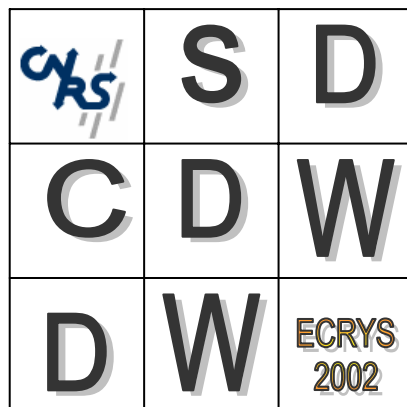


**INTERNATIONAL WORKSHOP  
ON  
ELECTRONIC CRYSTALS**

**ECRYS-2002**



***September 2 -7, 2002***

***St. Flour, France***

**Program**

## CONFERENCE ORGANIZATION

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Serguei Brazovski	LPTMS, Orsay	France
Pierre Monceau	CRTBT, Grenoble and LLB, Saclay	France

### Secretary :

Natasha Kirova	POMA, Angers & LPTMS Orsay	France
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V. Yakovenko	Maryland	USA
S. Zaitsev-Zotov	Moscow	Russia
H. van der Zant	Delft	The Netherlands

## SESSIONS SCHEDULE

### Monday, September 2

16:30 – 22:00 Registration

### Tuesday, September 3

8:30 - 8:45 Opening  
8:45 - 10:35 Glassy State  
10:35 - 11:05 Coffee break  
11:05 - 12:55 Microscopic mechanisms and electronic correlations I  
16:00 - 17:55 Quantum and mesoscopic effects, tunneling.  
17:55 - 18:25 Break  
18:25 - 19:25 Poster Presentations I  
21:00 - 22:30 Poster Session I

### Wednesday, September 4

8:30 - 10:05 Charge Disproportionation  
10:05 - 10:35 Coffee break  
10:35 - 12:25 Plasticity and space resolved studies.  
16:00 - 17:30 Charge Ordering I  
17:30 - 18:00 Break  
18:00 - 19:00 Poster presentations II  
21:00 - 22:30 Poster Session II

### Thursday, September 5

8:30 - 10:30 Stripes  
10:30 - 11:00 Coffee break  
11:00 - 12:55 Pinning I  
14:00 – 23:00 Excursion and dinner

### Friday, September 6

8:30 - 10:00 Pinning II  
10:00: -10:30 Coffee break  
10:30 - 12:35 Charge Ordering II  
16:00 - 17:45 2D Electron Solids  
17:45 - 18:15 Break  
18:15 - 19:50 Microscopic mechanisms and electronic correlations II

### Saturday, September 7

8:30 - 10:10 Materials, Structures, Phases  
10:10 - 10:30 Coffee break  
10:30 - 12:40 High magnetic fields  
12:40 - 13:00 Closing

*Tuesday, September 3*

**8:30 - 8:45                      Opening**

**8:45 - 10:35            Glassy State**

8:45-9:15

X-RAY INTENSITY FLUCTUATION MEASUREMENTS OF THE CHARGE DENSITY WAVE PHASES OF NbSe<sub>3</sub>

**M.Sutton\***, Yanping Li<sup>^</sup>, R.Thorne<sup>^</sup> and J.Brock<sup>^</sup>

*\*McGill University, Montreal, Canada, ^Cornell University, Ithaca, USA.*

9:15-9:45

FRIEDEL OSCILLATIONS AND CHARGE DENSITY WAVE PINNING IN QUASI-ONE DIMENSIONAL CONDUCTORS : THERMAL EFFECTS

**J.-P. Pouget\***, S. Ravy\*, S. Rouzière\*\* and S. Brazovski\*\*\*

*\*Laboratoire de Physique des Solides, CNRS UMR 8502, Université Paris Sud, 91405 Orsay, France ;*

*\*\*LURE, CNRS UMR 130, Université Paris Sud, 91405 Orsay, France ;*

*\*\*\*Laboratoire de Physique Théorique et des Modèles Statistique, CNRS UMR 8626, Université Paris Sud, 91405 Orsay, France*

