ETH zürich

The Development of 19th Century Geometrical Knowledge: Projective Geometry, Duality, Reflection and Inversion

Workshop

24 & 25 June 2021

The workshop is hybrid.
Registration is mandatory for participation.

Organizers:
Idit Chikurel & Juan Luis Gastaldi

ZENTRUM GESCHICHTE DES WISSENS

Turing Centre

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The Development of 19th Century Geometrical Knowledge: Projective Geometry, Duality, Reflection and Inversion

The great advancement of geometrical knowledge in the 19th century is often discussed in the framework of non-Euclidean geometries. However, some of the geometrical practices introduced in this century do not receive an adequate treatment in historical and philosophical scholarship. Little has been written on the development of these methods and the investigation of their mutual influences has been mostly neglected. This workshop offers an environment for historians and philosophers of mathematics to discuss the relationship between the new geometrical practices of the 19th century and the common characteristics of the knowledge they produce. More specifically, the workshop concentrates on the common features and differences between projective geometry, duality, reflection and circle inversion. The discussions are meant to explore mutual historical and theoretical influences between these mathematical practices, including their development in relation to modern logic.

Important information for implementation during the Covid-19 pandemic of the workshop:
The workshop will take place in hybrid form. This means that some of the speakers and participants will be on site at ETH Zurich, while the others will be connected via Zoom. To participate in the workshop, **registration by e-mail at turingcentre@ethz.ch is mandatory**. When registering, you must indicate whether you want to participate in the workshop physically or via zoom. Participants who wish to physically attend the workshop must adhere to the ETH Zurich's protection concept, which we will inform you about upon registration. Participants who belong to the risk group according to BAG are advised not to physically participate in the workshop.

The workshop is part of Academic exchange program «Knowledge in Society» between the Center «History of Knowledge» (ETH Zurich & University of Zurich) and the Cohn Institute for the History and Philosophy of Science and Ideas (Tel Aviv University) funded by the Daniel Gablinger-Stiftung.
This workshop is organized and supported by the Turing Centre, the Center «History of Knowledge» and the Chair of History and Philosophy of Mathematical Sciences.

Program

Thursday, 24th of June

09:00 – 09:15	Opening words: Juan Luis Gastaldi and Idit Chikurel
09:15 – 10:15	**Vincenzo de Risi** (SPHère, Paris-Diderot University, CNRS): The Discovery of Non-Euclidean Geometry
10:15 – 10:30	*Break*
10:30 – 11:30	**Michael Friedman** (Humboldt University): Inversion Between "Wiedergeburt und Auferstehung" and "Übertragung": Metaphors of Geometrical Transformations during the 19th Century
11:30 – 11:45	*Break*
11:45 – 12:45	**Idit Chikurel** (University of Hamburg): Philosophical Implications of Geometrical Knowledge Formed by Inversion
12:45 – 14:15	*Lunch break*
14:15 – 15:15	**Tabea Rohr** (Archives Henri-Poincaré, University of Lorraine): Frege, Plücker and the Function-Argument Distinction
15:15 – 15:30	*Break*
15:30 – 16:30	**Mark Wilson** (University of Pittsburgh): Extension Elements and the Liberalization of Philosophical Thinking

Friday, 25th of June

09:00 – 10:00	**Klaus Volkert** (University of Wuppertal): 50 Ways to Think of Duality
10:00 – 10:15	*Break*
10:15 – 11:15	**Ladislav Kvasz** (Institute of philosophy of the Czech Academy of Sciences and Pedagogical faculty of Charles University in Prague): Duality as an Aspect of Pictorial Form
11:15 – 11:30	*Break*
11:30 – 12:30	**Juan Luis Gastaldi** (Turing Center, ETH Zürich): De Morgan's De Morgan's Laws: the place of duality in the emergenc of modern logic
12:45 – 14:15	*Lunch break*
14:15 – 15:15	**Ralf Krömer** (University of Wuppertal): Practices of Duality Outside Geometry: An Outlook to the 20th Century
15:15 – 15:30	*Break*
15:30 – 16:30	Concluding Session

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