ХРОНІКА, БІБЛІОГРАФІЯ, ПЕРСОНАЛІЇ
MEETINGS, BIBLIOGRAPHY, PERSONALIA

ДРУГИЙ МІЖНАРОДНИЙ ЗИМОВИЙ СЕМІНАР У ПАМПОРОВО “КООПЕРАТИВНІ ЯВИЩА У ФІЗИЦІ КОНДЕНСОВАНИХ СИСТЕМ”
(Пампорово, Болгарія, 24 лютого – 4 березня 2001 р.)

SECOND PAMPOROVO INTERNATIONAL WINTER WORKSHOP ON COOPERATIVE PHENOMENA IN CONDENSED MATTER
(Pamporovo, Bulgaria, 24th February – 4th March 2001)

The Workshop will be devoted to **quantum phases and phase transitions**.

Aims: exchange of experience, recent ideas and new results; initiating joint projects; teaching of students and young scientists; promotion of new investigations; publication of a series of Lecture Books of high quality as well as Proceedings of Short Communications. The accent is on the theory, but important experimental development and interrelationship between theory and experiment will be also considered.

Scope: Quantum Fluids and Crystals, Superconductivity, Magnetism, strong electron correlations, quantum Hall effect, Films and Surface; phenomenology, statistical models, quantum field methods; thermal, magnetic, neutron scattering and other relevant experimental techniques.

Publications:

1. $9 \div 11$ two–hour invited Lectures **(Ls)** will be published in a special volume by **Plenum Press (New York–London)**.

2. $40 \div 60$ selected Poster Reports and Short Talks (15 min plus 5 min questions) will be published as Short Communications **(SCs)** in **Journal of Phys. Studies (JPS) [Lviv]**.

3. A Booklet containing a comprehensive description of the Programme of the 2nd WW, the Pamporovo ski resort facilities (skiing, other sports, entertainments), the list of participants with their addresses, as well as the text of all Abstracts of Ls and SCs will be distributed among the participants together with other helpful materials. Abstracts which are not submitted electronically or do not meet our requirements will not be published in the Booklet. An example of a Latex2e Abstract for WW (**less** than 120 words) is given below. The acceptance of the abstract and the WW (Lecture, short talk or poster) report does not guarantee the acceptance of the corresponding SC or L for a publication.

All texts of Ls and SCs should be presented in an almost final form (2 hard copies together with **the 2eLaTeX file**) <u>on the arrival</u> at WW. The SCs will be referred by experts (Lecturers and Members of the Advisory Board). Corrections of SCs and Ls as a result of discussions at the 2nd WW will be possible within March 2001. The final variants of SCs and Ls should be resubmitted electronically to the Editors before 1st April 2001. After this deadline papers will not be accepted. In special cases the Editors of the JPS and Plenum issues may ask for the submission of hard copies of selected papers, too. The final edition of all publications should end in May 2001. The Plenum and JPS issues will appear before the end of 2001.

Publications of SCs will be accepted only after been reported and referred at WW. In extraordinary cases (an impossibility to be presented for a sudden reason which has arisen just before the meeting) a Lecture might be allowed for a publication without an oral presentation at the meeting.

Manuscripts of SCs: Texts of SCs should meet the requirements of JPS. The length of the paper should not exceed 10 pages, as described in the JPS rules for contributors. In particular cases longer papers will be allowed; for example, see the SC Proceedings of the 1st WW (J. Phys. Studies 2(1998) No.2.). The SCs should be based entirely on original results, unpublished previously elsewhere. The authors of SCs will receive thirty copies free of charge (additional copies can be ordered at nominal price directly from JPS).

The manuscripts of Ls: The text of Ls (apart from title page, abstract, figs., fig. captions, References) should be in the limits $20 \div 50$ pages ([12pt], textwidth 15.5cm, textheight 24cm, baselinestretch {1.2}). The number of figures should not exceed 25. Longer Ls should be stipulated with the Chairman. Every Lecturer will be supplied with comprehensive instructions and 2eLaTeX format of Plenum Publishers just after accepting the Lectureship. Every lecture should be a status report of essential achievements in a concrete relevant (not too large) field of research during the last $5 \div 20$ years. The Ls are supposed to be instructive and clear for post–graduate students and non–experts; a good guide for the level of presentation of the Ls are review articles like those in *Adv. Phys.*, *Rep. Progr. Phys., Rev. Mod. Phys., Sov. Phys. – Uspehi*, as well as in the issue of Ls given at the 1st WW: D. V. Shopova and D. I. Uzunov (eds.), *Correlations, Coherence, and Order* (Kluwer Academic/Plenum Publishers, New York–London, 1999). The Lecturers must include enough explanatory material so as to introduce the young scientists in the theoretical and/or experimental techniques. Moreover, it will be very convenient, if the Ls reveal certain research details and puzzles which usually remain hidden for students and scientists with a relatively little experience. The Ls should include an instructive introduction, detailed explanation of techniques and recent results as well as some new unpublished matter. They should be of interest to a wide range of readers: last year students, post–graduate students, and experts. Although the accent of the WW series is on the theory, a few purely experimental Lectures will be admitted, as well as experimental Lectures, where the interrelations with the theoretical description is comprehensively considered. The Ls or essential part of them should not be previously published elsewhere.