9:45-10:05

UNIVERSAL LOW-FREQUENCY CONDUCTIVITY OF UNDERDAMPED DISORDERED SYSTEMS

**M. Fogler**

*Massachusetts Institute of Technology, Cambridge, USA*

10:05-10:20

FRACTIONAL-POWER LAW SUSCEPTIBILITY AND SPECIFIC HEAT OF O-TAS<sub>3</sub>

**K. Biljakovic**<sup>1</sup>, M. Miljak<sup>1</sup>, D. Starešinič<sup>1</sup>, J. C. Lasjaunias<sup>2</sup>, J. Souletie<sup>2</sup>, P. Monceau<sup>2</sup>

*\*Institute of Physics, Zagreb, Croatia,*

*<sup>2</sup> CRTBT-CNRS, Grenoble, France*

10:20 – 10:35

GLASS TRANSITION IN CHARGE-DENSITY-WAVE SYSTEMS: o-TaS<sub>3</sub> AND K<sub>0.3</sub>MoO<sub>3</sub>

**D. Starešinič**<sup>1\*</sup>, K. Biljakovic<sup>\*</sup>, W. Brütting<sup>&</sup>, K. Hosseini<sup>&</sup>, P. Monceau<sup>#</sup>

*\*Institute of Physics, Zagreb, Croatia,*

*& University of Bayreuth, Bayreuth, Germany,*

*# CRTBT-CNRS, Grenoble, France*

\*\*\*\*\*

**10:35 – 11:05            Coffee break**

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## 11:05 - 12:55 Microscopic mechanisms and electronic correlations I

11:05 –11:35

'LEAN' AND 'FAT ' QUASIPARTICLES IN LOW-D: A VIEW FROM PHOTOEMISSION.

**M. Grioni**, L. Perfetti, H. Berger, S. Mitrovic

*Institut de Physique des nanostructures (IPN),*

*Ecole Polytechnique Fédérale, Lausanne (Switzerland)*

11:35 -11:55

STUDIES OF THE DYNAMICS IN CHARGE-DENSITY-WAVE SYSTEMS USING INELASTIC X-RAY SCATTERING WITH meV-ENERGY-RESOLUTION

**H.Requardt\***, J.E.Lorenzo-Diaz<sup>^</sup>, R.Danneau\$, R.Currat\$, P.Monceau#

\* *ESRF, Grenoble, France* <sup>^</sup> *Lab. de Cristallographie-CNRS, Grenoble, France*

\$ *ILL, Grenoble, France* # *CRTBT-CNRS, Grenoble, France*

11:55 -12:10

DIRECT PROOF OF PHASE AND AMPLITUDE MODULATED CDW IN TTF-TCNQ WITH STM

**Z.Z. Wang**<sup>1</sup>, J.C. Girard<sup>1</sup>, C. Pasquier<sup>2</sup> and D. Jerome<sup>2</sup>

<sup>1</sup>*Laboratoire de Photonique et de Nanostructures (LPN/CNRS), Route de Nozay, 91460*

*Marcoussis, France* <sup>2</sup>*Université de Paris-sud, Laboratoire de Physique des Solides*

12:10-12:35

UNCONVENTIONAL DENSITY WAVE IN QUASI-1D AND QUASI-2D SYSTEMS

**K. Maki\***, B.Dora<sup>^</sup>, A.Virosztek<sup>^</sup>

\**Department of Physics and Astronomy, University of Southern California, Los Angeles, USA,*

<sup>^</sup>*Department of Physics, Budapest University of Technology and Economics, Budapest, Hungary*

12:35 –12:55

PHOTO-EMISSION PROPERTIES OF QUASI-ONE-DIMENSIONAL CONDUCTORS

Z. Agic<sup>1</sup>, P. Zupanovic<sup>1</sup> **A. Bjelis**<sup>2</sup>

<sup>1</sup>*Department of Physics, Faculty of Science and Art, University of Split, Split Croatia*

