Research workshop of the ISF: The Many-Worlds Interpretation of Quantum Mechanics

Program

Venue: Porter Auditorium, 6 Klauzner St., Tel Aviv.

9:00 Coffee and registration

Chairman: Guy Hetzroni

9:30 Yaron Oz, Lev Vaidman

Welcome and setting the goals

10:10 Valia Allori

Many-Worlds and Scientific Realism

11:00 Coffee Break

11: 30 François-Igor Pris

A Wittgensteinian demystification of an Everettian interpretation of quantum mechanics

12:00 Marcus Arvan

Reinterpreting the Many-Worlds Interpretation of Quantum Mechanics: Dead Reckoning and the P2P Simulation Hypothesis

12:30 Nathan Argaman

Future-Input Dependence as an Interpretation of Quantum Mechanics

13:10 Lunch

Chairman: Simon Saunders

14:30 Nicolas Gisin

Many-Worlds in Classical Mechanics

15:10 Paul Tappenden

Making sense of Everettian fission without self-location uncertainty

15:50 Coffee Break

16:20 Eddy Keming Chen

Strong Determinism

17:00 Open Discussion Everyone is welcome* Nathan Argaman,

The MWI explains well the evolution of the world we experience but does not single it out from numerous parallel worlds. How important is this weakness?

^{*}For <5 minutes presentation on this or related question, send an email before the session

Wednesday 19.10 2022 What is a "world" in the MWI?

Venue: Porter Auditorium, 6 Klauzner St., Tel Aviv.

9:00 Coffee and registration

Chairman: Ori Belkind	
9:30	Tim Maudlin
	Local Beables, Wave Function Monism, and Empirical Content
10:20	Alyssa Ney
	Locality and the Metaphysics of Many Worlds

- 11:00 Coffee Break
- 11:30 Mateus Araújo Bell's Theorem, Many-Worlds, and Quantum Key Distribution

- 12:00 **Per Arve** The Ontology of the Many-Worlds Theory
- Panel Discussion: The MWI world in 3D 12:30 Simon Saunders, Lev Vaidman, Tim Maudlin, Alyssa Ney
- 13:10 Lunch

Chairman: Tim Maudlin

14:30 **Renato Renner**

A Theorem about Many-Worlds Branches

Mordecai Waegell 15:20

Unambiguously Local Quantum Physics in Spacetime

- Coffee Break 15:50
- 16:20 **Ovidiu Cristinel Stoica**

The Relation between Wavefunction and 3D Space

Open Discussion Everyone is welcome* 17:00

> Is "All macroscopic objects are well localized in 3D" a good definition of a world in the MWI? Can you think of an alternative characterization?

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	day 20.10 2022 Probability in the MWI
venue:	<u>Porter Auditorium</u> , 6 Klauzner St., Tel Aviv.
9:00	Coffee and registration
Chairm	an: Stephan Hartmann
9:30	Simon Saunders
	Decoherence-Based Branch-Counting implies the Born Rule
10:20	Dustin Lazarovici
	Why Everett Solved the Probability Problem
11:00	Coffee Break
11:30	Avshalom Elitzur
	Do Parallel Worlds Leave Causal Traces in One Another?
12:10	Jerome Romagosa
	Unlucky Branches: (Dis)confirmation in Many Worlds
12:35	Zhongao Lu
	Personal Identity and Uncertainty in Everett's Multiverse
13:10	Lunch
Chairm	an: Guy Hetzroni
14:30	David Papineau
	How the MWI Matters: Relief, Regret and Distributive Justice
15:20	Michael Cuffaro
	Everett, the Informational Interpretation, and the Open Systems View
16:00	Coffee Break
16:30	Open Discussion Everyone is welcome* Probability in the MWI.
17:15	Group photo
17:30	The Steinhardt Museum of Natural History
18:30	Refreshments (*UPDATE: Melamed auditorium, Shenkar building)
19:00	Panel discussion: free will, time, quantum, and many worlds Yakir Aharonov, Valia Allori, Nicolas Gisin, Renato Renner, David Wallace Chairman: Yaron Oz

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Friday 21.10 2022 MWI, cosmology and more

Venue: Porter Auditorium, 6 Klauzner St., Tel Aviv.