NB: All lecturers are kindly invited to prepare the text of their lectures for the Plenum issue but this is not a steady condition for a lectureship at the WW series. The Organizers are constrained to choose among those lecturers who will definitely write their lectures according to the WW requirements and will be free of registration fee payment or to those of them who are ready to pay the reduced registration fee defined below and prefer to avoid the lecture publication, although these rules are not absolutely rigid.

The 60 % discount price (USD 60) of the book of Ls "Quantum Phases and Phase Transitions" is included in the registration fee. The same discount price will be available for orders up to the end of March 2001 made by non-participants, libraries, etc. (payment at the bank account of the WW or cheques at the address of WW). Every principal Lecturer (one per lecture) will receive a copy of the Plenum issue free of charge.

International Advisory Board: V. L. Aksenov (Dubna), N. N. Bogoliubov (Moscow), R. Folk (Linz), I. A. Fomin (Moscow), P. Fulde (Dresden), V. L. Ginzburg (Moscow), B. I. Halperin (Boston), Yu. Holovatch (Lviv), K. Katsumata (Tokyo), H. Lauter (Grenoble), K. N. Michel (Antwerpen), S. K. Nemirovskii (Novosibirsk), M. Piacentini (Rome), L. P. Pitaevskii (Haifa–Trento–Moscow), N. M. Plakida (Dubna), A. Rigamonti (Pavia), A. M. J. Schakel (Berlin), M. Suzuki (Tokyo), I. O. Vakarchuk (Lviv).

Lecturers (all confirmed except pointed by $*$ - to be confirmed before 30 Sept 2000): **C. Di Castro (La Sapienza, Rome)**: Superconductivity Theory Problems (to be specified); * **B. I. Halperin (Harvard Univ, Boston)**: Lecture title to be specified; **I. Herbut (Simon Fraser Univ, Burnaby, BC-Canada)**: Superconductor–Insulator Quantum Phase Transition; **Th. Herrmannsdörfer (Bayreuth), and F. Pobell (Drezden)**: How Nuclear Magnetism Impairs Superconductivity; **Yu. L. Klimontovich (Moscow State Univ, Moscow)**: Superconductivity – not fading electrical current in dissipative medium; **L. P. Mezhov–Deglin (ISSP of RAS, Chernogolovka)**: Irreversible watergel formation in Superfluid He-II; **S. K. Nemirovskii (ITP of RAS, Novosibirsk)**: Chaotic Vortices in Superfluid Turbulent He II; **F. S. Nogueira (Ecole Polytechnique, Palaiseau)**: Critical Crossovers in Superconductors; * **L. P. Pitaevskii (Technion-Haifa, Kapitza RAS - Moscow)**: BEC Theory Problems; **N. M. Plakida (JINR, Dubna)**: Microscopic Theory of Superconductivity; **J. Ranninger (CNRS, Grenoble)**: Normal State Properties of High-Temperature Superconductors; **B. N. Shalaev (*Ioffe* Institute, St. Petersburg)**: Lecture title to be specified; **A. I. Sokolov (Electromechanical Univ, St. Petersburg)**: Lecture title to be specified; **E. B. Sonin (Helsinki Univ and Jerusalem Hebrew Univ)**: Collective modes in layered superconductors; **Z. Tesanovic (Johns Hopkins Univ, Baltimore)**: Lecture title to be specified in the field of superconductivity theory; * **M. Tsubota (City Univ, Osaka)**: Lecture title to be specified; **I. O. Vakarchuk (*I. Franko* Univ, Lviv)**: Once more about the $\lambda-$transition; * **D. Vollhardt (Augsburg Univ, Augsburg)**: Strongly Interacting Fermions Theory (to be specified).

Organizers: Austrian Institute for East and South–East Europe; Bulgarian Academy of Sciences; *Ivan Franko* National University of Lviv; Joint Institute for Nuclear Research (Dubna).