<sup>2</sup>*Department of Physics, Faculty of Science University of Zagreb, Zagreb Croatia*

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## 16:00 – 17:55 Quantum and mesoscopic effects, tunneling

16:00 – 16:30

SUBMICRON CHARGE-DENSITY WAVE STRUCTURES

**H.S.J. van der Zant**

*Delft University of Technology*

16:30 – 16:50

EXPERIMENTAL EVIDENCE OF INTERLAYER COHERENT TUNNELING IN NbSe<sub>3</sub> FROM EXPERIMENTS ON SMALL MESAS

**Yu.I. Latyshev\***, L.N. Bulaevskii<sup>^</sup>, P. Monceau<sup>+</sup>

\**Institute of Radio-Engineering and Electronics Russian Acad. of Sci., Moscow, Russia,*

<sup>^</sup> *Los Alamos National Laboratory, Los Alamos, USA,*

<sup>+</sup> *Centre de Recherches sur Les Tres Basses Temperatures, Grenoble, France*

16:50 – 17:10

SPONTANEOUS FORMATION OF PI-SOLITON IN A SUPERCONDUCTING WIRE WITH AN ODD NUMBER OF ELECTRONS

Hyok-Jon Kwon and **Victor M. Yakovenko**

*Department of Physics, University of Maryland, USA*

17:10 – 17:25

TRANSPORT PROPERTIES OF NANOMETER-SIZED CRYSTALS OF NbSe<sub>3</sub>

**S.V.Zaitsev-Zotov\***, E. Slot<sup>^</sup>, H.S.J. van der Zant<sup>^</sup>

*\*IRE RAS, Moscow, Russia*

*<sup>^</sup>DIMES and Department of Applied Sciences, Delft TU, Delft, The Netherlands*

17:25 – 17:40

POINT-CONTACT SPECTROSCOPY PROBING THE NbSe<sub>3</sub> CDW GAP IN DIFFERENT CRYSTALLOGRAPHIC ORIENTATIONS.

**A.A. Sinchenko**<sup>^\*</sup>, P. Monceau<sup>^</sup>

*<sup>^</sup>Centre de Recherches sur les Très Basses Températures, CNRS, Grenoble, France*

*\*Moscow State Engineering Physical Institute, Moscow, Russia*

17:40 – 17:55

ONE-DIMENSIONAL DISORDERED DENSITY WAVES AND SUPERFLUIDS: THE ROLE OF QUANTUM PHASE SLIPS AND THERMAL FLUCTUATIONS

Thomas Nattermann and **Andreas Glatz**

*Institut für Theoretische Physik, Universität zu Köln, Germany*

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**17:55 – 18:25 Break**

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## **18:25 – 19:25 Poster presentations I**

### **T1**

LOW TEMPERATURE HETEROGENEOUS DYNAMICS IN THE COMMENSURATE GROUND STATE OF SULFUR QUASI-1 D COMPOUNDS (TMTTF)<sub>2</sub> Br AND (TMTTF)<sub>2</sub> PF<sub>6</sub>

**J.C. Lasjaunias**<sup>1</sup>, K. Biljakovic<sup>2</sup>, D. Starešinič<sup>2</sup>, P. Monceau<sup>1</sup>

*<sup>1</sup>CRTBT- CNRS, BP 166, 38042 Grenoble Cedex 9, France*

*<sup>2</sup> Institute of Physics, POB 304, HR 10001, Zagreb, Croatia*

### **T2**

STRONG SENSITIVITY TO MAGNETIC FIELD OF THE LOW-TEMPERATURE HEAT CAPACITY OF (TMTSF)<sub>2</sub> PF<sub>6</sub>

**J.C. Lasjaunias**<sup>1</sup>, S.Sahling<sup>2</sup>, K.Biljakovic<sup>3</sup>, and P.Monceau<sup>1</sup>

*<sup>1</sup>CRTBT-CNRS, BP166, 38042 Grenoble, France*

*<sup>2</sup>Institut für Angewandte Physik, T.U.-Dresden, Germany*

*<sup>3</sup>Institute of Physics, Zagreb, Croatia.*

**T3**

THERMODYNAMICS OF DISORDERED ELASTIC SYSTEM IN THE BRAGG GLASS PHASE

**G.Schehr\***, Th. Giamarchi\*\*, P. Le Doussal \*

\**Labo. de Physique Theo de l'Ecole Normale Sup.*;

