

# EXPERIMENTAL OBSERVATION OF THE GEOSTROPHIC TURBULENCE REGIME OF RAPIDLY ROTATING CONVECTION

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## THE IMPACT OF ROTATION ON TURBULENT TRANSPORT

### The ultimate regime

$$Nu \sim \sqrt{RaPr}$$

Already observed by this experiment in **Lepot et al, PNAS 2018.**

### The rotating ultimate regime

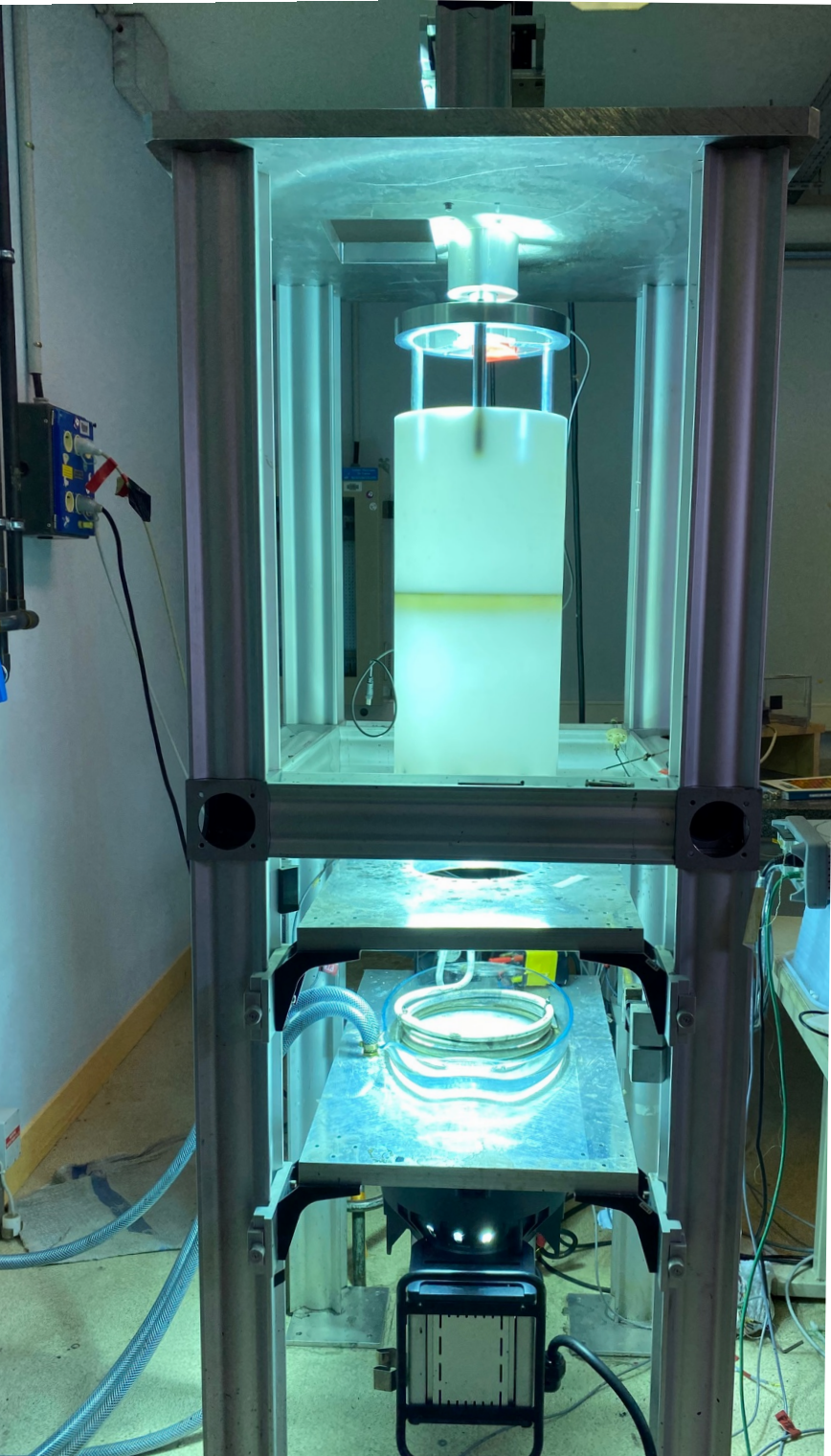
= geostrophic turbulence regime

$$Nu \sim Ra^{3/2} E^2 Pr^{-1/2}$$

Or in a flux-based representation :

$$Nu \sim Ra_P^{3/5} E^{4/5} Pr^{-1/5}$$

Our study aims at **bypassing** the boundary layers by using **Radiative Heating** to observe this rotating regime for the first time.



The rotating ultimate regime  
= geostrophic turbulence regime

$$\text{Nu} \sim \text{Ra}_P^{3/5} E^{4/5} \text{Pr}^{-1/5}$$

## Radiative Heating



**First experimental observation** of  
the turbulent regime of rapidly  
rotating convection

