



DYCOPS 2010

Leuven, 5-7 July 2010



9th International Symposium on Dynamics and Control of Process Systems

July 5-7, 2010
Leuven, Belgium

Book of Abstracts

Mayuresh Kothare
Moses Tade
Alain Vande Wouwer
Ilse Smets
(Eds.)

The 9th International Symposium on Dynamics and Control of Process Systems is sponsored by



Book of Abstracts of
the 9th International Symposium on
Dynamics and Control of Process Systems

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DYCOPS 2010

Leuven, 5-7 July 2010



Dear colleague,

Welcome to DYCOPS 2010, the 9th International Symposium on Dynamics and Control of Process Systems, being held in Leuven (Belgium), July 5-7, 2010.

Similar to the previous editions, the ninth edition of DYCOPS, to which we commonly referred as DYCOPS 2010 in our communications, gathers scientists and engineers from universities, R&D laboratories, vendor companies and the process industries to focus attention on new methodologies and challenging applications within Process Systems Engineering.

Given that, within this field, there is a clear trend towards biochemical and biomedical applications, DYCOPS 2010 is held back-to-back with CAB 2010, the 11th International Symposium on Computer Applications in Biotechnology (Leuven, July 7-9, 2010), with one full day in common (July 7). The organizers are convinced this will further facilitate cross-disciplinary research.

We hope we have been able to put together an attractive programme, that will inspire you both on a scientific and a socio-cultural level. Leuven, Mons, Brussels ... they are yours to enjoy!

Alain Vande Wouwer
Ilse Smets
Mayuresh Kothare
Moses Tade

What can be found in this Book of Abstracts?

After some practical information with respect to the conference facilities, some background information on the conference and its organizing committees is provided.

Thereafter, a *Site Map* which provides a schematic overview of where to find which lecture room precedes the *Program at a glance* and the *List of Abstracts* in order of appearance during the conference. Finally, an *Author Index* and *Keyword Index* further facilitate the quick retrieval of a certain abstract.

Conference Venue

DYCOPS 2010 is taking place in the De Valk College (building *Oude Valk*) of the K.U.Leuven, situated in the Tiensestraat 41. All meeting rooms in the building have been selected for their wheel chair accessibility.

Registration & Information

The registration desk will be located in the hall of the *Oude Valk* College and will be staffed throughout the whole conference. Registration is also possible during the welcome reception (see below) on Sunday, July 4, from 6 to 8 PM in 'De Hallen', Naamsestraat 22. A message and announcement board will be set up near the registration desk.

Instructions for oral contributions

For a *regular* oral contribution in the parallel sessions, the available time slot is 20 minutes. A *keynote lecture* (i.e., a semi-plenary talk) is granted 30 minutes. Please leave a few minutes of this period for discussion and room changes and adhere strictly to the indicated schedule. In each room, a projector and a laptop will be available. If you do want to make use of your own laptop, get it up and running before the start of your lecture. Inform the chair of your session as soon as possible of your presence and/or arrive in the lecture room at the latest 5 minutes before the session starts.

Instructions for poster contributions

The poster session is interactive in the sense that the presenters are asked to prepare a *flash presentation* of the poster (i.e., a 3 minutes presentation with or without slides) during which they can *advertize* their subject in order to attract the audience to come and take a look at the poster during the poster session that follows the flash presentations. The posters themselves can be brought in your preferred format, but not exceeding A0 and always with the longest side in the vertical direction. The posters can be attached to the foreseen poster boards in

the morning of the scheduled poster session. Poster holders and/or double sided tape will be provided.

Instructions for session chairs

The conference has a very tight schedule, and success of the conference crucially depends on you, the session chairs. We would be very grateful if you could keep the schedule and remind the speakers after 15 minutes that the next talk will start in 5 minutes. Please make sure, well ahead of your session, that all speakers of your session will be present and will arrive 5 minutes before the session starts.

Electricity

Electrical current in Belgium is 230 V / 50 Hz. An electrical adaptor will be needed for overseas visitors to plug their laptop.

(Wireless) Internet Access

All conference attendants can ask at the registration desk for an individual password and instructions on how to use the K.U.Leuven *campusnet* giving WLAN access within most K.U.Leuven buildings. People using *eduroam* can access internet using their password from their home university. WIFI is available in and around the Zeger Van Hee auditorium and Room A, i.e., the Ground Floor 91.54 auditorium.