\*\* *Labo. de Physique des Solides, Univ Paris Sud Bat 510*

**T4**

MODIFICATION OF CHARGE-DENSITY-WAVE FLUCTUATIONS BY CHARGE PERTURBATIONS.

**S.N. Artemenko**

*Institute for Radioengineering and Electronics of RA of Sciences, Moscow, Russia*

**T5**

NEW INSIGHTS ON CHARGE DENSITY WAVE AND OTHER FLUCTUATIONS IN BLUE BRONZE FROM NMR MEASUREMENTS

**W. Gilbert Clark\***, Kenji B. Tanaka\*, P. Vonlanthen\*, and G. Kriza<sup>^</sup>

\**UCLA Physics and Astronomy, Los Angeles, USA*; <sup>^</sup>*SZFKI, Budapest, Hungary*.

**T6**

SPIN NEMATICS REVISITED

**Vladimir Cvetkovic**, Jan Zaanen, Zohar Nussinov

*Instituut-Lorentz, Leiden Universiteit, Netherlands*

**T7**

ON THE CRITICAL CURRENT FOR THE CHARGE-DENSITY WAVE TRANSPORT.

A.A. Sinchenko\*\*, S.G. Zybtev\*, I.G. Gorlova\*, Yu.I. Latyshev\*, **V.Ya. Pokrovskii\***, and P. Monceau<sup>^</sup>.

\*\**Moscow state Engineering-Physics Institute, Moscow, Russia*; \**Institute of Radioengineering and Electronics, Moscow, Russia*; <sup>^</sup>*CRTBT, Grenoble, France*.

**T8**

FRIEDEL OSCILLATIONS AND CDW PINNING IN BLUE BRONZES

**S. Ravy\***, S. Rouzière\*\*, J.-P. Pouget\*, D. Le Bolloc'h\* and S. Brazovskii\*\*\*

\**Laboratoire de physique des solides, Orsay, France*

\*\**LURE, Orsay, France* \*\*\**LPTMS, Orsay, France*

**T9**

WIGNER CRYSTALLIZATION IN A MAGNETIC FIELD: SINGLE ELECTRONS VERSUS ELECTRON PAIRS AT THE LATTICE SITES

**M. Taut**

*Institut for Solid State and Materials Research POB 270018 01171 Dresden Germany*

**T10**

THE CHARGE ORDERED STATE AND THE CDW STATE WITH FERMI SURFACE NESTING IN ORGANIC CONDUCTOR  $\theta$ -(BEDT-TTF)<sub>2</sub>MM'(SCN)<sub>4</sub> (M=Rb, Cs, M'=Zn, Co).

**M.Watanabe\***, Y.Noda\*, Y.Nogami<sup>^</sup>, K.Oshima<sup>^</sup>, H.Mori\*\*.

\**IMRAM Tohoku Univ., Sendai, Japan*, <sup>^</sup>*G.S.N.S.T Okayama Univ. Okayama, Japan*,

\*\**ISSP Univ. of Tokyo, Kashiwa, Japan*.

**T11**

THERMAL HYSTERESIS IN PINNING PROPERTIES OF CHARGE DENSITY WAVES

**A. Akrap**<sup>1</sup>, D. Starešinič<sup>1</sup>, K. Biljaković<sup>1</sup>, P. Lunkenheimer<sup>2</sup>, A. Loidl<sup>2</sup>

<sup>1</sup>*Institute of Physics, Zagreb, Croatia,*

<sup>2</sup>*University of Augsburg, Augsburg, Germany*

**T12**

TEMPORALLY-ORDERED CDW CREEP IN PURE AND DOPED NbSe<sub>3</sub>

**K. Cicak**, K. O'Neill and R. E. Thorne

*Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY, USA*

**T13**

INCREASE OF THE CDW PHASE COHERENCE IN THE SLIDING AND THE MODE-LOCKED STATE.

