Bullard Von Karman Dynamo at high interaction parameter

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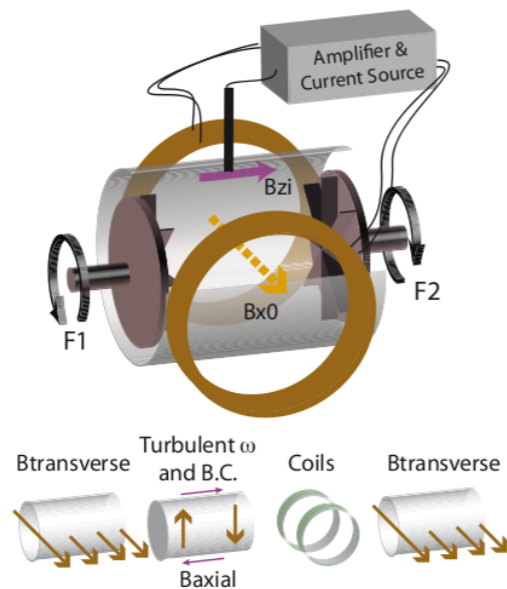
Bullard Von Karman dynamo is a **synthetic dynamo** at Rm <1:

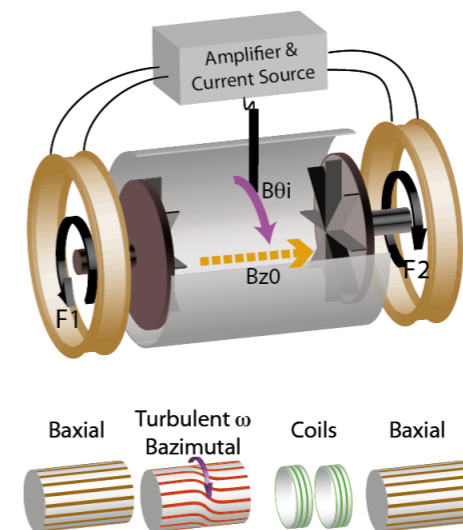* Turbulent fluid induction process: $B^{induced} = Rm\ B^{applied}$

