S-81 – Mathematical Discoveries and Styles of Demonstration across Cultures

The History of Mathematics

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Abstract:
The symposium will focus on the process of discovery of mathematical propositions, the way they are demonstrated in various mathematical cultures – ancient Greece, classical Islam, medieval and modern Europe, India, China, and pre-modern Japan – how they are shaped and communicated in texts and stylistic traditions and how is recepted and interpreted across times and varied cultural contexts. The geographic range is not restricted simply to Europe and the method of proof is not limited to the axiomatic method, which is considered to have emerged in ancient Greece. Topics of discussions will include the visual (diagrammatic) and axiomatic modes of reasoning in ancient Greece, algebraic demonstrations in classical Islam, algorithmic procedures in India and China, demonstrations and counter-arguments in mathematical analysis in modern Europe, and reasoning by induction in ancient Greece and pre-modern Japanese Mathematics (Wasan). The symposium will also examine questions beyond “pure mathematics”, lying in the field of mathematical sciences, as well as discussions of philosophical and methodological views on proof and styles of proof, as well as on the nature of mathematical objects.

Keywords: Proof – Style of Proof – Mathematical Discoveries – Proof-events – Cultural aspects of Mathematical Proof.

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