**R. Danneau**<sup>\*,§</sup>, A. Ayari<sup>\*</sup>, D. Rideau<sup>\*,§</sup>, H. Requardt<sup>#</sup>, J.E. Lorenzo<sup>¶</sup>, L. Ortega<sup>¶</sup>,  
P. Monceau<sup>\*,§</sup>, R. Currat<sup>§</sup> and G. Grübel<sup>#</sup>.

<sup>\*</sup>*Centre de Recherche sur les Très Basses Températures, CNRS, Grenoble, France.*

<sup>§</sup>*Institut Laue Langevin, B.P. 156, 38042 Grenoble, France.*

<sup>#</sup>*European Synchrotron Radiation Facility, B.P. 220, 38043 Grenoble, France.*

<sup>¶</sup>*Laboratoire de Cristallographie, CNRS, B.P. 166, 38042 Grenoble, France.*

<sup>§</sup>*Laboratoire Léon Brillouin, CEA-CNRS, CEA-Saclay, 91191 Gif sur Yvette cedex, France.*

**T14**

NON-LINEAR CONDUCTION IN INSULATING PHASE OF (DMTSA)BF<sub>4</sub>

**M. Nagasawa**<sup>1</sup>, K. Kawabata<sup>2</sup>, T. Sambongi<sup>3</sup>, P. Monceau<sup>4</sup> and T. Otsubo<sup>5</sup>

<sup>1</sup>*Tokyo Denki Univ., Chiba, Japan,* <sup>2</sup>*Hokkaido Univ., Sapporo 060-0810,*

<sup>3</sup>*Hokkaido Information Univ. Ebetsu, Japan,* <sup>4</sup>*CRTBT, CNRS, Grenoble, France,*

<sup>5</sup>*Hiroshima Univ., Higashihiroshima, Japan*

**T15**

TIME DEPENDENT STATIC FRICTION FORCE OF AGAR GEL-ON-GLASS PLATE  
IMMERSED IN WATER

**Takahiro Nitta**<sup>\*</sup>, Hisashi Haga<sup>\*</sup> and Kazushige Kawabata<sup>^</sup>

<sup>\*</sup>*Div. of Phys., Grad. School of Sci., Hokkaido Univ., Sapporo 060-0810 Japan*

<sup>^</sup>*Div. of Biological Sci., Grad. School of Sci., Hokkaido Univ., Sapporo 060-0810 Japan*

**T16**

PHOTOINDUCED DYNAMIC EFFECTS IN THE SLIDING CONDUCTION OF  
K<sub>0.3</sub>MoO<sub>3</sub>

**Naoki Ogawa** and Kenjiro Miyano

*RCAST, The University of Tokyo, Tokyo, JAPAN*

**T17**

WAVELET ANALYSIS OF A SIGNAL PRODUCED BY MOVING CDW

**V.B. Preobrazhensky**, Ju.A. Danilov, A.P. Grebenkin,

*RRC Kurchatov Institute, Moscow, Russia*

**T18**

SEARCH FOR NARROW-BAND-NOISE MODULATIONS OF THE INFRARED TRANSMISSION OF BLUE BRONZE

R.C. Rai, V.A. Bondarenko, and **J.W. Brill**  
*University of Kentucky, Lexington, KY, USA*

**T19**

PLASTIC DEPINNING IN ARTIFICIAL VORTEX CHANNELS: COMPETITION BETWEEN BULK AND BOUNDARY NUCLEATION

**C. Morais Smith\***, T. Dröse<sup>^</sup>, R. Besseling#, and P.Kes#

*\* Institut de Physique Theorique, Universite de Fribourg, Fribourg, Switzerland,*

