

PROGRAMM

*of the
International Conference*

QUANTUM FIELD THEORY AND GRAVITY

*Tomsk State Pedagogical University
July 31 – August 4, 2012
Tomsk, Russia*

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The main topics:

Supersymmetric Field Theory, String/Brane Theory, Higher Spin Field Theory, Classical and Quantum Gravity, Cosmology, Field Theory and Mathematical Physics.

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Tomsk State Pedagogical University

31st July, TUESDAY

Registration 9:00 – 9:45

Opening of the Conference 9:45 – 10:00

Morning Session 10:00 – 13:10

Chairperson: I.L. Buchbinder

10:00 – 10:30 **A. Tseytlin** (Imperial College, London, UK), Quantum string spectrum in AdS/CFT.

10:35 – 11:05 **O. Lechtenfeld** (Institute for Theoretical Physics, Hanover, Germany), Instantons and Chern-Simons flows in 6, 7 and 8 dimensions.

11:05 – 11:20 *Coffee break*

Chairperson:

11:20 – 11:40 **Yu.M. Zinoviev** (Institute for High Energy Physics, Protvino, Russia), On massive higher spin interactions in Fradkin-Vasiliev approach.

11:45 – 12:15 **S. Kuzenko** (University of Western Australia, Perth, Australia), The vector-tensor supermulti-plets revisited.

12:20 – 12:45 **G. Barnich** (Universite Libre de Bruxelles, Belgium), Topics in asymptotically flat general relativity in three and four dimensions.

12:50 – 13:10 **Z. Popowicz** (University of Wroclaw, Poland), The applications of the superconformal transformation in the integrable models.

13:10 – 15:00 *Lunch*

Afternoon Session 15:00 – 18:10

Chairperson:

15:00 – 15:30 **K. Alkalaev** (P.N. Lebedev Physical Institute, Moscow, Russia), Massless Hook Fields and the AdS/CFT Correspondence.

15:35 – 16:05 **R. Bonezzi** (University of Bologna, Italy), U(N) spinning particles and higher spin fields on Kaehler backgrounds.

16:10 – 16:30 **I. Masterov** (Tomsk Polytechnic University, Russia), Dynamical realizations of l-conformal Galilei algebra.

16:30 – 16:45 *Coffee break*

Chairpeson:

16:45 – 17:15 **K. Mkrtchyan** (Scuola Normale Superiore & INFN, Pisa, Italy), Higher derivative actions for Higher Spins.

17:20 – 17:50 **D. Uvarov** (Institute for Theoretical Physics at Kharkov Institute of Physics and Technology, Ukraine), From AdS₄ x S⁷ supermembrane to AdS₄ x CP³ superstring: Kaluza-Klein gauge and minimal extension of Osp(4|6)/SO(1,3)xU(3) sigma-model.

17:55 – 18:10 **K. Osetrin** (Tomsk State Pedagogical University, Russia), Space-time models

with dust and cosmological constant, that allow integrating the Hamilton-Jacobi test particle equation by separation of variables method.

19:00 *Rector's reception*

1st August, WEDNESDAY

Morning Session 9:00 – 13:00

Chairperson:

- 9:00 – 9:30** **M. Grigoriev** (P.N. Lebedev Physical Institute, Moscow, Russia), Structure of the frame-like Lagrangians and the polymomentum phase space.
- 9:35– 10:05** **L. Lopez** (Scuola Normale Superiore, Pisa, Italy), On the cubic interactions of massive and partially massless higher spins in (A)dS.
- 10:10 – 10:40** **E.A. Ivanov** (Joint Institute for Nuclear Research, Dubna, Russia), Super Landau models with both world-line and target supersymmetries: N=2 and N=4 examples.
- 10:45 – 11:05** **V.N. Tolstoy** (Institute of Nuclear Physics, Moscow State University, Russia), Alternative supersymmetries and supergravities.

11:05 – 11:20 *Coffee break*

Chairperson:

- 11:20 – 11:50** **J. Lukierski** (Institute of Theoretical Physics, University of Wroclaw, Poland), Braided Noncommutative Quantum Fields and Quantum Poincare Covariance.
- 11:55 – 12:25** **V.A. Krykhtin** (Tomsk State Pedagogical University, Russia), Review of BRST approach to higher spin field theory.
- 12:30 – 13:00** **K. Stepanyantz** (Moscow State University, Russia), Derivation of the NSVZ beta-function using effective diagrams.

