

**Program of the XIIth International Workshop
on High Energy Physics and Quantum Field Theory**

Samara, Russia, 4-10 September 1997

September 4

PLENARY SESSION (Chairman V.Savrin)

9.00 Opening

9.30 Vladimir Sirotenko (FNAL)

Search for leptoquark production at D0.

10.30 Yoshimasa Kurihara (KEK)

A status of the JLC project.

12.00 Takayuki Saeki (CERN)

W physics in e^+e^- collisions at $\sqrt{s} = 161$ and 172 GeV at LEP.

12.40 Igor Volobuev (INP MSU)

Cosmological solutions with gauge and spinor fields.

PARALLEL SESSION A (Chairpersons: F.Tkachov and Y.Kurihara)

15.30 Vladimir Andrianov (St.Petersburg State University)

Composite two Higgs models with FCNC suppression.

16.00 Boris Arbuzov (IHEP, Protvino)

$Z \rightarrow b\bar{b}$ probability and asymmetry in a model of dynamical electroweak symmetry breaking.

16.30 Yury Pirogov (IHEP, Protvino)

Studying lepton flavour violation at electron and muon colliders.

16.50 Nikolai Romanenko (St.Petersburg State University)

On the phenomenology of Z' coupling only to 3 generation fermions.

17.40 Per Osland (University of Bergen)

Event orientation in e^+e^- annihilations.

18.10 Ilya Ginzburg (Novosibirsk State University)

Multiphoton processes in collisions of high energy heavy nuclei.

18.30 Valery Serbo (Novosibirsk State University)

Production of muonium at relativistic heavy ion colliders.

18.40 Valery Serbo (Novosibirsk University)

A polarized laser beam as an anisotropic crystal for high energy photons and electrons.

PARALLEL SESSION B (Chairpersons: A.Shirokov and I.Volobuev)

15.30 Derek Pursey (Iowa State University)

S-matrix poles and unusual resonance phenomena.

16.00 Alexander Krutov (Samara State University)

Instant-form approach to two-body systems.

16.30 Alexander Biryukov (Samara State University)

Influence functional in quantum field theory.

16.50 Andrey Arkhipov (IHEP, Protvino)

On the $p\bar{p}$ single diffraction dissociation at high energy.

17.40 Thomas Weber (Iowa State University)

Levinson's theorem and bound states in the continuum.

18.10 Sergey Vernov (INP MSU, Moscow)

Construction of periodic solutions for nonlinear wave equation in ϕ^4 theory.

PARALLEL SESSION C (Chairman D.Slavnov)

- 15.30 **Vitaly Samartsev** (PhTI, Kazan)
Modern problems of quantum theory of interaction between electromagnetic field and matter.
- 16.00 **Eugene Bashkirov** (Samara State University)
Decoupling of time atomic correlators in quantum theory of superradiance.
- 16.30 **Edward Timoshenko** (University College, Dublin)
Equilibrium phenomena and kinetics of phase transitions in systems of long heterogeneous chains.
- 17.40 **Vitaly Samartsev** (PhTI, Kazan)
Optical superradiance and its application.

September 5

PLENARY SESSION (Chairman E.Boos)

- 9.30 **Boris Levtchenko** (INP MSU, Moscow)
Structure function measurements at HERA.
- 10.30 **Frank Lehner** (DESY)
High Q^2 results and searches for new physics at HERA.
- 12.00 **Sung Park** (Korea University)
Heavy flavour and final state interaction at HERA.
- 13.00 **Ana Henriques** (CERN)
ATLAS detector status.

PARALLEL SESSION A (Chairpersons: I.Ginzburg and V.Vanyashin)

- 18.10 **Alexander Ilyichev** (NSECPHE, Minsk)
Model independent radiative correction to deep inelastic scattering for future polarization experiments at collider.
- 18.30 **Anatolyi Grashin** (MEPhI, Moscow)
Precise analysis of the HERA data on deep inelastic scattering.
- 20.00 **Rudolf Faustov** (SCC RAS, Moscow)
Two-body nonleptonic decays of B mesons.
- 20.30 **Nickolay Nikitin** (INP MSU, Moscow)
Physics of rare semileptonic B-decays.
- 21.00 **Vladimir Saleev** (Samara State University)
Spin effects in heavy quark fragmentation into baryons.