Organizing Committee: (to be completed) D. I. Uzunov (Chairman), Yu. Holovatch, I. P. Takov, S. S. Savova, D. V. Shopova, A. Zahariev.

Registration Fee and Payment: The registration fee is USD 550 [or equivalent in DM and BGL(Bulgarian lev)] and includes: full lodging, breakfast, lunch, dinner, welcome party, banquet, transportation in Bulgaria, full set of WW materials, the Plenum Ls book. Members of the Advisory Board, Accompanying persons, under– and post–graduate students, and young researchers with PhD (under 33 years of age) with a letter of recommendation – USD 450 (reduced reg. fee). These nominal registration fees are paid in cash at arrival (on 25th February 2001). Limited cases of an additional partial reduction of the registration fee will be permitted for young scientists (age up to 33) and experts from countries with extreme difficulties in funding science. If the efforts of finding more sponsors become successful, the participation of selected students will be **free** of charge. This opportunity should be stipulated directly with the Organizers from 1st October 2000 to 10th December 2000.

The 15 % of the regular and reduced registration fees will be reimbursed during the WW if paid in advance before 1st December, 2000. The advanced submission of the registration fee is encouraged via Bank Drafts to: Account 310 013 2310, SWIFT BNBGBGSF, Bulgarian National Bank (BNB), Central Office, BG–1000 Sofia, Bulgaria (It is important to note the purpose, i.e., 2nd WW 2001 registration fee). [Cheques may be sent to: Financial Administration Office, G. Nadjakov Institute of Solid State Physics, Bulgarian Academy of Sciences, BG–1784 Sofia, Bulgaria.] Please, inform the Organizers (Email, Fax with the bank transfer document) just after the advanced submission of the registration fee has been made. The 85% of registration fees paid in advance will be reimbursed within 15th March 2001 to whose colleagues who have not been able to visit the WW for a sudden reason.

Schedule: The 2–hour (2×40 and 10 min for questions) Ls will be given as follows: 8:50 – 10:20 and 17:15 – 18:45 every day; Posters, minitalks and Round Table discussions of the Ls: 20:15 – 21:30. Breakfast: 7:30 – 8:40, Lunch: 12:00 – 14:00, Dinner: 19:00 – 20:00. For those participants (*e.g.* skiers) who will be absent from Villa *Orlitza* during the Lunch time sandwiches will be supplied. 24th Feb 2001 is the day for a registration ($15:00 \div 19:00$), dinner (19:00 – 20:30). Registrations will be made during the WW for those colleagues who wish to visit WW for selected days. Departure – Morning, 4th March 2001. Working days – 25th February – 3rd March 2001. Welcome party – 25th Feb, 21:00. Banquet: 3rd March 2001.

Skiing, Excursions, Facilities: Pamporovo is in the heart of the Rhodopes range of mountains (South Bulgaria, near the Greek border). It is the internationally recognized best Bulgarian Ski Resort with many hotels, restaurants, ski–lifts, several ski tracks (for beginners, amateurs, and professional skiers), night clubs, national pubs, coffee bars, discotheques, swimming pools, saunas, rent a car, fitness centres, etc. facilities.

One may enjoy skiing, sun bathes, and walks in the beautiful Rhodopes. Ski and ski shoes will be provided for foreign participants at regular prices for tourists. Everybody may enjoy skiing, walks, sun bathes, sight–seeing, visiting shops within the daily time 10:50 – 17:00 which is free from any scientific activity. The temperatures in the period of WW may vary from $+10^0$C (midday) to -10^0C (at night and early morning).

Villa *Orlitza* (Council of Ministers Residence) is one of the most comfortable, elegantly furnished places in the central, but very quite part of the large Ski Resort of Pamporovo. It is very near to the best ski lifts (about 200 m). The most interesting entertainment places are located at distances no more than 1000 meters from Villa *Orlitza*

Excursions by bus will be organized at an economic price (about USD 10 per person) for those participants who are interested in the original architecture style of the nearly situated ($10 \div 20$ km) old towns, museums, churches. An exceptionally interesting excursion will be organized (in case of interest) to the old and very famous Batchkovo Monastery – a place of Art and a great significance for the Bulgarian history (55 km from Pamporovo, approximately USD 25, including a professional guidance and a lunch in a national restaurant). In the way back to Sofia, the participants using our special bus will have the opportunity to visit for two hours the centre of the second significant Bulgarian city – the 7000 years old city of Plovdiv (600 000 citizens).