*^ I Institut fuer Theoretische Physik, Universitaet Hamburg, Hamburg, Germany,*

*# Kamerlingh Onnes Laboratorium, Leiden University, Leiden, the Netherlands*

**T20**

X-RAY DIFFRACTION STUDY OF THE TRANSIENT STRUCTURE OF SLIDING CHARGE-DENSITY-WAVES IN NbSe<sub>3</sub>

**H.Requardt\***, R.Danneau\$, J.E.Lorenzo-Diaz<sup>^</sup>, A.Ayari#, R.Currat\$, P.Monceau#, L.Ortega<sup>^</sup>

*\*ESRF, Grenoble, France \$ ILL, Grenoble, France*

*^ Lab. de Cristallographie-CNRS, Grenoble, France*

*# CRTBT-CNRS, Grenoble, France*

**T21**

CURRENTS CONVERSION IN THE SUBMICRON CDW-N-CDW STRUCTURES.

**S.G. Zybtev\***, V. N. Timofeev<sup>^</sup>

*\*Institute of Radio Engineering and Electronics, Russian Academy of Sciences, Moscow, Russia,*

*^A.A. Baikov Institute of Metallurgy, Russian Academy of Sciences, Moscow, Russia*

*Wednesday, September 4*

## **8:30 - 10:05      Charge disproportionation**

8:30 – 9:00

CHARGE ORDERING AND FERROELECTRIC STATES IN ORGANIC QUASI-ONE-DIMENSIONAL CONDUCTORS

**F.Nad\***<sup>^</sup>, P.Monceau<sup>^</sup>

*\*Institute of Radiengineering and Electronics of Russian Academy of Sciences, Moscow, Russia*

*^Centre de Recherches sur les Tres Basses Temperatures, CNRS, 38042 Grenoble, France*

9:00 – 9:30

HIGH PRESSURE AND THE STABILITY OF THE BROKEN-SYMMETRY PHASES OF TMTTF MOLECULAR CONDUCTORS

**S. E. Brown**, F. Zamborszky, W. Yu, B. Alavi, C. Merlic, A. Baur, D.Tantillo

*UCLA, Los Angeles, CA 90095 USA*

9:30-9:45

X-RAY OBSERVATION OF 2KF AND 4KF CHARGE ORDERINGS IN (TMTTF)<sub>2</sub>ReO<sub>4</sub> AND (TMTTF)<sub>2</sub>SCN ASSOCIATED WITH ANION ORDERINGS.

**Y.Nogami\*** and T. Nakamura<sup>^</sup>

*\*Okayama University, Okayama, Japan, ^IMS, Okazaki, Japan*

9:45 - 10:05

THEORY OF THE FERROELECTRIC MOTT-HUBBARD PHASE IN ORGANIC CONDUCTORS.

**S. Brazovskii**

*Laboratoire de Physique Théorique et Modèles Statistiques, Orsay, France.*

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**10:05 – 10:35      Coffee break**

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**10:35 - 12:25      Plasticity and space resolved studies**

10:35-11:05

MICROSCOPIC INVESTIGATION OF MOVING FLUX LINE STRUCTURES IN SUPERCONDUCTORS USING NEUTRON DIFFRACTION AND  $\mu$ SR

**E.M. Forgan**, D. Charalambous

*School of Physics and Astronomy, University of Birmingham, Birmingham U.K.*

11:05 -11:25

A MODEL OF THE COHERENT CREEP AND SWITCHING SEEN IN THE MOTION OF CHARGE-DENSITY WAVES IN NIOBIUM TRISELENIDE AT LOW TEMPERATURES

**J.C. Gill**

*University of Bristol, England.*

11:25- 11:45

DYNAMICS OF CHARGE-DENSITY-WAVE PHASE SLIPS IN MESOSCOPIC SAMPLES.

