Fluid Flow Stability – Projects

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1 Oscillating beam problem

This project aims to solve the oscillating beam problem presented in the lectures by means of *all* techniques covered, i.e.

- finite differences

- Chebishev interpolation

- Galerkin technique

- collocation.

	Name	Neptun code	email
student 1			
student 2			

2 Linear stability of Couette flow with power-law fluid

Couette flow is the flow between two parallel plates induced by one of the plates moving with velocity u_w. Within this project, we are searching for the critical wall velocity at which the laminar solution looses its stability. There will be two groups of students working on this problem, one using Galerkin technique, the other using collocation. The ultimate aim is to find the critical wall velocity, i.e. the onset of turbulence.

	Name	Neptun code	email
Galerkin student 1			
Galerkin student 2			
Collocation student 1			
Collocation student 2			

3   Linear stability of Poiseuille flow with power-law fluid

Poiseuille flow is the flow between two parallel plates induced by a pressure gradient applied at the two ends of the channel. Within this project, we are searching for the critical Reynolds number at which the laminar solution looses its stability. There will be two groups of students working on this problem, one using Galerkin technique, the other using collocation. The ultimate aim is to find the critical Reynolds number, i.e. the onset of turbulence.

	Name	Neptun code	email
Galerkin student 1			
Galerkin student 2			
Collocation student 1			
Collocation student 2			