Technical Committee and Editorial Board meetings

All members of the IFAC Chemical Process Control Technical Committee (TC) are warmly invited to attend the meeting for this specific TC, on Tuesday, July 6 starting at 12:00 PM in Room DV3 01.32 (*Nieuwe Valk*) and the joint meeting with the Biosystems and Bioprocesses TC on Wednesday, July 7 starting at 12:30 PM in Room A (*Oude Valk*).

All members of the Editorial Board of the Journal of Process Control are invited to join the meeting of the board on Monday, July 5, starting at 12:30 PM in Room DV3 01.32 (*Nieuwe Valk*).

Welcome reception at 'De Hallen'

On Sunday, July 4, from 6 PM to 8 PM we welcome all DYCOPS 2010 participants (accompanying persons can join for free!) to Belgium by offering a reception during which, amongst other drinks and food, a selection of the finest Belgian Beers can be tasted. Place to be is the University Halls called "De Hallen" in the Naamsestraat 22, Leuven.

Farewell reception at the City Hall

The welcome-farewell reception for the CAB 2010 and DYCOPS 2010 participants, respectively, will take place in the City Hall of Leuven on Wednesday, July 7 from 7 PM to 9 PM. Accompanying persons can join after purchasing a ticket (15 euro) at the registration desk.

Sight-seeing Tour and Conference Banquet

On Tuesday, July 6, a sightseeing tour of “Grand Hornu”, in the region of Mons, will take place from 5 to 7 PM (bus departure at 4 PM). Grand-Hornu is an old industrial mining complex - a remarkable reminder of the Industrial Revolution. Built between 1810 and 1830 by Henri De Gorge, it is a real urban project, an example of functional town-planning unique on the European continent at the start of the great era of industrialization. Built in the Neo-classical style, Grand-Hornu consists of workshops, offices, a workers' estate and the administrators' residence, known as "De Gorge Castle". With their arcades, pediments and half-moon windows, the colliery workshops and offices form a majestic ensemble.

Following the sightseeing tour, the DYCOPS banquet will take place in “Le Pass”, a museum dedicated to science, technology and society, built on the site of a former colliery in the Borinage area of the Hainaut region, in Wallonia. The banquet is organized in “The silo”.

Accompanying persons can join after purchasing a ticket (75 euro) at the registration desk.

The DYCOPS Conference Series

The DYCOPS Symposia bring together scientists and engineers from universities, R&D laboratories, vendor companies and the process industries to focus attention on new methodologies and challenging applications within Process Systems Engineering in the light of industrial contexts and trends. Contributions aiming at reducing the gap between theory and practice are encouraged.

Organized under the auspices of the International Federation of Automatic Control (IFAC), the DYCOPS Symposia are a continuing series of international conferences, initiated in 1986 under the name DYCORD (Dynamics and Control of Chemical Reactors, Distillation Columns and Batch Processes), and renamed in 1998 at the occasion of its 5th edition in Corfu (Greece):

- 1st DYCORD, Bournemouth, UK, 1986
- 2nd DYCORD, Maastricht, The Netherlands, July 1989
- 3rd DYCORD, Washington, USA, June 1992
- 4th IFAC Symposium DYCORD+95, Helsingør, Denmark, 1995
- IFAC DYCOPS-5, Corfu, Greece, July 1998
- IFAC DYCOPS-6, Jeju Island, Korea, June 2001
- IFAC DYCOPS-7, Boston, USA, July 2004
- IFAC DYCOPS-8, Cancun, Mexico, June 2007

These meetings focus on advances in methods for control and modeling for all types of (bio)chemical processes and are part of a three-year rotation of IFAC meetings in process control, which also include the IFAC ADCHEM series.

The Symposium topics have evolved and include nowadays:

- Micro and nanotechnology
- Sustainable Development and Biofuels
- Petrochemical Processes
- Separation Processes
- Batch Processes
- Instrumentation and Soft Sensing
- Modeling and identification of Biochemical Processes
- Robust Control of Biochemical Processes
- MPC of Biochemical Processes
- Population Modeling
- Control of Ecological Systems
- Systems Biology

In 2010, the DYCOPS symposium is organized in coordination with the CAB 2010 (Computer Applications in Biotechnology) IFAC symposium, that will be held also in Leuven, on July 7-9, in the same facilities.

