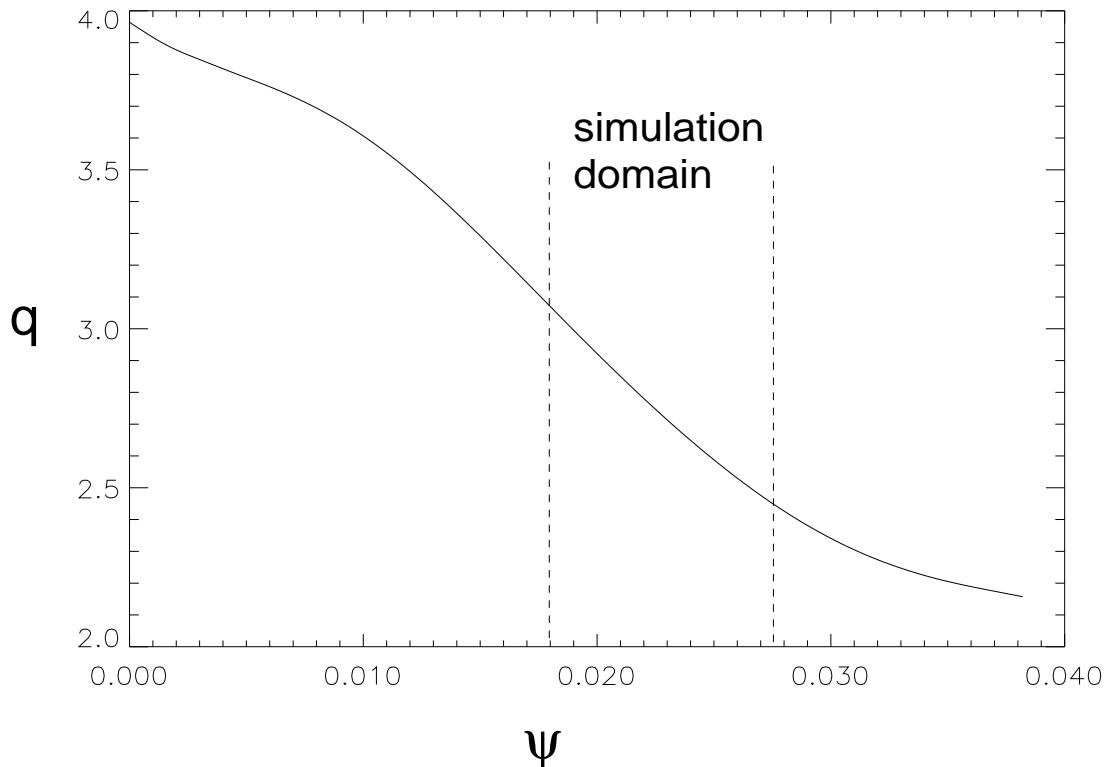


Fig.14. Bootstrap current from ion-electron and electron-electron collisions with momentum conservation (  $\times$  ) and without momentum conservation ( + ).

