

Lecture Series Programme 2017-2018



- INTRODUCTION TO MEASUREMENT TECHNIQUES
OCTOBER 9-13, 2017
- INTRODUCTION TO STABILITY AND TRANSITION ANALYSIS METHODS - SSEMID
OCTOBER 23-25, 2017
- INTRODUCTION TO GROUND TESTING FACILITIES
NOVEMBER 6-8, 2017
- INTRODUCTION TO COMPUTATIONAL FLUID DYNAMICS
JANUARY 22-26, 2018
- RADIAL COMPRESSOR DESIGN AND OPTIMIZATION
JANUARY 29 - FEBRUARY 2, 2018
- SHALLOW FLOWS
MAY 7-9, 2018
- LARGE EDDY SIMULATION AND RELATED TECHNIQUES
MAY 14-17, 2018
- UNCERTAINTY QUANTIFICATION IN COMPUTATIONAL FLUID DYNAMICS
MAY 28 - JUNE 1, 2018
- MULTISCALE MULTIPHASE FLOWS
JUNE 4-8, 2018
- BIOMASS PYROLYSIS: FROM FUNDAMENTAL PROCESS MODELING TO INDUSTRIAL BIOREFINERY APPLICATION
PYROLYSIS
SEPTEMBER 17-21, 2018
- INTRODUCTION TO OPTIMIZATION AND MULTIDISCIPLINARY DESIGN
SEPTEMBER 10-14, 2018

von Karman Institute for Fluid Dynamics



VKI is a non-profit international educational and scientific organisation, hosting three departments (aeronautics and aerospace, environmental and applied fluid dynamics, and turbomachinery & propulsion). It provides postgraduate education in fluid dynamics (Research Master master-after-master level, Doctoral Programme, Short Training Programme and Lecture Series) and encourages "training in research through research".

The von Karman Institute undertakes and promotes research in the field of fluid dynamics. It possesses around fifty different wind tunnels, turbomachinery and other specialized test facilities, some of which are unique or the largest in the world. Extensive research on experimental, computational and theoretical aspects of gas and liquid flows is carried out at the VKI under the direction of the faculty and research engineers, sponsored mainly by governmental and international agencies as well as industry.

The von Karman Institute organizes each year 8 to 12 one-week Lecture Series on specialized topics in the field of aerodynamics, fluid mechanics and heat transfer with application to aeronautics, space, turbomachinery, the environment and industrial fluid dynamics.

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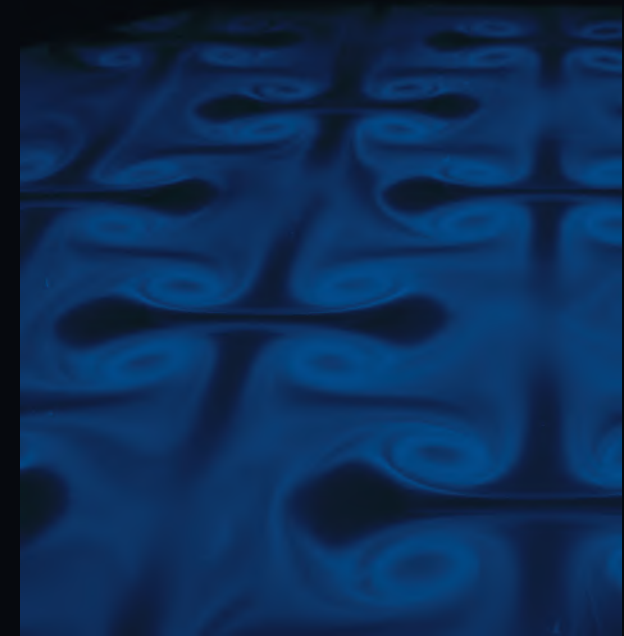
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von KARMAN INSTITUTE
FOR FLUID DYNAMICS

Lecture Series on Shallow Flows

May 7-9, 2018



Laboratory experiments on vortices in a shallow fluid layer
Courtesy Andrzej Cieslik

Co-organized by the von Karman Institute and
J.M. Burgerscentrum



Lecture Series 17-18

Introduction

Many flows in environmental and in industrial situations can be characterised as 'shallow', with the horizontal scales being essentially larger than the vertical size of the flow domain. Examples are flows in rivers, estuaries, the coastal region, harbours, fresh water reservoirs, but also in settling chambers for water treatment. Shallowness implies a rather specific flow dynamics.