The idea is to enable interaction between the chemical and biotechnology process systems engineering communities.

National Organizing Committee

The 2010 edition of DYCOPS is a joint organization of 4 universities, i.e., the University of Mons, the Katholieke Universiteit Leuven, the Université Libre de Bruxelles and the Université Catholique de Louvain.



NOC Chairs:

- Alain Vande Wouwer (UMons)
- Ilse Smets (K.U.Leuven)

NOC Members:

- Denis Dochain (UCL)
- Filip Logist (K.U.Leuven)
- Joseph Winkin (FUNDP)

International Program Committee

IPC Chair:

- Mayuresh Kothare (US)

IPC Vice-Chair:

- Moses Tade (AU)

IPC Vice-Chair from industry:

- Olivier Ludemann (Lonza, BE)

IPC Program Area Co-Chairs:

Energy systems engineering : H. Budman (CA)

Biological and biomedical systems : R. Parker (US)

Batch processes : D. Bonvin (CH)

Advances in model-based control : S. Patwardhan (IN)

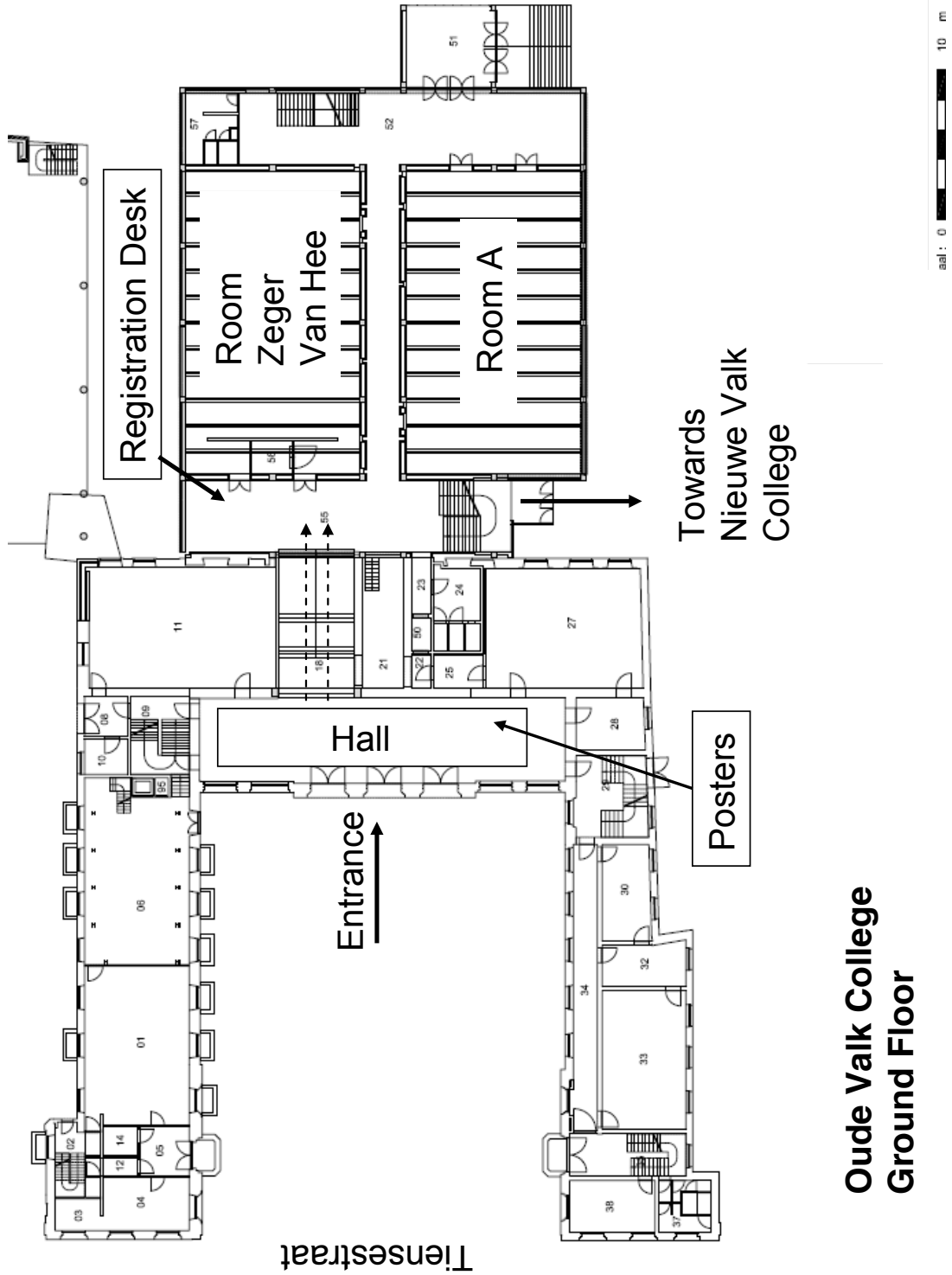
Industrial applications : F. Gao (HK)

