

## **Programme**

### **Workshop Multiple Inventions in the History of Technology**

Location: Seminarraum Forschung I, Deutsches Museum, Munich, Germany

#### **Wednesday, 23 July 2025**

13:00 Arrival

#### **First Session**, chair: Johannes-Geert Hagmann

13:45

Welcome, Introduction and methodological considerations - Shaul Katzir, Tel Aviv University

14:20

Rudolf Seising, Deutsches Museum: "The multiple invention of the learning machine"

15:20

Jad Kadan, Tel Aviv University: "Multiple Inventions in History of Computing: Core memory and Programming Automation"

16:10

Coffee break

#### **Second session**, chair: Frank Dittmann

16:40

Benjamin Johnson, independent scholar, on Ammonia synthesis: "Hybrid Inventions: The Combination of Empirical and Theoretical Aspects of Ammonia Synthesis from the Elements"

17:40

Anthony S. Travis, The Hebrew University of Jerusalem: "Technologies of Synthetic Ammonia in the 1920s"

18:30

Break and transfer to dinner [little walk (ca. 20 min.) to Paulaner am Nockherberg]

**Thursday, 24 July 2025**

**Third session**, chair Alexei Kojevnikov

9:10

Songook Hong, Seoul National University (remote participation): "Why were there so many multiple inventions in the history of wireless telegraphy?"

10:10

Luise Allendorf-Hoefer, Deutsches Museum: "The multiple invention of the Transistor"

11:00

Coffee break

11:30

Frank Dittmann, Deutsches Museum: "Transformer – a (difficult) example for Multiple Invention in electrical engineering"

12:20

Lunch break

14:00

Short museum visit / guided tour

**Forth session**, chair Shaul Katzir

15:00

Alexei Kojevnikov, University of British Columbia + Climerio da Silva Neto, Federal University of Bahia: "The Invention of Solid-State and Semiconductor lasers in the Soviet Union"

15:50

Johannes-Geert Hagmann, Deutsches Museum: "Tunable coherent light: the multiple invention and discovery of the dye laser"

16:50

Coffee break

17:20

Rich Kremer, Dartmouth College (discussion of a pre-circulated paper): "Simultaneous applications of conical pendula in clocks, steam engines and large telescope mounts circa 1800"

18:00

Break and transfer to dinner [little walk (ca. 5 min.) to Monti Monaco]

## **Friday, 25 July 2025**

9:00

Cornelia Kemp, Deutsches Museum: "A problem that promises so much: The international origin of photography"

10:00

Klodian Coko, Tel Aviv University: "The Multiple Invention of the Telephone"

10:50

Coffee break

11:20

Timo Mappes, Universität Jena and Deutsches Optisches Museum: "Ultramicroscopy re-invented after its centennial"

12:20

Concluding discussion

13:00

Light lunch and farewell