The purpose of this Lecture Series is to offer an overview of various aspects of shallow flows: fundamental as well as applied aspects, and numerical modelling as well as laboratory studies and field observations. Topics that will be addressed in the Lecture Series are, for example, laboratory and numerical studies of fundamental physical processes and transport mechanisms in shallow mixing layers, wakes, jets, and open channels. Also, transport of heat, solutes, and pollutants in canonical shallow flows and generic flow configurations will be discussed. Other topics are: interaction with vegetation, sediment transport and morphodynamics, which are relevant features of environmental shallow flows, such as occurring in the coastal area, estuaries, harbours and in rivers.

The course will be delivered by a number of internationally recognized experts. The aim of this course is to give a wide overview of various aspects of shallow flows. No specific prior knowledge of geophysical or environmental fluid dynamics is required, although it is assumed that the participants have a general background in fluid dynamics.

The Lecture Series Director is Professor GertJan van Heijst from TU Eindhoven and the local coordinator is Professor Jeroen van Beeck from the von Karman Institute for Fluid Dynamics.

Schedule

Monday 7 May 2018

- 8:30 Welcome
- 9:00 Lab experiments on shallow flows / tidal exchange flows
Professor GertJan van Heijst, TU Eindhoven, The Netherlands
- 10:30 Coffee break
- 11:00 Scaling of shallow flows / sediment transport
Assistant Professor Matias Duran Matute, TU Eindhoven, The Netherlands
- 12:30 Lunch
- 14:00 Transport and mixing processes in rivers
Professor Wim Uijtewaal, TU Eindhoven, The Netherlands
- 15:15 Coffee break
- 15:45 Transport and mixing processes in rivers (Continued)
Professor Wim Uijtewaal
- 17:00 Reception

Tuesday 8 May 2018

- 09:00 Tidal transport
Dr. Theo Gerkema, NIOZ, The Netherlands
- 10:30 Coffee break
- 11:00 Stability analysis of shallow flows
Professor Scott Socolofsky, Texas A&M, USA
- 12:30 Lunch and poster session
- 14:00 Tidal jet vortices and inlet mixing
Professor Scott Socolofsky
- 15:15 Coffee break
- 15:45 Geomorphodynamics of coastal and inland seas
Professor Huib de Swart, Universiteit Utrecht, The Netherlands

Wednesday 9 May 2018

- 09:00 Geomorphodynamics of coastal and inland seas (Continued)
Professor Huib de Swart
- 10:30 Coffee break
- 11:00 Interaction with vegetation
Professor Heidi Nepf, MIT, USA
- 12:30 Lunch
- 14:00 Interaction with vegetation (Continued)
Professor Heidi Nepf
- 15:15 End of the Lecture Series

Online Registration <https://www.vki.ac.be>

It is highly recommended to register at the latest 15 days before the beginning of the course. A letter of acceptance and additional information will be sent on receipt of the application form. 50% of reduction as from the 3rd participant from the same company.

Early Registration Fee (until 7 March 2018)

VAT included	Type 1*	Type 2*	Type 3*
Normal	705 €	925 €	1005 €
Phd	355 €	355 €	355 €
Undergraduate	160 €	160 €	160 €

Late Registration Fee

VAT included	Type 1*	Type 2*	Type 3*
Normal	1010 €	1320 €	1440 €
Phd	505 €	505 €	505 €
Undergraduate	225 €	225 €	225 €

Special condition for JMBC PhD students and postdocs only

The registration fee and the accommodation costs will be reimbursed by the J.M. Burgerscentrum under the usual conditions. To apply for this special condition, please select the option "Officially registered JMBC PhD students and JMBC postdocs".

- *Type 1: Permanent residents of NATO countries funding VKI: Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Hungary, Iceland, Italy, Luxemburg, Norway, Portugal, Romania and Turkey
- *Type 2: Permanent residents of NATO countries not funding VKI or NATO partner countries
- *Type 3: Permanent residents of non -NATO countries

For PhD candidate, the request to be considered for an award must accompany the application to attend the Lecture Series, and the applicant must provide a recommendation letter from his or her professor. (not applicable for JMBC PhD students and postdocs).