*Lin, Tang, and Lee, PoP, 1995*

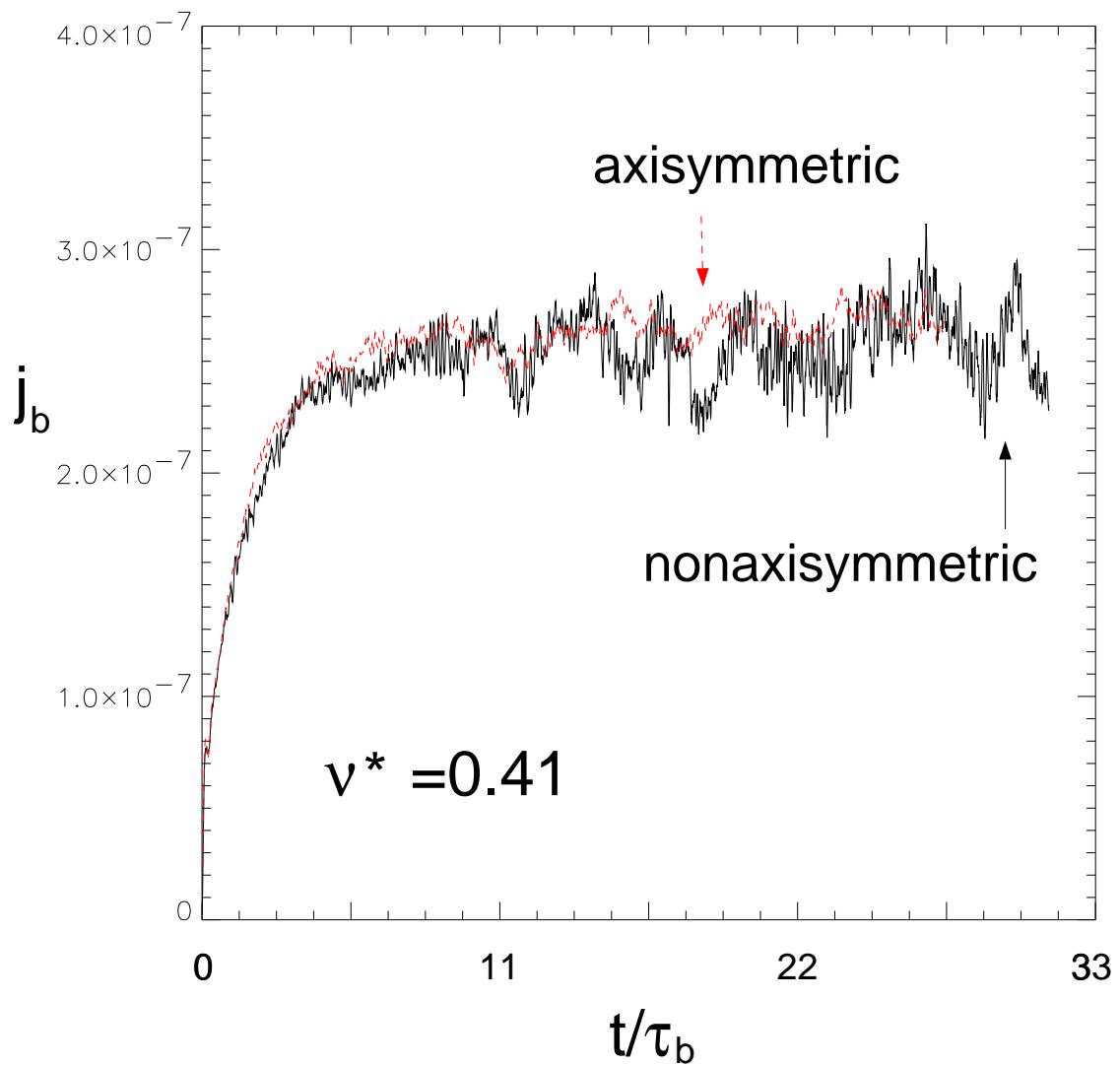
*Wu and White, PoF, 1993*

*Sasinowski and Boozer, PoP, 1995*



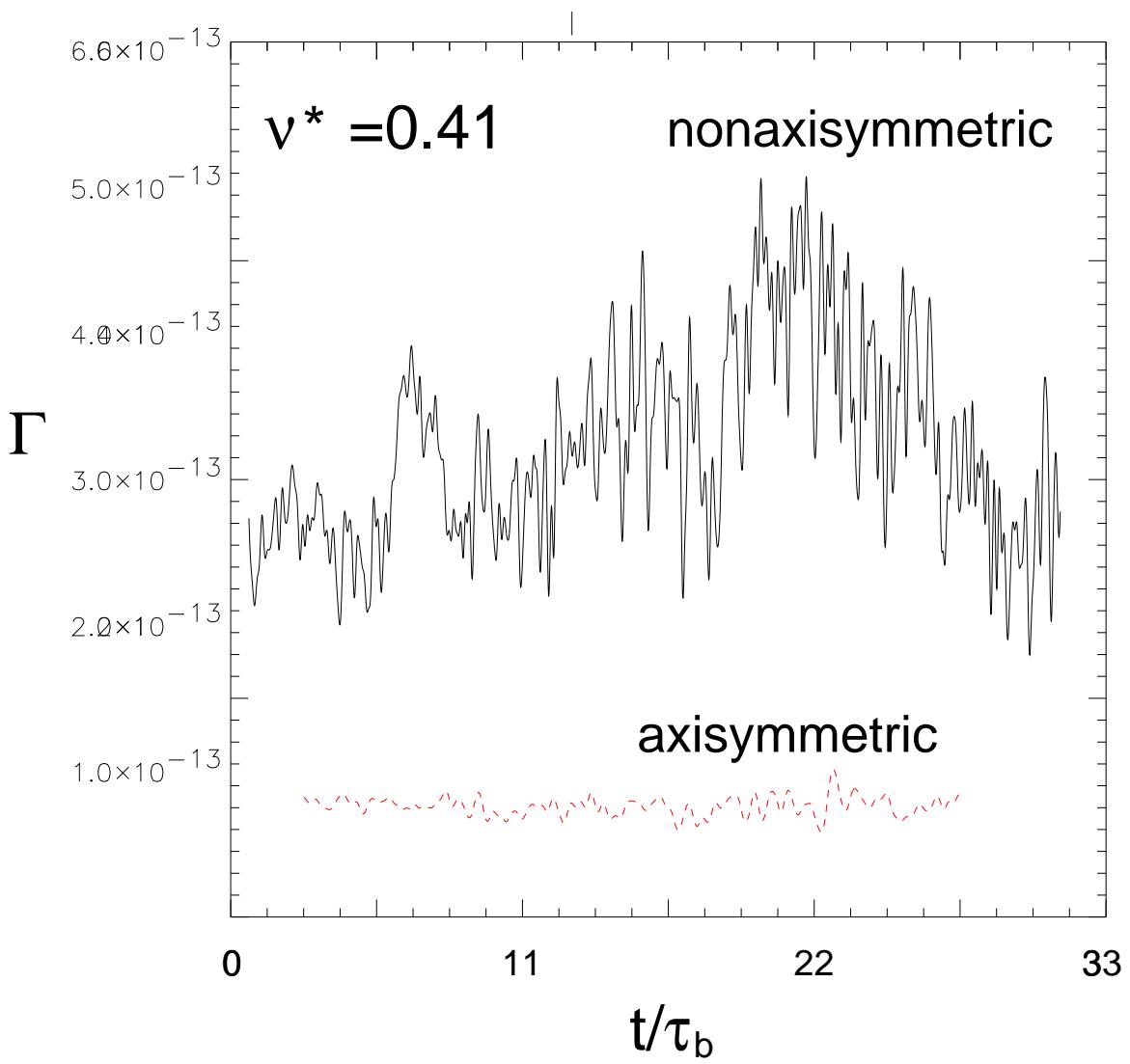
$m, n, b_{mn}$

1,	0,	0,	1.1892890700000001
2,	1,	0,	0.217670001
3,	2,	0,	6.31592247000000023E-2
4,	3,	-1,	2.6938771000000002E-2
5,	3,	-2,	2.3434208599999991E-2
6,	4,	-1,	1.9184235500000006E-2
7,	1,	-2,	1.66799385000000015E-2
8,	2,	-1,	1.5712052399999991E-2
9,	1,	-1,	1.5434886999999996E-2
10,	3,	0,	1.3255812699999994E-2
11,	5,	-2,	8.8286642699999974E-3
12,	6,	-2,	6.4315127399999998E-3
13,	2,	1,	6.17656479000000015E-3
14,	3,	-4,	6.15890887000000026E-3
15,	4,	0,	5.4862304999999966E-3
16,	4,	2,	5.24442655000000035E-3
17,	0,	2,	5.1935298799999963E-3
18,	0,	-2,	5.1935298799999963E-3
19,	1,	1,	4.5460258199999974E-3
20,	4,	-3,	4.18074244000000029E-3



