

Mathematical Modelling and Numerical Simulation in Medicine

CIMPA School

June 4 - 16, 2023 - Havana, Cuba

Sunday, June 4th

19:00 Welcome reception

Monday, June 5th

09:30-11:00: J.C. de los Reyes: Sparse Optimization I

11:00-11:30: *Coffee break*

11:30-12:15: J.C. de los Reyes: Sparse Optimization II

12:15-14:00: *lunch break*

14:00-15:30: G. Bouza Allende: Bilevel Optimization in medical problems I

15:30-16:00: *Coffee break*

16:00-16:45: J.C. de los Reyes: Sparse Optimization III

Tuesday, June 6th

09:30-11:00: J.A. Mesejo-Chiong: Diffusion based methods in medical image processing I

11:00-11:30: *Coffee break*

11:30-12:15: A.M. León-Mecías: Diffusion based methods in medical image processing II

12:15-14:00: *lunch break*

14:00-15:30: G. Bouza Allende: Bilevel Optimization in medical problems II

15:30-16:00: *Coffee break*

16:00-16:45: G. Bouza Allende: Bilevel Optimization in medical problems III

Wednesday, June 7th

09:30-11:00: A.M. León-Mecías: Diffusion based methods in medical image processing III

11:00-11:30: *Coffee break*

11:30-12:15: J.A. Mesejo-Chiong: Diffusion based methods in medical image processing; exercise session

12:15-13:15: *guided tour of the University*

13:15-14:00: *lunch break / free afternoon*

Thursday, June 8th

09:30-11:00: J.C. de los Reyes: Sparse Optimization, exercise session

11:00-11:30: *Coffee break*

11:30-12:15: *Presentations of participants*

12:15-14:00: *lunch break*

14:00-15:30: C. Tammer: Multiobjective Optimization I

15:30-16:00: *Coffee break*

16:00-16:45: G. Bouza Allende: Bilevel Optimization in medical problems, exercise session

Friday, June 9th

09:30-11:00: S. Sauter: Composite Finite Elements I

11:00-11:30: *Coffee break*

11:30-12:15: C. Tammer: Multiobjective Optimization II

12:15-14:00: *lunch break*

14:00-15:30: W. Hackbusch: Fast Techniques for EEG/MEG based Source Location in the Human Brain

15:30-16:00: *Coffee break*

16:00-16:45: S. Sauter: Composite Finite Elements II

Saturday, June 10th

Excursion

Monday, June 12th

09:30-11:00: O. Scherzer: Numerical Inversion I

11:00-11:30: *Coffee break*

11:30-12:15: O. Scherzer: Numerical Inversion II

12:15-14:00: *lunch break*

14:00-15:30: O. Scherzer: Numerical Inversion III

15:30-16:00: *Coffee break*

16:00-16:45: C. Tammer: Multiobjective Optimization, programming session

Tuesday, June 13th

09:30-11:00: *Presentations of participants*

11:00-11:30: *Coffee break*

11:30-12:15: Ch. Tammer: Part 3: Multiobjective Optimization, programming

12:15-14:00: *lunch break*

14:00-15:30: *Presentations of participants*

15:30-16:00: *Coffee break*

16:00-16:45: S. Sauter: Composite Finite Elements, exercise session

Wednesday, June 14th

09:30-11:00: W. Hackbusch: Multigrid Methods

11:00-11:30: *Coffee break*

11:30-12:15: D. Sinden: Examples and principles of mathematical modelling in medicine: microwave ablation

12:15-14:00: *lunch break*

14:00-16:45: *free afternoon*

Thursday, June 15th

09:30-11:00: W. Hackbusch: The Technique of Hierarchical Matrices

11:00-11:30: *Coffee break*

11:30-12:15: D. Sinden: Examples and principles of mathematical modelling in medicine: cryoablation treatments

12:15-14:00: *lunch break*

14:00-15:30: *Applications in Medicine, special session*

15:30-16:00: *Coffee break*

16:00-16:45: *Applications in Medicine, special session*

Friday, June 16th

09:30-10:15: D. Sinden: Examples and principles of mathematical modelling in medicine: ultrasound modelling

10:15-11:00: O. Scherzer: Numerical Inversion, exercise session

11:00-11:30: *Coffee break*

12:15-14:00: *lunch break*

14:00-15:30: S. Sauter: Composite Finite Elements III

15:30-16:00 *Closing ceremony*

WEEK 1	SU	Mo	Di	Mi	Do	Fr	Sa
9:30-11:00		JC	JMC	ALM	JC/Ex	STAS	
11:30-12:15		JC	ALM	JMC	Pp	CT	
12:15-13:15				tour			ex-
14-15:30		GB	GB	free	CT	WH	cur-
16-16:45		JC	GB	free	GB	STAS	sion
19:00h	wel rec						

WEEK 2	Mo	Di	Mi	Do	Fr
9:30-11:00	OS	Pp	WH	WH/Ex	DS/OS
11:30-12:15	OS	CT	DS	DS	
14-15:30	OS/Ex	Pp	free	Special Session	STAS
16-16:45	CT/Pro	STAS/Ex	free	Special Session	

The afternoon session on Thursday, 2nd week, includes the presentation of the IT'IS foundation on some applications of mathematical modelling in medicine. Further details on this afternoon session will follow.

Abbreviations:

GB: Gemayqzel Bouza Allende

JC: Juan Carlos De los Reyes

WH: Wolfgang Hackbusch

ALM: Angela M. León-Mecías

JMC: José A. Mesejo-Chiong

STAS: Stefan Sauter

OS: Otmar Scherzer (remote video sessions)

DS: David Sinden

CT: Christiane Tammer

Pro: Programming Exercises

Ex: Exercises

Appl: Medical application, talk, e.g., by IT'IS foundation, medical companies from Cuba, NGO: CubaMediSuiza

Pp: presentations participants

tour: guided tour of the University

wel.rec.: welcome reception