PARALLEL SESSION B (Chairpersons: V.Troitsky and A.Gorokhov)

- 18.20 **Yuri Kubyshin** (INP MSU, Moscow)
Study of Wilson loop functionals in 2D quantum Yang-Mills theories.
- 18.40 **Vladimir Soloviev** (IHEP, Protvino)
Free boundary algebra in Ashtekar formalism.
- 20.00 **Anatoly Koshkarov** (Petrozavodsk State University)
Dual symmetry in gravitation.
- 20.20 **Fangil Gareev** (JINR, Dubna)
Hadron structure.
- 20.40 **Boris Danilyuk** (Samara State University)
Renormalization scheme for quantum field models with a local four-fermion interaction.
- 21.00 **Elena Rogacheva** (Samara State University)
Quantum chaos in optical models.

PARALLEL SESSION C (Chairman B.Arbusov)

- 18.30 **Alexander Biryukov** (Samara State University)
The importance of quantum field theory and high energy physics courses in universities.
- 20.00 **Derek Pursey** (Iowa State University)
"Physics for poets" - Teaching physics to non-scientists.
- 20.30 **Ilya Ginzburg** (Novosibirsk State University)
Some reserves in the course of quantum mechanics.
- 20.50 **Igor Guralnik** (Samara State University)
Virtual laboratory in teaching classical and quantum mechanics.

September 6

PLENARY SESSION (Chairman M. Boehm)

- 9.30 **Alexei Drutsokoi** (ITEP, Moscow)
Diffraction at HERA.
- 10.30 **Saul Gonzalez** (CERN)
Physics prospects with the ATLAS detector at the LHC.
- 12.00 **Viacheslav Ilyin** (INP MSU, Moscow)
LHC: search for light Higgs boson with high p_t at low luminosity.
- 12.40 **Ilya Ginzburg** (Novosibirsk University)
Key points of physical program for the first photon collider and the possible μp collider.

PARALLEL SESSION A (Chairman V.Andrianov)

- 15.50 **Valeri Smirichinski** (JINR, Dubna)
Conformal symmetry and Higgs effect in quantum cosmology.
- 16.10 **Dmitry Shirkov** (JINR, Dubna)
Analytic QCD running coupling with the finite infrared behaviour.
- 16.30 **Aleksey Alekseev** (IHEP, Protvino)
QCD running coupling: freezing versus enhancement in infrared region.
- 16.50 **Alexander Biryukov** (Samara State University)
Influence functional for the description of quantum electromagnetic field and excitons interaction.

PARALLEL SESSION B (Chairman P.Osland)

- 15.30 **Masato Jimbo** (Tokyo Management College)
GRACE-SUSY: an automatic calculation for SUSY processes.
- 16.00 **Jochem Fleischer** (University of Bielefeld)
Methods to calculate scalar vertex diagrams.
- 16.20 **Mikhail Tentyukov** (JINR, Dubna)
A system for automating Feynman diagram calculation.
- 16.40 **Andrei Davydychev** (INP MSU, Moscow)
A geometrical angle on Feynman integrals.
- 17.00 **Natalia Ussyukina** (INP MSU, Moscow)
Calculation of two-loop massless four-point function.

PARALLEL SESSION C (Chairman V.Samartsev)

- 15.30 **Vladimir Volostnikov** (Branch of Lebedev Inst., Samara)
Optics and quantum mechanics: new analogies.

- 15.50. **Helen Sapova** (PIIRS, Samara)
Quantum effects in interaction of electromagnetic field and liquid-crystal films.
- 16.10 **Igor Guralnik** (Samara State University)
Traps space recharge waves in non-linear accoustoelectronics and dynamic holography.
- 16.30 **Eugene Dorodnov** (PIIRS, Samara)
Thermofield dynamics of interaction between coherent radiation and Jan-Teller centers.
- 16.50 **Konstantin Gridnev** (St. Petersburg University)
Nonlinear Schroedinger equation and quantum information.

