



## A short introduction

### Assist. prof. Igor Dejanović

Department of Reaction Engineering and Catalysis  
Faculty of Chemical Engineering and Technology (FCET-FKIT)  
University of Zagreb, Croatia

Tel. +385-1-4597-133

E-mail: [ideja@fkit.hr](mailto:ideja@fkit.hr)



### Education

- 2010** PhD at FCET: Development of a method for dividing-wall columns design  
Supervisors: Ljubica Matijašević, (FCET) and Žarko Olujić (TU Delft) (2010).
- 2003** M.Sc. Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia.

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## Faculty of Chemical Engineering and technology (FCET) – University of Zagreb

### How we have started...

- Founded in 1919, Faculty of Chemical Engineering and Technology has a long tradition in science and education
- Great impact on development of modern chemical industry in Croatia and neighboring countries
- First teachers and inventors

**Franjo Hanaman (1878–1941)**  
Professor of inorganic chemistry;  
An inventor of tungsten filament  
for electric bulb.



**Vladimir Prelog (1906–1998)**  
Professor of organic chemistry;  
Nobel Prize laureate in 1975  
(as a professor at ETH, Zürich).



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## Faculty of Chemical Engineering and technology (FCET) – University of Zagreb

### ...where are we today

Leading faculty of chemical engineering in Croatia (approx. 200 employees)

- Education – approx. 1100 students
- UniZg – approx. 65000 students !



**50+**

International projects  
(H2020, FP7, FP6, UKF, EUREKA, bilateral projects)

**100+**

National projects  
(HRZZ, MZO, HAMAG-BICRO)

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## Regional Location

- Population
  - Croatia: 4.3 mil.
  - Zagreb: 970.000
- Flights from almost all EU capitals
- Closest big cities:
  - München: 548 km to North
  - Venezia: 382 km to West
  - Wien: 375 km to North
- FCET is in a center of Zagreb, capital of Croatia



FCET

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## Programmes at FCET

### Undergraduate and graduate studies

- Chemical Engineering
- Applied Chemistry
- Chemical Engineering of Materials
- Environmental Engineering
- *Chemical and Environmental Technology (ENG with UniST)*



### Postgraduate Ph.D. studies

- Chemical Engineering & Applied Chemistry (ENG)

### Postgraduate specialist studies:

- Environmental Engineering
- Corrosion and Protection
- Oil and Petrochemical Engineering

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## Research activities

### Active research interests:

- Methods of conceptual and detailed design of multiple-product dividing wall columns (mainly for aromatics and NGL separation).
- Modelling and optimization of chemical processes.

### 2 PhD Students:

1. *Modeling and optimization of the continuous catalytic reforming process of gasoline in order to increase hydrogen production and decrease energy demand* (co-supervisor Assist. prof. Mirko Stijepović from University of Belgrade, Serbia)
2. *Synthesis of control systems for four-product dividing wall columns.*

Tools we have and use: CHEMCAD, Aspen Plus, HYSYS, MATLAB, GAMS, SuperTarget.

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## DWC design method development

### Informal collaboration between institutions/people (2009 on)

*I. Halvorsen*, **SINTEF** (Norway)  
*S. Skogestad*, **NTNU** (Norway)

**Identification and evaluation of feasible configurations (V-min diagram method)**

*I. Dejanović*, **Univ. of Zagreb** (Croatia)

**Detailed simulation and estimation of stage and reflux requirements**

*Ž. Olujić*, **retired, formerly TU Delft** (Netherlands)

**Choice of equipment and dimensioning of packed DWCs**

*H. Jansen*, **J. Montz** (Germany)  
*B. Kaibel* (Presently with BASF SE)

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## Selected collaborations with industrial partners

Year	Contractor	Description
2019	Siemens d.d.	Pre-commissioning and commissioning of the amine unit in the Merox plant of INA d.d. Rijeka Petroleum Refinery.
2018	Naftalan, special hospital for medicinal rehabilitation	Conceptual design and profitability analysis of a semi-batch naphtalane oil production plant.
2016	Pliva d.d.	Troubleshooting the fouling problem of a vertical thermosyphon reboiler IG-812 in an acetone regeneration column (GMP).
2014-2017	Pliva d.d.	Various solvents regeneration experimental and feasibility studies.
2013	Statoil Petroleum (now Equinor)	Co-author of „Dividing wall columns for NGL fractionation-a feasibility study for a floating LNG production case“. (Principal author: Ivar Halvorsen, SINTEF).
2007 – 2010	Petrokemija d.d., Kutina	Collaborator on basic and detailed design project (including plant commissioning and test run) „Absorption of the NPK reactor flue gasses“ for Petrokemija d.d. fertilizer plant Kutina, Croatia.

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