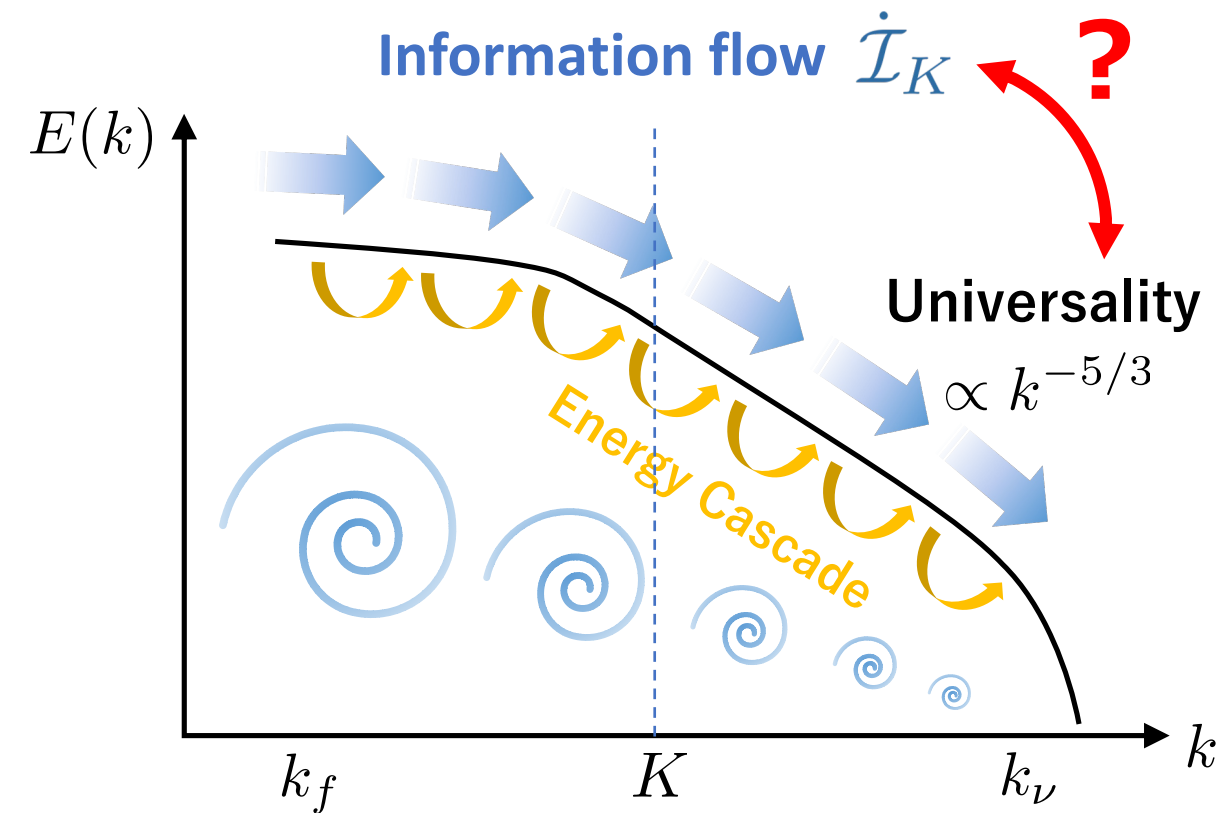


Universality and scale-to-scale information flow in turbulence

Osaka University, Tomohiro Tanogami



Result 1: Direction of information flow

Information flows from macro to micro

$$\dot{\mathcal{I}}_K \geq 0$$

Result 2: Scale locality

Information is propagated like a telephone game

$$\dot{\mathcal{I}}_K \simeq \dot{\mathcal{I}}_K^{\text{local}}$$

Result 3: Information flow vs fluctuations

Information flow enhances turbulent fluctuations

$$\dot{\mathcal{I}}_K \leq C_p K \langle |u_{n_K}|^p \rangle^{1/p} \quad \text{for } p \geq 1$$