

International Workshop on Operator Theory and its Applications
An ICM Satellite Conference,

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Université Laval

It is a great pleasure to report on the recent IWOTA conference held in Québec City. The meeting was a remarkable scientific event, bringing together researchers from different parts of the world to exchange ideas, present recent developments, and discuss some of the most important and timely questions in operator theory and related areas of analysis. From the scientific point of view, the conference provided an exceptionally stimulating environment, with a rich program covering a broad range of topics and creating numerous opportunities for interaction and collaboration among participants. The quality and diversity of the mathematical presentations, together with the active participation of researchers at different stages of their careers, contributed greatly to the success of the meeting.

One of the particularly lively aspects of the conference was the discussion surrounding the use of artificial intelligence in mathematics. There was a very hot and engaging debate on the role of AI, and in particular on its potential impact on the solving of difficult problems in operator theory and related fields. Participants exchanged different perspectives on whether, and to what extent, AI can contribute to genuine mathematical discovery, assist researchers in solving highly nontrivial problems, or provide new approaches to questions that have traditionally required substantial human ingenuity. The discussion was especially timely given several major mathematical developments that were presented during the meeting.

Among the most notable scientific highlights was the discussion of the Crouzeix conjecture, which had been settled only shortly before the conference. Dr. Felix Schenninger presented his own proof of the conjecture during the meeting. This presentation generated considerable interest and discussion and was undoubtedly one of the high points of the conference. The fact that such a significant and very recent development could be discussed in detail, and from the perspective of a new proof presented directly by the researcher, added an exceptional dimension to the scientific program.

Another important highlight was the presentation by Thomas Ransford of his proof of the Sterle conjecture. This was followed by a new proof presented by William Verreault, a former student at Laval University who is currently pursuing his doctoral studies at the University of Toronto. The presentation of two different approaches to the same important problem provided an excellent illustration of the depth and vitality of current research in the field. It was particularly gratifying to see the participation of a young

researcher with strong ties to Laval University contributing new ideas to such an active area of research. The exchange generated by these presentations was representative of the broader spirit of the conference, where established researchers and younger mathematicians interacted closely and where new perspectives were welcomed and discussed openly.

Beyond the individual mathematical results, one of the most striking features of the meeting was the quality of the scientific interaction. The conference provided many occasions for participants to discuss problems informally, compare approaches, and develop new connections. The richness of the program and the breadth of the topics addressed allowed researchers working in different areas of operator theory and related fields to engage with one another and to discover common interests. Such interactions are among the most valuable outcomes of an international conference, since they often lead to new collaborations and research directions that cannot be anticipated when the program is initially prepared. As a matter of fact, several other important problems that had only recently been settled were also discussed during the meeting. Moreover, three additional open problems, in areas including signal processing, spectral geometry, and polynomial approximation, were successfully resolved during the conference.

The participants were also deeply impressed by the overall atmosphere of the meeting and by the rich culture and unique character of Québec City. The combination of a strong scientific program, a welcoming environment, and the distinctive setting of Québec City created an atmosphere that was particularly appreciated by the attendees. Numerous participants openly expressed their satisfaction with the conference and, in particular, with the exceptional quality of its organization. The organization was remarkably smooth and efficient, and the care devoted to the participants was repeatedly noticed and appreciated. The President of the Steering Committee himself remarked that we had tremendously raised the bar for future IWOTA meetings. This assessment is particularly meaningful because it reflects not only the organizers' own perception of the meeting but also the broader appreciation expressed by the participants and the leadership of the conference community.

Overall, the conference was an outstanding success, both scientifically and from the point of view of its organization. It succeeded in bringing together a vibrant international community, providing a forum for the presentation and discussion of important recent mathematical developments, and fostering meaningful interactions among researchers. The particularly timely discussions on AI, the presentation of new results concerning major conjectures, and the active participation of both established researchers and younger mathematicians made the meeting intellectually stimulating and forward-looking. At the same time, the exceptionally positive response from participants and the recognition from the Steering Committee of the high standard achieved in Québec City demonstrate that the conference made a lasting and very positive impression. We are grateful to all those who contributed to making this meeting such a memorable and successful scientific event.

Last but certainly not least, the organization of this event would not have been possible without the utmost dedication of my colleagues Ludovick Bouthat, Frederic Morneau-Guérin, Mostafa Nasri, and Marcu-Antone Orsoni. They deserve our deepest appreciation for their devotion, hard work, and unwavering commitment to making the conference a success.

Javad Mashreghi

On behalf of the organizers



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