PLENARY SESSION dedicated to Nikita Sveshnikov

Chairman D.Shirkov

- 17.40 **Opening**
- 17.50 **Andrey Shirokov** (INP MSU, Moscow)
Electric dipole in magnetic field: classical analogue of quantum BSEC and its quantization.
- 18.20 **Edward Timoshenko** (University College, Dublin)
Boundary effects and confinement in gauge field theories.
- 18.40 **Edward Boos** (INP MSU, Moscow)
Unstable particles in gauge theories.
- 19.00 **Alexander Kamenshchik** (ITP RAS, Moscow)
Classicalization of quantum universe and quark confinement.
- 19.20 **Polina Chertzor** (Moscow State University)
Jet observables and energy-momentum tensor.
- 19.30 **Svetlana Gadalina** (Moscow State University)
Infrared structure of the energy-energy correlator for $e^+e^- \rightarrow$ hadrons.
- 19.40 **Fyodor Tkachov** (INR RAS, Moscow)
Status of the theory of jet observables.

September 8

PLENARY SESSION (Chairman D.Pursey)

- 9.30 **Edward Boos** (INP MSU, Moscow)
Collider physics results computed with ComHEP.
- 10.30 **Ehud Duchovni** (Weismann Institute, Tel-Aviv)
Search for SUSY particles at LEP-2.
- 12.00 **Fyodor Tkachov** (INR RAS, Moscow)
Towards systematic near threshold calculations in perturbative QFT.

PARALLEL SESSION A (Chairpersons: J.Fleisher and Ya.Azimov)

- 15.30 **Jochen Biebel** (DESY-IfH, Zeuthen)
Four-fermion production with anomalous couplings at LEP-2 and NLC.
- 16.00 **Eduard Boos** (INP MSU, Moscow)
Four fermion reactions at photon linear colliders.
- 16.30 **Yoshimasa Kurihara** (KEK)
Six fermion production processes for top-physics.
- 16.50 **Mikhail Dubinin** (INP MSU, Moscow)
Higgs boson signal at LHC in the reaction $pp \rightarrow \gamma\gamma +$ leptons.
- 17.40 **Ilya Ginzburg** (Novosibirsk University)
Higgs boson with mass of 140-190 GeV at photon collider.
- 18.00 **Martin Sachwitz** (DESY-IfH, Zeuthen)
Higgs boson in WW^* decay mode at linear collider.

September 8

PARALLEL SESSION B (Chairpersons: Yu.Kubyshin and V.Tarasov)

- 15.30 **Alexander Gorokhov** (Samara State University)
Path integral for Dicke-like models using the
Hubbard-Stratonovich approach.
- 16.00 **Victor Mikhailov** (Samara State University)
Quantum relaxation of N-level systems.
- 16.20 **Vyacheslav Ruchkov** (SSPU, Togliatti)
Quantum chaos in two-level systems with radiational decay.
- 16.40 **Vasily Tarasov** (INP MSU, Moscow)
Quantum non-hamiltonian systems and Lindblad theory.
- 17.40 **Vladimir Reshetov** (SSPU, Togliatti)
Janes-Cummings models with degenerate atomic levels.
- 18.00 **Sergey Troitsky** (INR RAS, Moscow)
Dynamical supersymmetry breaking and gauge mediation.
- 18.20 **Dmitry Gorbunov** (Moscow State University)
Flavor physics in gauge mediated SUSY breaking.
- 18.30 **Sergey Dubovsky** (Moscow State University)
Dynamical SUSY breaking and unification of couplings.
- 18.40 **Donsu Bak** (University of Seoul)
Dynamics of BPS monopoles and dyons.

