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Karazin Kharkov National University

BOOK OF ABSTRACTS

2nd International Conference on

QUANTUM ELECTRODYNAMICS
AND
STATISTICAL PHYSICS

QEDSP2006

September 19-23, Kharkov, Ukraine

2006

BOOK OF ABSTRACTS 2nd International Conference on Quantum Electrodynamics and Statistical Physics (QEDSP2006), September 19-23, 2006, Kharkov, Ukraine. NSC KIPT, Kharkov, 2006, 212 p.

Abstracts of the talks presented to the 2d International Conference "Quantum Electrodynamics and Statistical Physics" — QEDSP2006 (Sept. 19–23, 2006) deal with the up-to-date problems of quantum field theory and elementary particle theory, high-energy electrodynamics in matter, QED processes in strong fields, nonlinear dynamics, kinetic theory, phase transitions in condensed matter, and physics of quantum liquids. The 1st Conference (QEDSP2001) was held at the National Science Center "Kharkov Institute of Physics and Technology" (NSC KIPT), Kharkov, Ukraine in 2001. It has been dedicated to the memory of A.I. Akhiezer (1911–2000), outstanding physicist-theoretician, academician of NAS of Ukraine and the founder of the Institute for Theoretical Physics (ITP) at NSC KIPT, named after him.

Тезисы докладов 2-й Международной конференции "Квантовая электродинамика и статистическая физика" (QEDSP2006), 19–23 сентября, 2006, ННЦ ХФТИ, Харьков, 2006, 212 с.

Тезисы докладов, представленных на 2-ю Международную конференцию "Квантовая электродинамика и статистическая физика" – QEDSP2006 (19-23 сентября, 2006), посвящены современным проблемам квантовой теории поля и теории элементарных частиц, электродинамики высоких энергий в веществе и квантовоэлектродинамическим процессам в сильных полях, нелинейной динамике и кинетической теории, фазовым переходам в конденсированной среде и физике квантовых жидкостей. Первая такая конференция (QEDSP2001) проводилась в Национальном научном центре "Харьковский физико-технический институт" (ННЦ ХФТИ), в Харькове, Украина, в 2001 г. Эта конференция была посвящена памяти А.И. Ахиезера (1911-2000), выдающегося физика-теоретика, академика НАН Украины и основателя Института теоретической физики (ИТФ) в ННЦ ХФТИ, названного его именем.

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STATISTICAL PHYSICS METHODS IN ECONOMIC THEORY: ABOUT THE USE OF CHARACTERISTIC NUMBERS OF TECHNOLOGICAL PROCESS IN PRODUCTION SYSTEMS CLASSIFICATION

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Modeling of complicated economic systems is an effective way of their research. Functioning of modern manufacture looks like a complicated stochastic process, which is based on the general principles, applicable for thermodynamic systems and systems of economic exchange: Le Samuelson's, Carno-Khix' ones, etc. The state of manufacturing system is defined as the state of lots of base products, forming the system. The conduct of each of the base product is of probability characterand can be defined by manufacturing factors. The state of lots of base products is described by distribution function with some moments, having manufacture interpretation: manufacturing margins and the rate of base products motion over production chain. The kinetic equation, taking into consideration technology of an article producing and performance attributes of equipment work, is defined for the system. For the first moments of distribution function the closed system of dynamic equations is obtained. With the help of statistical mechanics within the theory of disturbances for solution of the kinetic equation for manufacturing process the characteristic numbers of manufacturing system are input. The input numbers can be analogous to the Knudsen's and Strukhal's numbers, which are used in hydrodynamic problems. This approach gives a possibility realization of qualitative estimation of manufacturing process functioning, serious selection of correspondant system of macroscopic parameters balances equations for the real manufacturing process description, realization of classification of manufacturing systems. Estimation of the model selection should be interpreted as qualitative one, however, such an approach has the advantage, allowing to compare the results, corresponding to different models of manufacturing process, without any difficulties.

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