9:00 Coffee

Chairman: Lorenzo Maccone

9:30 **Don Page**

Possibilities for Probabilities

10:10 Erik Curiel

What Happens to EPR Correlations among the Many Worlds in Curved Spacetime?

10:40 Coffee Break

11:10 Phil Pickering

Nonseparability in the Many Worlds Interpretation

11:40 Open Discussion Everyone is welcome*

Can gravity and quantum peacefully coexist?

12:00 Lunch, Beer and Posters

Per Arve Locality, decoherence and why dBB is actually MWI

Eyal Buks Disentanglement and a nonlinear Schrödinger equation

Kathrin Gerhard Is there a consistent past in quantum theory?

Zuchamo Nsungbemo Ezung Quantum Probability and the Nature of Reality

David Oaknin A single world with many faces: geometric phases in gauge theories

Vicent Picó-Pérez Intrinsic Properties in Bohmian Mechanics and Many-Worlds Theories

Mark Rubin Preclusion as the Explanation of Everettian Probability
Paul Tappenden Everettian Fission with Particle Trajectories
Carlotta Versmold, Florian Huber, Jan Dziewior, Elina Köster, Jasmin
Meinecke and Harald Weinfurter Paths through the double slit

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Sunday 23.10 2022 MWI, Decoherence and More

Venue: Jaglom Hall, Senate Building, Tel Aviv University

9:00 Coffee

Chairman: David Papinenau

9:30 **David Wallace**

The Sky is Blue, and Other Reasons Quantum Theory is Not Underdetermined

10:30 **Guy Hetzroni**

Consensus, theoretical virtues and interpretation: lessons from past debates

- 11:00 Coffee Break
- 11:30 **Jan Dziewior**

Variants of Locality and Causality in Many Worlds

12:00 Tomasz Bigaj

Consistent histories and many worlds

12:30 From invited speakers who could not come

Why the MWI is not in the consensus? **Jeffrey Barret, Jean Bricmont**

13:10 Lunch

Chairwoman: Vishnya Maudlin

14:30 Lorenzo Maccone

Quantum Time, Quantum Spacetime and Time Measurements

15:10 Open Discussion Everyone is welcome*

Does decoherence with the environment play any role in the MWI?

- 16:20 **Jaffa tour**
- 19:00 **Banquet**: Regina restaurant

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Monday 24.10 2022 Alternative Formalisms, Teleportation and more Venue: Jaglom Hall, Senate Building, Tel Aviv University Coffee 9:00 Chairman: Andrew Jordan 9:30 **Yakir Aharonov** Solving the Measurement Problem without Many Worlds **Charles Bédard** 10:20 **Teleportation Revealed** 11:00 Coffee Break 11:30 **Samuel Kuypers** Everettian Relative States in the Heisenberg Picture 12:00 **Mark Rubin** Locality and Deutsch-Hayden Quantum Field Theory 12:30 **Andrew Jordan** Quantum Erasing the Memory of Wigner's Friend 13:10 Lunch Chairman: Erik Curiel 14:30 **Paolo Faglia** Non-Separability, Locality and Criteria of Reality in Everettian **Quantum Mechanics** 15:00 From invited speakers who could not come Why the MWI is not in the consensus? Tony Leggett, Chris Fuchs, Jacques Pienaar, Phillip Grangier, Barry Loewer, Aurélien Drezet, Chip Sebens, Philip Pearle, Shan Gao, Sean Carroll, Alastair Wilson, Adrian Kent, David Deutsch. 15:50 Coffee Break 16:20 From invited speakers who could not come Why the MWI is not in the consensus? 17:00 Open concluding remarks Everyone is welcome*

Why the MWI is not in the consensus?