

MATHEMATICAL QUANTUM FIELD THEORY

Conference in memory of Ivan Todorov

Tuesday 26 May 2026


Hall "Prof. Marin Drinov",
Bulgarian Academy of Sciences (BAS)

08.40-09.10 REGISTRATION

09.10-09.30 OPENING


Prof. D.Sc. Evelina Slavcheva – President of BAS,
Prof. Dr. Dimitar Tonev – Director of INRNE - BAS,
Prof. D.Sc. Julian Revalski – Director of ICMS-IMI - BAS

09.30-12.40 MORNING SESSION: *Chair: L. Anguelova*

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| 09.30-10.20 | Victor Kac | <i>Modular invariant vertex operator algebras</i> |
| 10.20-10.50 | <i>Coffee break</i> |  |
| 10.50-11.40 | Maxim Kontsevich | <i>A very general notion of QFT</i> |
| 11.40-11.50 | <i>Short break</i> | |
| 11.50-12.40 | Valentina Petkova , Boriana Todorova , Dimitar Nedanovski | <i>Todorov – scientist, teacher, personality</i> |

12.40-14.00 LUNCH

14.00-17.10 AFTERNOON SESSION: *Chair: B. Bakalov*

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|--------------------|---------------------------|---|
| 14:00-14:50 | Richard Kerner | <i>A Z_3 graded approach to quark color dynamics</i> |
| 14:50-15:00 | <i>Short break</i> | |
| 15:00-15:50 | Ludmil Hadjiivanov | <i>On a CFT construction of quantum gates by braiding Fibonacci anyons</i> |
| 15:50-16:20 | <i>Coffee break</i> |  |
| 16:20-17:10 | Nikolay Nikolov | <i>Rational Quantum Field Theory</i> |

17.10-18.00 POSTER SESSION

18.00-20.00 RECEPTION


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09.00-12.10 **MORNING SESSION:** *Chair: N. Nikolov*

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|--------------------|---------------------------|---|
| 09.00-09.50 | Jean-Pierre Gazeau | <i>From the QCD Vacuum to Galactic Halos: An Infrared Spectral Gap as the Origin of the Galactic Acceleration Scale</i> |
| 09.50-10:20 | <i>Coffee break</i> |  |
| 10:20-11:10 | Serguey Petcov | <i>Modular Invariance Approach to Flavor, CP violation and Fermion Mass Hierarchies</i> |
| 11:10-11:20 | <i>Short break</i> | |
| 11:20-12:10 | Stoytcho Yazadjiev | <i>No-Hair Theorems for Black Holes with Multiple Scalar Fields: Mathematical and Physical Aspects</i> |

12.10-14.00 **LUNCH**

14.00-17.10 **AFTERNOON SESSION:** *Chair: D. Nedanovski*


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|--------------------|----------------------------|---|
| 14:00-14:50 | Bojko Bakalov | <i>Variational quantum algorithms and dynamical Lie algebras</i> |
| 14:50-15:00 | <i>Short break</i> | |
| 15:00-15:50 | Karl-Henning Rehren | <i>How the failure of Ward identities determines particle interactions: The Standard Model particle without indefinite state spaces</i> |
| 15:50-16:20 | <i>Coffee break</i> |  |
| 16:20-17:10 | Latham Boyle | <i>Is the Standard Model exceptional?</i> |

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Thursday 28 May 2026

**Hall "Prof. Marin Drinov",
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09.00-12.10 **MORNING SESSION:** *Chair: V. Dobrev*

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| 09.00-09.50 | Loriano Bonora | <i>Standard Model and Gravity: the role of anomalies and conformal symmetry</i> |
| 09:50-10:20 | <i>Coffee break</i> |  |
| 10:20-11:10 | Dmitry Kazakov | <i>The general approach to the renormalization group equations in local quantum field theory</i> |
| 11:10-11:20 | <i>Short break</i> | |
| 11:20-12:10 | Tekin Dereli | <i>Jordan Algebraic Formulation of the Landau Problem with a Non-commutative Parameter</i> |

12.10-14.00 **LUNCH**

14.00-20.00 **FREE AFTERNOON**

20.00-23.00 **CONFERENCE DINNER**

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Friday 29 May 2026


Hall "Prof. Marin Drinov",
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09.00-12.10 MORNING SESSION: *Chair: V. Petkova*

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|--------------------|-----------------------|---|
| 09.00-09.50 | Anton Alekseev | <i>Virasoro coadjoint orbits and Jackiw-Teitelboim gravity</i> |
| 09.50-10:20 | <i>Coffee break</i> |  |
| 10:20-11:10 | Ivan Penkov | <i>Weyl semi-simplicity taken to infinity</i> |
| 11:10-11:20 | <i>Short break</i> | |
| 11:20-12:10 | Alexey Isaev | <i>Vogel universality and beyond</i> |

12.10-14.00 **LUNCH**

14.00-17.10 AFTERNOON SESSION: *Chair: T. Popov*

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|--------------------|------------------------|---|
| 14:00-14:50 | Vladimir Dobrev | <i>Langlands Duality and Invariant Differential Operators</i> |
| 14:50-15:00 | <i>Short break</i> | |
| 15:00-15:50 | George Zoupanos | <i>Unification of Gravities with Internal Interactions</i> |
| 15:50-16:20 | <i>Coffee break</i> |  |
| 16:20-17:10 | Sultan Catto | <i>New algebras relating superstrings and Galois Fields</i> |

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Saturday 30 May 2026

**Hall "Prof. Marin Drinov",
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09.00-12.10 **MORNING SESSION:** *Chair: M. Yakimov*

09.00-09.50 **Ivan Kostov** *Higher-Genus Fuss-Catalan Numbers*

09:50-10:20 *Coffee break*



10:20-11:10 **Hamed Pejhan** *Massless Representations, Conformal Symmetry, and the Legacy of Ivan Todorov*

11:10-11:20 *Short break*

11:20-12:10 **Jean-Bernard Zuber** *A short trip to Cumuland*

12.10-12.30 **CLOSING**