PARALLEL SESSION C (Chairman E.Kogan)

- 15.30 **Thomas Weber** (Iowa State University)
Physics education in Iowa.
- 16.20 **Dmitry Slavnov** (Moscow State University)
Various interpretations of quantum mechanics.
- 16.50 **Alexander Krutov** (Samara State University)
Relativistic invariance principle in the course of physics.
- 17.40 **Dmitry Shirkov** (JINR, Dubna)
Quantum regularities around us.
- 18.20 **Vladimir Saleev** (Samara State University)
Computer mathematics for physicists.
- 18.40 **Alexander Tarnovsky** (SSPU, Samara)
On the definition of the state in quantum theory.

September 9

PLENARY SESSION (Chairman V.Sirotenko)

- 9.30 **Elisabeth Falk** (University of Lund)
Selected electroweak results from the LEP experiments.
- 10.30 **Chris Booth** (University of Sheffield)
Results from the ALEPH experiment at LEP-2.
- 12.00 **Shinhong Kim** (University of Tsukuba)
Recent CDF results on top quark physics and B physics.
- 13.00 **Leonid Chekhov** (Steklov Math. Inst., Moscow)
Quantum moduli spaces.

PARALLEL SESSION A (Chairpersons: A. Davydychev and R.Faustov)

- 15.30 **Yakov Azimov** (PNPI, St. Petersburg)
Double flavor oscillations and properties of heavy mesons.
- 16.00 **Mikhail Dolgoplov** (Samara State University)
Radiative and relativistic corrections to interactions between π -mesons.
- 16.30 **Lev Molchatsky** (SSPU, Samara)
Relation between mass splittings in the isomultiplets of the baryon octet.
- 16.50 **Vitaly Beilin** (Rostov State University)
Radiative decays of mesons in the extended model with heavy singlet quark.
- 17.40 **Alexei Martynenko** (Samara State University)
Correction of order $O(\alpha^6)$ to muonium fine structure induced by the three-photon exchange diagrams.
- 18.00 **Alexander Zubarev** (SSAU, Samara)
Parquet approximation in large N matrix theories.

PARALLEL SESSION B (Chairpersons: T.Weber and M.Sachwitz)

- 15.30 **Alexander Vshivtsev** (MIREA, Moscow)
Algebraic approach to the spectral problem for Schroedinger equation.
- 15.50 **Victor Edneral** (INP MSU, Moscow)
On standard bases over Newton's polytopes.
- 16.10 **Vladimir Vanyashin** (Dnepropetrovsk State University)
Unified variational treatment of Coulombic attraction and repulsion.
- 16.30 **Ivan Lukashevich** (RUND, Moscow)
Precise analysis of data on electromagnetic structure of nucleon.
- 17.40 **Manfred Boehm** (Institute for Theor Phys., Wuerzburg)
Two-loop contributions to μ -decay.
- 18.10 **Anna Stepanova** (Moscow State University)
An algebraic algorithm for NLO calculations in the large s (small x) regime.

PARALLEL SESSION C (Chairman A.Krutov)

- 15.30 **Alexander Biryukov** (Samara State University)
Educational process in the advanced physics school and teaching basics of quantum physics and high energy physics.
- 16.00 **Alexander Gorokhov** (Samara State University)
Chaos and quantum theory.
- 16.20 **Mikhail Dolgoplov** (Samara State University)
Teaching renormalization group method in the advanced physics school.
- 16.40 **Andrey Shirokov** (INP MSU and Kolmogorov college MSU, Moscow)
Quantum mechanics for scholars.
- 17.40 **Dmitry Slavnov** (Moscow State University)
Einstein-Podolsky-Rosen paradox and Bell nonequality.
- 18.00 **Yuri Popov** (INP MSU, Moscow)
Methodological problems in the quantum mechanics of charged particles.
- 18.20 **Alexander Tarnovsky** (SSPU, Samara)
Angular momentum in quantum mechanics and in Bohr quantum theory.

September 10

PLENARY SESSION (Chairman A.Biryukov)

9.30 **Mikhail Dubinin** (INP MSU, Moscow)

Workshop summary: high energy physics.

10.00 **Yuri Kubyshin** (INP MSU, Moscow)

Workshop summary: quantum field theory.

10.30 **Closing.**