M4H 2026

Mathematics for our Health Workshop

Program

POLITECNICO MILANO 1863
DIPARTIMENTO DI MATEMATICA
DEPARTMENT OF EXCELLENCE 2023-2027

November 11–13, 2026 – Politecnico di Milano, Milan, Italy
Talks: Aula Rogers, Building 11, Via Ampère 2, Milano
Posters: Aula Vetrata – Trifoglio, Building 13, Via Bonardi 9, Milano

Wednesday, November 11

Chair: **Luca Dede'**

14:00–14:20 **Opening**

Chair: **Paolo Zunino**

14:20–15:20 Keynote **Kathryn Hess Bellwald**
A topological and geometric pipeline for detecting and analyzing cyclic cell processes

15:20–16:00 Invited talk **Francesco Regazzoni**
Understanding the heart, scaling its simulation

16:00–16:30 *Coffee break*

Chair: **Luca Dede'**

16:30–17:30 Keynote **Charles Taylor**
Patient-specific modeling of blood flow in arteries: from the academy to the clinic

Chair: **Paolo Zunino**

17:30–18:30 Discussion session 1 *The Future of Cardiovascular Medicine: Integrating Mathematics, Engineering, AI, and Clinical Expertise*
Daniele Andreini, Bianca Maria Colosimo, Giulia Luraghi, Gianluca Pontone, Alfio M. Quarteroni, Charles Taylor

18:30–19:30 **Welcome cocktail and poster session**

Thursday, November 12

Chair: **Pasquale Ciarletta**

09:00–10:00 Keynote **Alexander R. A. Anderson**
Phase I trials in cancer: from board to bench to bedside and back again

10:00–10:30 *Coffee break*

Chair: **Paolo Zunino**

10:30–11:10 Invited talk **Sarah Brüningk**
Towards Mechanistically Informed Treatment Response Prediction: Bridging Data, Biology and Dynamics

11:10–11:30 Invited talk **Sara Gazzoni**
Patient-specific Prediction of Glioblastoma Growth via Reduced Order Modeling and Neural Networks

11:30–12:10 Invited talk **Giulia Luraghi**
Digital Twins for Pre-operative Planning: From Research Promise to Clinical Reality

Chair: **Luca Dede'**

12:10–12:35 **Poster blitz 1**

12:35–14:00 *Lunch break*

Chair: **Francesca Ieva**

14:00–15:00 Keynote **Jessica Barrett**
Using electronic health records for healthcare research: potentials and pitfalls

15:00–15:40 Invited talk **Andrea Sottoriva**
Mathematical modelling and Machine Learning in cancer

15:40–16:00 Invited talk **Vittorio Torri**
Anchoring LLM Representations to Clinical Concepts: An Interpretability Framework for Clinical Text Classification

16:00–16:30 *Coffee break*

Chair: **Francesca Ieva**

16:30–17:30 Discussion session 2 *Bridging Data, Mathematics and Discovery: the $1B Challenges in Health Data Science*
Alexander R. A. Anderson, Jessica Barrett, Antonio Esposito, Andrea Sottoriva

Chair: **Luca Dede'**

17:30–18:10 **Poster blitz 2**

Friday, November 13

Chair: **Pasquale Ciarletta**

09:00–09:40 Invited talk **Giorgio Scita**
Controlling Tissue Mechanics and Viscosity in Cancer Progression

09:40–10:00 Invited talk **Aldo Clemente**
Modeling Spatio-Temporal Smoothness using Nonlinear Differential Operators

10:00–10:30 *Coffee break*

Chair: **Laura Maria Sangalli**

10:30–11:10 Invited talk **Johannes Weickenmeier**
Validation of Multiphysics Brain Aging Models Against UK Biobank Imaging Data

11:10–11:50 Invited talk **Stefano Pagani**
Modelling Neurological Disorders Across Spatial and Temporal Scales

Chair: **Luca Dede'**

11:50–12:10 **Best poster award and talk**

12:10–13:50 *Lunch break*

Chair: **Laura Maria Sangalli**

13:50–14:50 Keynote **Andre Marquand**
Combining statistical and machine learning innovations with big data for predicting mental health

Chair: **Paola F. Antonietti**

14:50–15:50 Round table *Mathematics for Sustainable Brain Health*
Carmen Giordano, Andre Marquand, Franco Molteni, Federico Pessina, Alessandra Pedrocchi, Laura Sangalli

Chair: **Luca Dede'**

15:50–16:00 **Closing**