* External amplification: $B^{applied} = G\ B^{induced}$

$$B^{induced} = Rm\ G\ B^{induced}$$
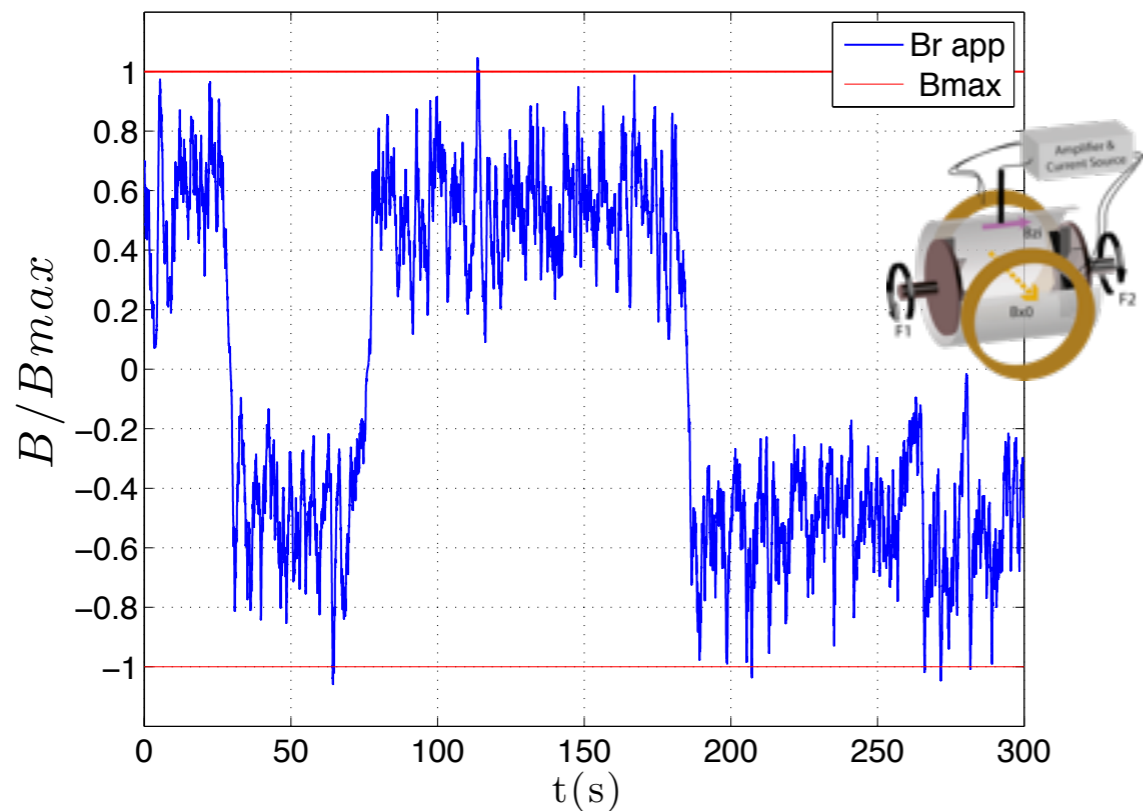

Transverse configuration

Axial configuration

Magnetic Reynolds number $Rm = \dfrac{UL}{\lambda}$,   Interaction parameter $N = \dfrac{\sigma L B^2}{\rho U} \propto I_{max}^2$
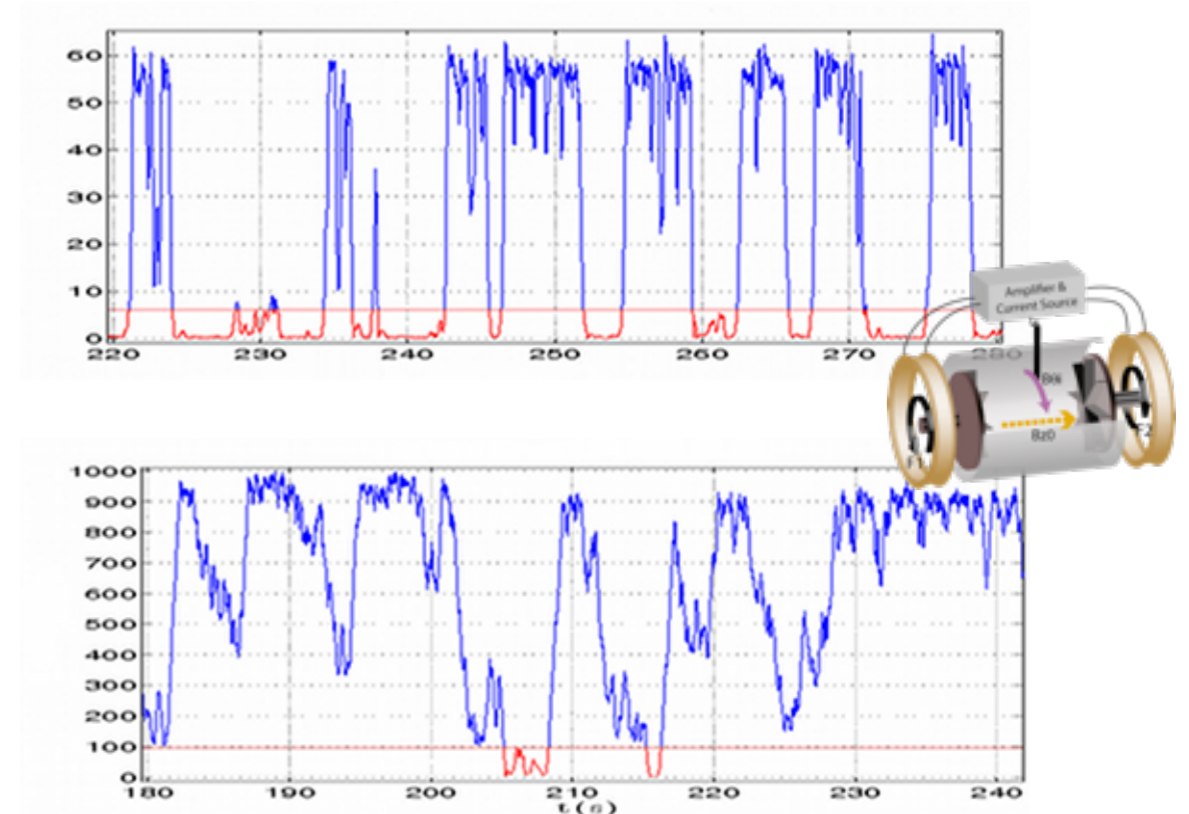
Results

Transverse Configuration

Dynamo Saturation by Lorentz force feedback

Axial Configuration

Intermittence reduction by increase of N