13:00 – 15:00 *Lunch*

Afternoon Session 15:00 – 18:00

Chairperson:

- 15:00 – 15:30** **V.E. Didenko** (P.N. Lebedev Physical Institute, RAS, Moscow, Russia), Black holes: From General Relativity to Higher Spins.
- 15:35 – 15:55** **P. Lavrov** (Tomsk State Pedagogical University, Russia), Sp(2) renormalization.
- 16:00 – 16:30** **E. Skvortsov** (P.N. Lebedev Physical Institute, RAS, Moscow, Russia), Higher-spin algebras and cubic interactions of mixed-symmetry fields in AdS
- 16:30 – 16:45** *Coffee break*

Chairperson:

- 16:45 – 17:15** **A. Reshetnyak** (Institute of Strength Physics and Materials Science, Tomsk, Russia), On general Lagrangian formulation of arbitrary mixed symmetric higher spin fermionic fields.
- 17:20 – 17:40** **V. Khatsimovsky** (Institute of Nuclear Physics SD RAS, Novosibirsk, Russia), On some feature and application of the Faddeev formulation of gravity.
- 17:45 – 18:00** **T. Snegirev** (Tomsk State Pedagogical University, Russia), Construction of cubic interaction of higher-spin fields with external electromagnetic field.

2nd August, THURSDAY

Morning Session 9:00 – 13:10

Chairperson:

- 9:00 – 9:30** **I. Bakhmatov** (Universidade Estadual Paulista, Sao Paulo, Brazil), Fermionic T-duality and applications.
- 9:35 – 10:05** **A. Parnachev** (Lorenz Institute for Theoretical Physics, Leiden, The Netherlands), Holography of the tachyon.
- 10:10 – 10:35** **T. Inagaki** (Hiroshima University, Japan), Regularization parameter independent approach in a four fermion interaction model.
- 10:40 – 11:05** **A. Isaev** (Joint Institute for Nuclear Research, Dubna, Russia), Representations of Birman-Murakami-Wenzl algebras and reflection equation.
- 11:05 – 11:20** *Coffee break*

Chairperson:

- 11:20 – 11:45** **H. Takata** (Tomsk State Pedagogical University, Russia), BRST approach to gauge invariant higher spin theory of conformal field in flat space.
- 11:50 – 12:20** **M.O. Katanaev** (Steklov Mathematical Institute RAS, Moscow, Russia), Wedge dislocations and three-dimensional gravity.
- 12:25 – 12:50** **E. Popova, K. Stepanyantz** (Moscow State University, Russia), One-loop divergences for the field of spin 3 on a de Sitter background in non-minimal gauge.
- 12:55 – 13:10** **E. Mychelkin** (National Center for Cosmic Research, Almaty, Kazakhstan), Tachyon neutrinos as dark matter.
- 13:10 – 15:00** *Lunch*
- 15:00** *Excursion*

3th August, FRIDAY

Morning Session 9:00 – 13:05

Chairperson:

- 9:00 – 9:30** **T. Morozumi** (Hiroshima University, Japan), Particle number production and time variation with non-equilibrium quantum field theory.
- 9:35 – 10:05** **I. Khriplovich** (Institute of Nuclear Physics SD RAS, Novosibirsk, Russia), Gravitational four-fermion interaction on the Planck scale.
- 10:15 – 10:45** **M. Sasaki** (Yukawa Institute for Theoretical Physics, Kyoto, Japan), Signatures of quantum tunneling during inflation.
- 10:50 – 11:05** **A.A. Mokeeva, V.A. Popov** (Kazan Federal University, Russia), Wormhole in inner R-region of universe with Chaplygin gas.
- 11:05 – 11:20** *Coffee break*

Chairperson:

- 11:20 – 11:50** **S. Odintsov** (Catalonia Institute for Cosmic Research, Barcelona, Spain, Tomsk State Pedagogical University, Russia), Singular and non-singular accelerated universe.
- 11:55 – 12:15** **A. Popov** (Institute of Mathematics and Mechanics, Kazan Federal University, Russia), Renormalization for the self-potential of a scalar charge in static space-times.
- 12:20 – 12:45** **A. Toporensky** (Sternberg Astronomical Institute, Moscow State University, Russia), Asymptotic solutions in $f(R)$ gravity.
- 12:50 – 13:05** **K. Lipatova** (Kazan Federal University, Russia), Spinor field in a wormhole.
- 13:05 – 15:00** *Lunch*

Afternoon Session 15:00 – 17:45

Chairperson:

- 15:00 – 15:15** **A. Timoshkin A.** (Tomsk State Pedagogical University, Russia), Specially Coupled Dark Energy in the Oscillating FRW Cosmology.
- 15:20 – 15:45** **I. Tanatarov, O. Zaslavskii** (Institute for Theoretical Physics at Kharkov Institute of Physics and Technology, Ukraine), Regularity conditions for extremal stationary black holes.
- 15:50 – 16:15** **G. Seryakin** (Kazan Federal University, Russia), About some properties of h-spaces.
- 16:20 – 16:30** **E.N. Kirillova** (Tomsk State Pedagogical University, Russia), Equivalence of Massive and Massless p-Form Models in Curved D-Dimensional Space.
- 16:30 – 16:45** *Coffee break*