State estimation and process monitoring: Mazen Alamir (FR)

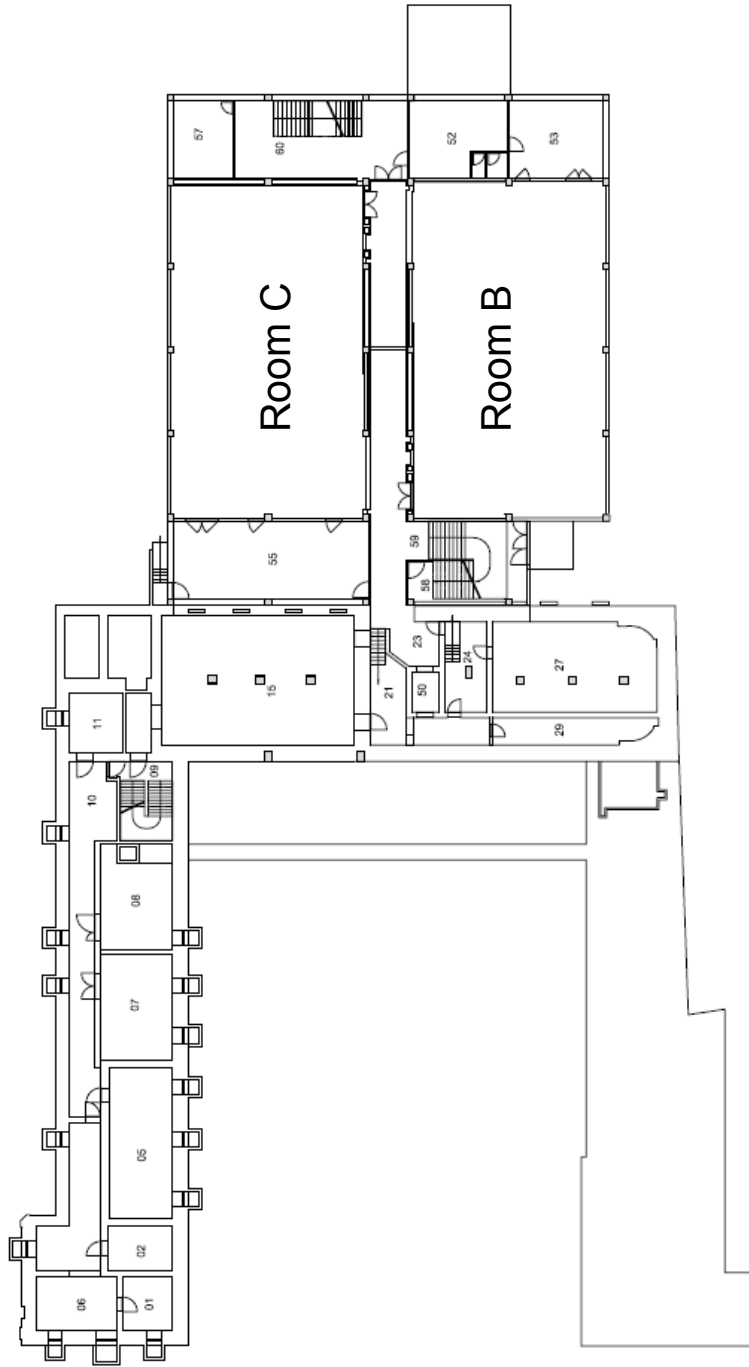
IPC members:

