Activity 3 – Shear instability

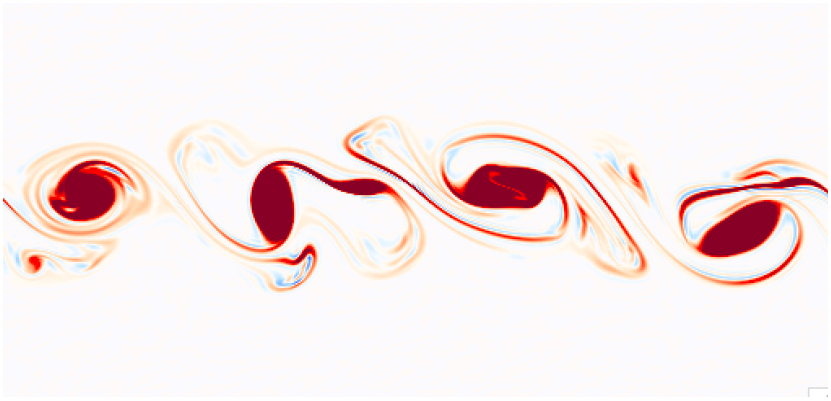
Introduction

During this activity, we will use the **fluid2d** code to run cases of shear and KH instability.

Get and run the script

Download and unzip Fluid2d from: https://github.com/pvthinker/Fluid2d

Install:
- module load anaconda3
- tar -xf fluid2d.tar.gz
- cd fluid2d
- make
- bash
- source activate.sh



Run the experiment:
- cd experiments/ShearInstab
- python shear_instability.py

Shear Instability

1. Piecewise linear profile

a) Implement a profile with a filament of constant vorticity (width = a)
b) Compare the wavelength of the most unstable mode with a

2. Bickley Jet

a) Implement a Bickley jet profile
b) Check the stability of the flow

KH instability

a) Chek the Kelvin-Helmoltz instability case
b) Modify the velocity shear and stratification and check the impact for the instability