Arrival, Transport: Although the Resort Pamporovo (about 220 km from Sofia) can be easily reached from Sofia Airport and Sofia Central Railway Station (direct buses to Pamporovo are available from the Sofia C.R.Station several times per day), a special transportation from Sofia to Pamporovo will be also provided on 24th February 2001 (about 15:00) free of charge for the foreign participants. The way back is organized in the same way. One day lodging can be ensured in a central and communicative place (the Academy Hotel) in Sofia at extremely low price (less than 20 USD incl. breakfast) for those foreign participants whose flight schedules require spending one or two nights in Sofia. This facility will be available for the departure too. The same Academy Hotel can be conveniently used also in cases, in which the participation at WW is combined with a visit of certain Departments of the Bulgarian Academy of Sciences or Universities in Sofia. Please, feel yourself free to use this facility by informing the Organizers $10 \div 15$ days before arrival about your needs.

Deadlines: For receiving registration forms – **31st December 2000**, but the interested colleagues are invited to send us this form (see below) in their earliest convenience. Anyone sending the registration form is included in the list for a further communication (circular information, update version of this Annoucement). For receiving abstracts and registration forms – **31st December 2000**. For presenting LaTeX files and hard copies of almost–final variants of Ls and SCs – **25th February 2001**.

Inquiries for a reduction of the Registration Fee are to be made before the end of 2000. Other deadlines are mentioned above. All deadlines are rigid, in particular, those related to submission of papers, abstracts, reservations.

Formal letters of invitation will be sent if required before 1st December 2000.

Correspondence, Further Information: D. I. Uzunov, CPCM Laboratory, G. Nadjakov Institute of Solid State Physics, Bulgarian Academy of Sciences, BG–1784 Sofia, Bulgaria. Tel: +359–2–7144708 and/or +359–2–7144737; Telex 24 368 ISSPH BG; Fax +359–2–9753632. <**uzun@issp.bas.bg**>, Web site: http://www.issp.bas.bg. The Email communication is encouraged.

In case of interest please fill and send by Email the following Registration Form:

2nd WW CPCM PA 2001

Registration form

1) Names
(Capital letters, starting with the Family name, First Name, initial letters of other names if available)
2)Scientific degree (MS, PhD, Dr.Sc.), Academy Membership (e.g., MRS, Member or Corresponding Member of RAS)
3) Present status
(post-graduate, post-doctoral, ..., Professor, Head of group, Director of Lab, Inst., etc).
4) Full postal address, tel, fax, email, homepage (if available)
5) Sex
6) Proposal(s) for (i) Lecture or (ii) SC report (oral or poster ?) (TITLE of possible report if available at this stage).
Note: Participations without reports are also very welcome.
7) Eventual co–authorship (co–authors, names).
(Note: If a co–worker intends to visit the 2ndWW too, he must fill his own registration form.)
8) Accompanying persons (number and whether you will share a hotel room with them)
9) Way of payment of the registration fee (in advance or at arrival)
10) Preferred way of further communications (Email, if possible).
11) Please, point out whether you need a letter of invitation in order to arrange your trip.

WW Abstract Format: Please, use the same or equivalent Latex2e commands and design. The underlined author name (only in case of two or more authors) indicates the author who will present the paper. As shown by the example, please, indicate whether the report is intended to be a Poster, Mini Talk, or Lecture.

Poster

Energy of Chaotic Vortex Loop in Superfluid Turbulent He II

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It is widely appreciated that in the counterflowing HeII the quantum vortices appear as a set of highly disordered vortex filaments or a vortex tangle (VT) (see, e.g.[1]). In this work we calculate a kinetic energy E associated with chaotic vortex filaments. This quantity is defined as an average of the classical one taken over stochastic vortex loops distribution. To perform an averaging procedure we use the Gaussian model of the chaotic vortex tangle elaborated earlier [2]. The calculation shows that the energy is schematically composed of several contributions. Besides of the local contribution usually used in many applications, the quantity E includes additional terms due to long-range interaction. Though they are logarithmically small, they are responsible for a number of new effects. For instance they describe longitudinal elasticity, which can give some new wave mode, 3D analog of the Tkachenko waves. Besides there is an additional contribution of order of the local one. It appears from accidental self-crossing of remote (along the line) parts of the vortex filament and is connected to the fractal structure of the vortex loop.

References:

[1] S. K. Nemirovskii, and W. Fiszdon, *Rev. Mod. Phys.* **67** (1995) 37.
[2] S. K. Nemirovskii, to appear in *Phys. Rev.* **B1** (1998).