Chairperson:

- 16:45 – 17:05** **L. Chechin** (National Center for Cosmic Research, Almaty, Kazakhstan), Two-component substance basing the direction dependence of the cosmological deceleration parameter.
- 17:10 – 17: 25** **T.S. Boronenko** (Tomsk State Pedagogical University, Russia), Post-Newtonian effects in the motion of the nearest satellites of Jupiter.
- 17:30– 17:45** **I. Zhogin** (Institute of Solid State Chemistry and Mechanochemistry SD RAS, Novosibirsk, Russia), Suppression of ‘short’ gravitational waves in a 4th-order gravity.
- 19:00** ***Banquet***

4th August, SATURDAY

Morning Session 9:00 – 13:00

Chairperson:

- 9:00 – 9:20** **I.L. Buchbinder** (Tomsk State Pedagogical University, Russia), **N.G. Pletnev** (Institute of Mathematics SD RAS, Novosibirsk, Russia), Background Field Method for N=2, d=3 Supersymmetric Chern-Simons Theories.
- 9:25 – 9:45** **T. Shingo** (Osaka University, Japan), Phase transitions in D dimensional gauge theories.
- 9:50 – 10:10** **A. Golubtsova, V. Ivaschuk** (Peoples’ Friendship University, Moscow, Russia), Triple intersections of M-branes and supersymmetry.
- 10:15 – 10:30** **B.S. Merzlikin** (Tomsk State Pedagogical University, Russia), Two loop effective potentials in three-dimensional general chiral superfield model.
- 10:35 – 11:00** **A.V. Aminova, A. Galaev, M. Lyulinskii** (Kazan Federal University, Russia and Masaryk University, Czech Republic), Supersymmetric gauge theory: group theory approach.
- 11:00 – 11:15** ***Coffee break***

Chairperson:

- 11:15 – 11:35** **A.V. Zhiglo** (Institute for Theoretical Physics at Kharkov Institute of Physics and Technology, Ukraine), Accretion Disks and High-Velocity Features in Type Ia Supernovae.
- 11:40 – 11:55** **R. Kashapov** (Kazan Federal University, Russia), Cross section of Compton effect in the vicinity of a cosmic string.
- 12:00 – 12:15** **N. Chuprikov** (Tomsk State Pedagogical University, Russia), On the tunneling time problem in electrodynamics.
- 12:20 – 12:40** **E. Mychelkin** (National Center for Cosmic Research, Almaty, Kazakhstan), Geometrical foundation and corresponding physical realization of dark energy.
- 12:45 – 13:00** **E. Palesheva** (Tomsk State Pedagogical University, Russia), Creation of baby-Universe.
- 13:00 – 15:00** ***Lunch***

Afternoon Session 15:00 – 18:05

Chairperson:

- 15:00 – 15:15** **A. Makarenko** (Tomsk State Pedagogical University, Russia), From Big to Little Rip in modified $F(R,G)$ gravity.
- 15:20 – 15:35** **I. Kirnos** (Tomsk State Pedagogical University, Russia), On isotropization of cosmological expansion in general relativity and Lovelock gravity.
- 15:40 – 15:55** **Yu.A. Rybalov** (Tomsk State Pedagogical University, Russia), Cosmological model with spinor and scalar fields.
- 16:00 – 16:20** **R. Rahman** (Université libre de Bruxelles, Belgium), On Consistent Interactions of Massive Higher-Spin Particles.
- 16:20 – 16:35** *Coffee break*

Chairperson:

- 16:35 – 16:55** **V.Y. Epp, M.A. Masterova** (Tomsk State Pedagogical University, Russia), The field of precessing magnetic dipole.
- 17:00– 17:10** **V. Bagrov, A. Bourimova** (Tomsk State University, Russia), **D. Gitman** (University of Sao Paulo, Brazil), New results in the fundamental theory of synchrotron radiation: the evolution of spectral maximum.
- 17:15 – 17:25** **V.A. Bordovitsyn, A.V. Kozlov** (Tomsk State University, Russia), Zitterbewegung and the origin of anomalous magnetic moment of electron.
- 17:30 – 17:40** **V.A. Bordovitsyn, E.A. Nemchenko** (Tomsk State University, Russia), Thomas precession as a classical component of spin-light.
- 17:45 – 18:05** **Yu.P. Kunashenko** (Tomsk State Pedagogical University, Russia), Bremsstrahlung from Fast Neutrons.

Closure of the Conference 18:05 – 18:20