CREATIVITY 2019, Rio, Dec 8-13

Mathematical Creativity

Workshop organized by Irina Starikova

The Higher School of Economics, Moscow, Russia

Creativity in mathematics may look paradoxical. Mathematics is a precise science with precise rules to follow. Where is the place for creativity in this castle of precision and rigor? What meaningful (philosophical) questions can we pose about mathematical creativity today? The workshop aims to bring together mathematicians, philosophers, IT and mathematical education specialists.

KEYNOTE SPEAKERS

Leo Corry University of Tel Aviv, Israel

"Creativity and the Limits of Poetic License: the Case of Mathematical Fiction"

Ioannis Vandoulakis, Open University, Greece

"Creativity, imagination and aesthetics in mathematical proving"

SCHEDULE

THURSDAY MORNING, DECEMBER 12, 2019

- 9h45 10h30 KEYNOTE TALK Leo Corry, University of Tel Aviv, Israel. "Creativity and the Limits of Poetic License: the Case of Mathematical Fiction"

- 10h30 11h00 Anderson Beraldo de Araújo, Federal University of ABC, São Paulo, Brazil. "Mathematical creativity as postulability"

- 11h00 11h30 COFFEE BREAK

- 11h30 12h00 Norma B. Goethe.National University of Cordoba, School of Philosophy, Argentina.

"Exploration, inference and creativity: what can we learn from Leibniz's paper tools in mathematics?"

- 12h00 12h30 Sandra Visokolskis, National University of Cordoba, School of Philosophy, Argentina.

"Transductive Mechanisms of Creative Research in Mathematics: Three Case Studies"

- 12h30 13h00 Avgerinos Evgenios and Gridos Panagiotis University of The Aegean, Mathematics "Education and Multimedia Laboratory, Greece. Mathematical creativity in school mathematics: definitions, way to elicit and empirical insights from geometry"

THURSDAY AFTERNOON, DECEMBER 12, 2019

- 14h30 15h30 KEYNOTE TALK Ioannes Vandoulakis, The University of Thessaly, Volos, Greece.

"Creativity, imagination and aesthetics in mathematical proving"

- 15h30 16h00 David Fuenmayor Freie Universität Berlin, FUB Institute of Computer Science, Germany. "AI and computer powered creativity"

- 16h00 16h30 COFFEE BREAK

- 16h30 17h30 ROUND TABLE DISCUSSION

CALL FOR PAPERS. WE INVITE SUBMISSIONS OF PROPOSALS INCLUDING, BUT NOT LIMITED, TO:

- What is special about mathematical creativity?

- Creativity in the invention and deployment of mathematical rules

- Creativity in pure and applied mathematics

- Creativity and mathematical purity

- Creativity in the invention of notational systems

- Creativity in using media and artifacts

- Creativity in definitions and concept formation

- Creativity in proofs

- Creativity and aesthetics

- Creativity in metaphorical and analogical thinking

- How far are we in grasping mathematical creativity by computational means?

SEND A ONE PAGE ABSTRACT TO starikova.irina@gmail.com BY OCTOBER 13, 2019.

Selected papers of this workshop will be published after the event in a special issue of the journal SYNTHESE.

REFERENCES

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Ervynck, G. (1991). Mathematical creativity. In D. Tall (Ed.), Advanced mathematical thinking (pp. 42-53). Dordrecht: Kluwer.

Hadamard, J. (1945). Essay on the psychology of invention in the mathematical field. Princeton, NJ: Princeton University Press.

Poincaré, H. (1948). Science and method. New York: Dover.

Pólya, G. (1962) Mathematical Discovery: On Understanding, Learning, and Teaching Problem Solving.New York: Wiley

D. Tall (Ed.) (1991). Advanced mathematical thinking. Dordrecht: Kluwer (2002 edition available on Google Books)

Wallas, G. (1926). The art of thought. New York: Harcourt, Brace & Jovanovich.