

## Newsletter n°4 of the IFAC TC 2.6 on Distributed Parameter Systems

The aim of this technical committee is to foster developments of both theoretical approaches and emerging applications in the field of **Distributed Parameter Systems (DPS)** i.e. infinite dimensional systems described by partial differential equations (PDEs) or delays. The positioning of this Technical Committee is clearly at a control system theory level and aims at addressing various topics such as: modelling, analysis, estimation, simulation, observation, and control, taking all the specificities of the infinite dimension into account.

Feel free to send us your updates, announcements, job-offers etc., and we shall include them in future newsletters.

### TC 2.6 Workshop – CPDE 2022 and summer-school, Kiel, Germany

The IFAC-IEEE CSS Workshop on Control of systems governed by Partial Differential Equations (CPDE) and the associated summer school are the major events (occurring every 3 years) of our TC. The fourth edition (after the ones in Paris, France (2013), Bertinoro, Italy (2016), Oaxaca, Mexico (2019)) has been organized in Kiel, Germany from September 4 to 9. The workshop and the summer-school addressed new and state-of-the-art developments in modeling and control of distributed parameter systems and their applications. The summer school was on Control, Numerics and Machine learning. The 41 talks (among which 5 plenary talks) given during the workshop, organized in a single track, where very inspiring and led to fruitful discussions.

A call will be sent for the organization of the 5th edition in 2025. This topic will be discussed during the next TC Meeting in Cancun during the CDC.

#### 4th IFAC/IEEE-CSS Workshop on Control of Systems Governed by Partial Differential Equations CPDE22, Sept 5-7, Kiel Germany, [www.cpde2022.org](http://www.cpde2022.org)

##### Organising committee

IPC co-Chairs : **Yann Le Gorrec**, FEMTO-ST, UBFC France, **Wei He**, USTB, Beijing, China.

NOC co-Chairs : **Thomas Meurer**, **Alexander Schaum**, Kiel University, Germany.

##### Plenary speakers



**Birgit Jacob** is a Full Professor in analysis at the University of Wuppertal, Germany.



**Igor Mezic** is a Distinguished Professor at the University of California, Santa Barbara, USA.



**Lassi Paunonen** is an Associate Professor in mathematics and the leader of the Systems Theory Research Group at Tampere University, Tampere, Finland.



**Christophe Prieur** is a senior researcher of the CNRS (since 2011) at Gipsa-lab, Grenoble, France.



**Weiwei Hu** is currently an Associate Professor in the Department of Mathematics at the University of Georgia, USA.

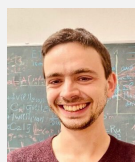
#### Summer-school: A Practical Introduction to Control, Numerics and Machine Learning

September 4 to 6, 2022, Kiel Germany. <https://cpde2022.org/summer-school/>

##### Lecturers



**Enrique Zuazua** holds a Chair of Dynamics, Control and Numerics – Alexander von Humboldt Professorship at FAU- Friedrich-Alexander University, Erlangen-Nürnberg (Germany).



**Daniël Veldman** is working as a postdoctoral researcher at the Chair for Dynamics, Control, and Numerics at the Department of Data Science at the Friedrich-Alexander Universität Erlangen-Nuremberg (FAU).

## TC 2.6 Workshop – TC Award ceremony

During the workshop a new TC award for outstanding contributions to the field was issued. The award is named after Ruth F. Curtain (16 July 1941 – 18 March 2018) who was an Australian mathematician that worked for many years in the Netherlands as a professor of mathematics at the University of Groningen. Her research concerned infinite-dimensional linear systems for which she made outstanding contributions during her career.

The first winner of this award was decided by a scientific committee presided by Hans Zwart from the University of Twente and the awarded was **Miroslav Krstić** for his outstanding contributions to the control of partial differential equations.



INTERNATIONAL FEDERATION  
OF AUTOMATIC CONTROL

The IFAC TC 2.6 Award on Control of  
Distributed Parameter Systems in memory to  
Ruth Curtain<sup>1</sup>.

is presented to:

**Miroslav Krstic**

*for outstanding contributions to the field  
of control of distributed parameter  
systems.*

at the 4th IFAC Workshop on Control of  
Systems Governed by Partial Differential  
Equations (CPDE 2022), Kiel, Germany, 7-9  
September 2022

**Presented by**  
Prof. Dr. Y. Le Gorrec, Chair of the IFAC TC 2.6  
on DPS, IPC Co Chair of CPDE 2022.  
Prof. Dr. H. Zwart, Chair of the TC Award  
Committee 2022.

