14th International Conference on Automated Deduction in Geometry

Book of Abstracts

Pedro Quaresma & Zoltán Kovács

Belgrade, Serbia, 20–22 September 2023

Welcome Address

This is the *book of abstracts* of the 14th International Conference on Automated Deduction in Geometry (ADG 2023).

ADG is a forum to exchange ideas and views, to present research results and progress, and to demonstrate software tools at the intersection between geometry and automated deduction. The conference is held every two years. The previous editions of ADG were held in Hagenberg in 2021 (online, postponed from 2020 due to COVID-19), Nanning in 2018, Strasbourg in 2016, Coimbra in 2014, Edinburgh in 2012, Munich in 2010, Shanghai in 2008, Pontevedra in 2006, Gainesville in 2004, Hagenberg in 2002, Zurich in 2000, Beijing in 1998, and Toulouse in 1996.

This year ADG 2023 includes the workshop *Deduction in Education* on the 20th of September. In total there are, three Invited Talks, one Guest Lecture and 21 regular talks.

The 14th edition, ADG 2023, is held in Belgrade, Serbia, 20–22 of September, 2023.

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20 Sept
16:30
Hotel Palace

3D space trajectories and beyond: abstract art creation with 3D printing

Thierry Dana-Picard[1], Mathias Tejera[2] and Eva Ulbrich[2]

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We present simple models of trajectories in space, both in 2D and in 3D. The first examples, which model bicircular moves in the same direction, are classical curves (epicycloids, etc.). Then, we explore bicircular moves in reverse direction and tricircular moves. The exploration is followed by 3D printing. Students' activities are organized around this exploration.

Keywords: Space curves • models of orbits • Animations • 3D printing.

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20 Sept
17:00
Hotel Palace

Deduction in Education: the Case of Serbia

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The main goal of the paper is to provide insight into the current state of education in Serbia regarding the use of educational aspects of software related to deduction, geometry and mathematical reasoning. Authors investigate to what extent and for what purposes teachers and students use such software. The consideration of the current state is substantiated by the examples of teaching practices at different school levels, and supplemented by the proposals which tend to contribute to deeper understanding of the topic. The most commonly used automatic deduction and calculation programs in Serbian education are GeoGebra, Photomath, Microsoft Math Solver, Desmos, and Wolfram Alpha. These mathematical software represent an advantageous topic for cross-curricular connection in schools which could be realized in many different ways. It is suggested in the context of connecting mathematics and physics to art, history of science, national history of science, philosophy, logic and psychology.

Keywords: Cross-curricular Connection • GeoGebra • Education.