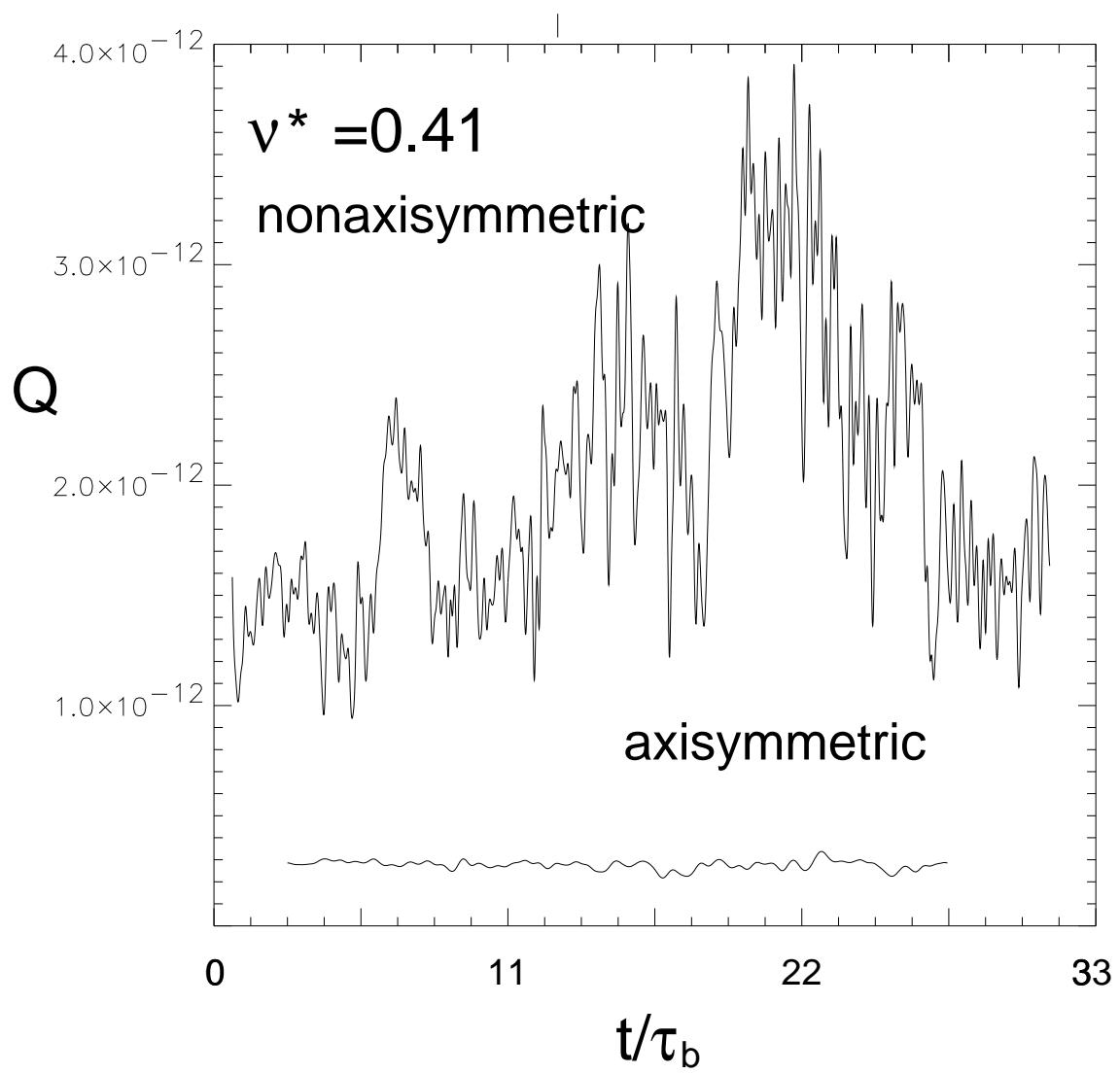
Little change in electron bootstrap current

**Lin-4**



About factor of 4 enhancement of particle flux

**Lin-5**



About factor of 7 enhancement of energy flux

**Lin-6**