**Selection committee**  
Prof. Dr. Jean-Michel Coron,  
Prof. Dr. Bao-Zhu Guo,  
Prof. Dr. Ralph Smith and  
Prof. Dr. Hans Zwart (chair).

<sup>1</sup>Ruth F. Curtain

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mathematician who  
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dimensional linear  
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**Miroslav Krstić** is a Serbian-born American control theorist and Distinguished Professor of Mechanical and Aerospace Engineering at the University of California, San Diego (UCSD). He is also the director of the Center for Control Systems and Dynamics at UCSD and a Senior Associate Vice Chancellor for Research.

Besides the very high quality presentations and scientific discussions, there were also time for camaraderie, laughs and a great conference dinner!



## Focus on MTNS 2022 Bayreuth, Germany

MTNS is a major symposium in the general area of mathematical systems theory, networks and control in which many of the TC members are actively involved. The symposium is interdisciplinary and attracts mathematicians, engineers and researchers working in all aspects of systems and control theory and its applications. The symposium is held every two years. Mathematical methods which play a role in the areas mentioned above stem from a broad range of fields of pure and applied mathematics, including ordinary and partial differential equations, real and complex analysis, numerical analysis, optimization, probability theory and stochastic analysis, operator theory, linear and commutative algebra as well as algebraic and differential geometry. Application areas range from biology, communications and mathematical finance to problems in electrical, mechanical, aerospace and chemical engineering, and robotics.

**25th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2022): 12-16 September 2022, Bayreuth, Germany.**  
<https://www.mtns2022.uni-bayreuth.de/>

### Organising committee

General Chair: Lars Grüne University of Bayreuth. Programme Co-Chairs: Birgit Jacob University of Wuppertal and Karl Worthmann Technische Universität Ilmenau

### Local Organisation Committee:

Robert Baier, Michael Baumann, Arthur Fleig, Lars Grüne, Sigrid Kinder, Lisa Krügel, Mario Sperl, and Alfred Wassermann

In the current edition there were several plenary and semi plenary talks, as well as invited sessions and mini courses concerned with control of partial differential equations (PDEs). Specifically there were 9 sessions related with modeling, control and structure preserving discretization of systems described by PDEs. There were also two mini-courses on the subject.

## SIAM award



**Enrique Zuazua**, will be awarded as **2022 W.T. and Idalia Reid Prize** for fundamental theoretical and computational contributions to the Control, Numerics and Analysis of nonlinear PDEs and multi-physical systems with impactful scientific and industrial applications.

**SIAM W.T. and Idalia Reid Prize** : Established by Idalia Reid in honor of her husband W. T. Reid and first awarded in 1994, the W. T. and Idalia Reid Prize in Mathematics is awarded annually in the broadly-defined areas of differential equations and control theory.

## Ongoing virtual seminars

- The online seminar **Control in Times of Crisis**. This scientific activity is a continuation of the seminar Control en Tiempos de Crisis, this time addressing the international community interested in mathematical problems dealing with control of differential equations, inverse problems and related subjects. The seminar take place on Thursday at 17:00 H Central European Time (UTC+2), in the platform Zoom, and alternates talks of senior and junior researchers.  
<http://ctcseminar.mat.utfsm.cl/>
- The **CCA seminars** are organized in the context of the Chair in Applied Analysis – Alexander von Humboldt Professorship led by Enrique Zuazua at FAU Erlangen-Nürnberg. <https://caa-avh.nat.fau.eu/upcoming-events/>

## Upcoming events

- IEEE Conference on Decision and Control, 6-9 December, Cancun, Mexico.
- IFAC Symposium on Nonlinear Control Systems - 12th NOLCOS 2022™, 4-6 January 2023 Canberra, Australia,.
- American Control Conference, May 31 - June 2, 2023, San Diego, CA, USA
- 22<sup>nd</sup> IFAC World Congress, 9-13 July 2023, Yokohama, Japan

## IFAC world congress invited open track (code 2s8sb)

**Recent trends in modeling, simulation and control of Distributed Parameter Systems**  
organized by Y. Le Gorrec and H. Ramirez

<https://www.ifac2023.org/submission/open-invited-track-list/#Recent%20trends%20in%20modeling,%20simulation%20and%20control%20of%20Distributed%20Parameter%20Systems>

We encourage you to submit your contribution within this invited open track using the code 2s8sb!