Ray Adomaitis (US)	Martha Grover (US)
Frank Allgoewer (DE)	Martin Guay (CA)
Jesus Alvarez (MX)	Chonghun Han (KR)
Mohd Azlan (MY)	Manabu Kano (JP)
Philippe Bogaerts (BE)	Jeff Kantor (US)
Richard Braatz (US)	N. Kazantzis (US)
Yi Cao (UK)	Wolfgang Marquardt (DE)
Bingzhen Chen (CN)	Zoltan Nagy (UK)
Leo Chiang (US)	Michel Perrier (CA)
Panagiotis Christofides (US)	Joe Qin (US)
Jean-Pierre Corriou (FR)	G.P. Rangaiah (SG)
Ian Craig (ZA)	John Richards (US)
Cesar de Prada (SP)	Yudi Samyudia (MY)
Frank Doyle (US)	Argimiro Secchi (BR)
Tom Edgar (US)	Sigurd Skogestad (NO)
Sebastian Engell (DE)	Jan Van Impe (BE)
Bjarne Foss (NO)	Brent Young (NZ)

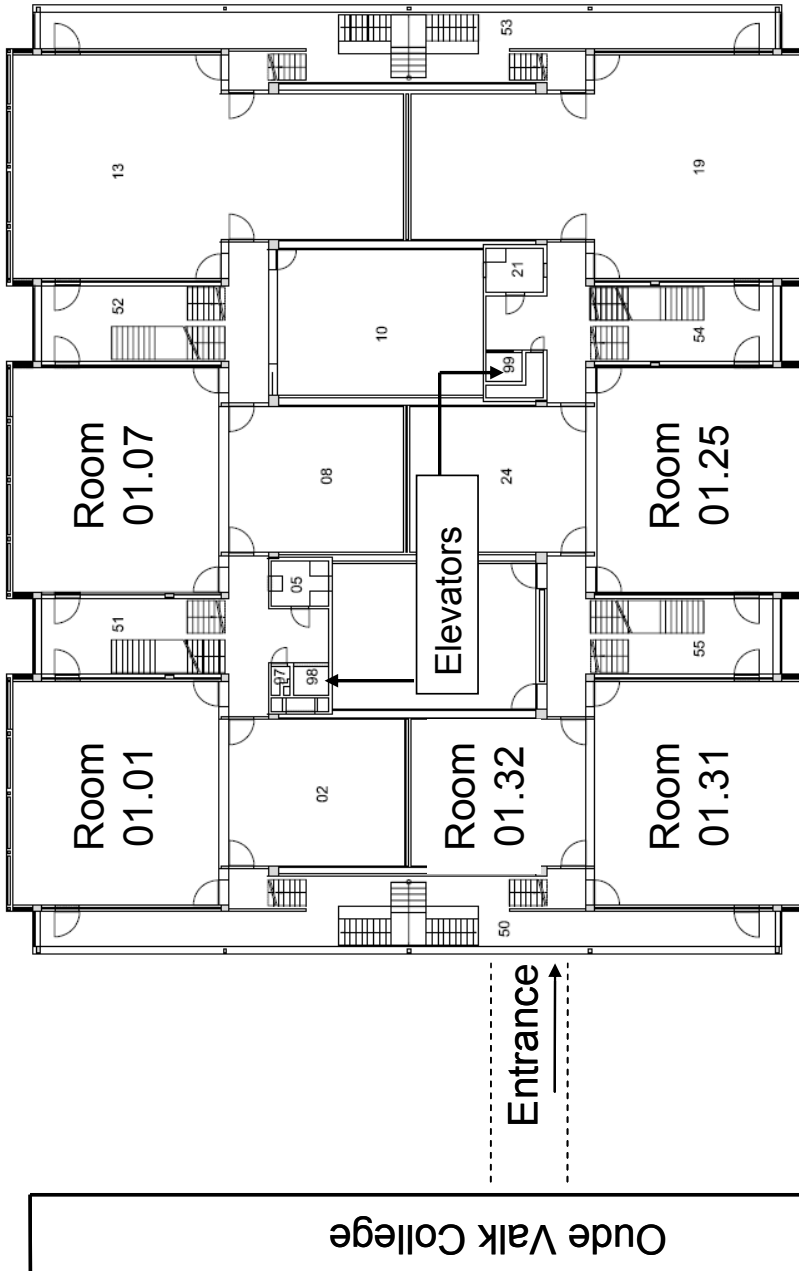
Site Map



**Oude Valk College
Ground Floor**



**Oude Valk College
First Floor**



**Nieuwe Valk College
First Floor**

Schaal : 0 6.25 m

Oude Valk College