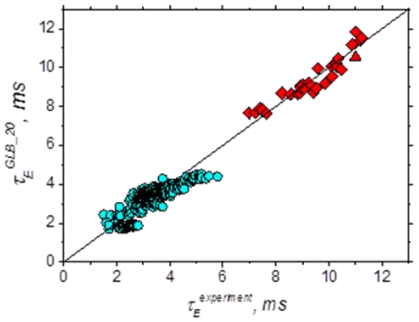
ENERGY CONFINEMENT IN THE SPERICAL TOKAMAK GLOBUS-M2

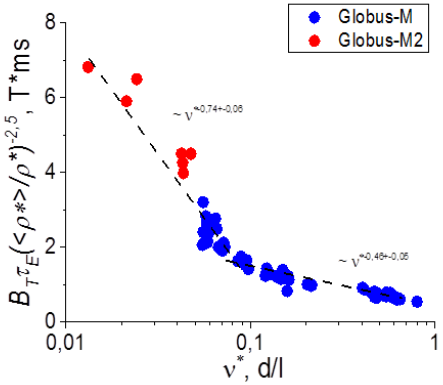
$\tau_E^{GLB} \sim I_p^{0.43} B_T^{1.19}$



τ_E scaling in the range of
0.25 T<B_T< 0.8 T
0.1 MA< Ip < 0.4 MA

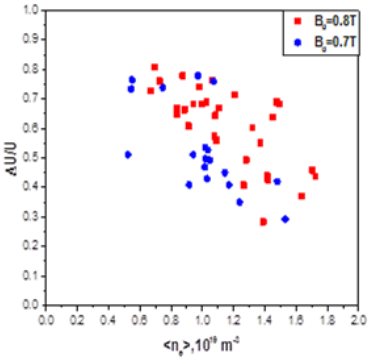
Globus-M2 (a=0.36 m, R=0.24) has reached B_T = 0.8 T and I_p = 400 kA (80% of the design values)

- Regimes with T_e and T_i in the keV range, $<n_e> \sim 10^{20}$ m^{-3} and with low collisionality were obtained in the NBI H-mode.
- The ST scaling is valid for a wide parameter range
  $\tau_E^{GLB} \sim I_p^{0.43} B_T^{1.19}$
- Globus-M2 scaling for normalised confinement time shows strong dependance on collisionality $B_T \tau_E \sim \nu^{*-0,74}$ unlike the scaling: $B_T\tau_E \sim \nu^{*-0,01}$ for high aspect ratio tokamaks



$B_T\tau_E$ increases with collisionality decrease

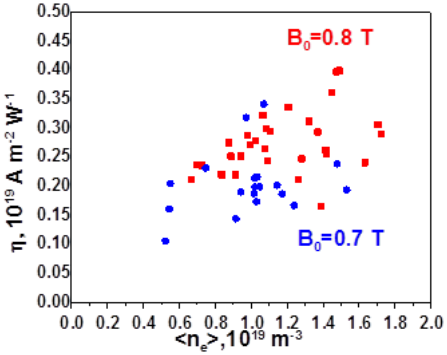
LOWER HYBRID CURRENT DRIVE IN GLOBUS-M2



Relative loop voltage drop at LHCD **2.45 GHz, 150 kW**

Globus-M2 is the only ST with the LHCD system

- Increase of the toroidal magnetic field up to 0.7-0.8 T improves accessibility of the plasma center region
- Toroidal grill orientation, f_0 = 2.45 GHz, P = 150 kW, $N_{||}$= -3.0 were implemented
- The value of the relative voltage drop during the RF pulse varied within the range ΔU/U ≈ (30 – 80)%, depending on density
- Achieved on Globus-M2 efficiency $\eta = (0.15 - 0.4) \cdot 10^{19} Am^{-2}W^{-1}$ is comparable with the results obtained on conventional tokamaks



LHCD efficiency on Globus-M2