**S.N. Artemenko**

*Institute for Radioengineering and Electronics of Russian Academy of Sciences, Moscow, Russia*

11:45 –12:05

MODE-LOCKING AND DYNAMIC MELTING OF VORTEX MATTER DRIVEN THROUGH MESOSCOPIC CHANNELS.

**R. Besseling**, N. Kokubo and P.H. Kes.

*Kamerlingh Onnes Laboratory, Leiden , The Netherlands.*

12:05-12:25

HYDRODYNAMIC THEORY OF PLASTIC FLOWS WITH CONVERSION.

**N. Kirova**<sup>1,2</sup>, S. Brazovskii<sup>1</sup>,

<sup>1</sup>*Laboratoire de Physique Théorique et Modèles Statistiques, Orsay, France*

<sup>2</sup>*POMA, Université d'Angers, France.*

## 16:00 – 17:30 Charge Ordering I

16:00 – 16:30

INVERSION OF DNA CHARGE BY A POSITIVE POLYMER AND FRACTIONALIZATION OF THE POLYMER CHARGE

**B. I. Shklovskii,**

*University of Minnesota*

16:30 -16:50

DIELECTRIC PROPERTIES OF LIVING ORGANISMS

**J. H. Miller, Jr.,** C. Prodan, J. R. Claycomb, and X. Yang

*University of Houston, Houston, Texas, USA*

16:50 -17:10

SPHERICAL CRYSTALS

**M. Bowick**

*Physics Dept. Syracuse Univ. Syracuse NY 13244-1130 USA*

17:10 –17:30

POLARIZATION CATASTROPHE IN DOPED CUPRATES AND METAL-AMMONIA SOLUTIONS : AN ANALOGY.

**P. Quémerais** and S. Fratini\* J.-L. Raimbault \*\*

\* *Laboratoire d'Etudes des Propriétés Electroniques des Solides, CNRS, Grenoble, France*

\*\* *Laboratoire Physique et Technologie des Plasmas, Ecole Polytechnique Palaiseau, France*

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**17:30 – 18:00 Break**

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## 18:00 – 19:00 Poster presentations II

**W1**

EFFECTS OF MAGNETIC FIELD AND PRESSURE ON THE CHARGE DENSITY

WAVE STATE OF THE ORGANIC METAL  $\alpha$ -(BEDT- TTF)<sub>2</sub>KHG(SCN)<sub>4</sub>

**D. Andres\***, M.V. Kartsovnik\*, W. Biberacher\*, H. Müller\*\*, N.D. Kushch\*\*\*

\* *Walther-Meissner-Institute, Bavarian Academy of Sciences, D- 85748 Garching, Germany.*

\*\* *European Synchrotron Radiation Facility, F-38043 Grenoble, France.*

\*\*\* *Institute of Problems of Chemical Physics, Chernogolovka, 142432 Russia.*

**W2**

THE INFLUENCE OF ANION ORDERING ON SPIN DENSITY WAVES IN

BECHGAARD SALT (TMTSF)<sub>2</sub>ClO<sub>4</sub>

**Danko Radic**<sup>1</sup>, Drazen Zanchi<sup>2</sup> and Aleksa Bjelis<sup>1</sup>

<sup>1</sup> *Department of Physics, Faculty of Science, University of Zagreb, Croatia*

<sup>2</sup> *Laboratoire de Physique Theoretique et Hautes Energies, Paris, France*

**W3**

UNUSUAL 2kF CDW STATE WITH ENHANCED CHARGE ORDERING IN  $\beta$ -(BEDT-TTF)<sub>2</sub>AsF<sub>6</sub> AND PF<sub>6</sub>.

**Y. Nogami\*** and T. Mori<sup>^</sup>

*\*Okayama University, Okayama, Japan ^Tokyo Institute of Technology, Meguro, Japan*

**W4**

NON-UNIVERSAL ORDERING OF SPIN AND CHARGE IN STRIPE PHASES

**Frank Krüger**, Stefan Scheidl,

*Institut für theoretische Physik, Universität zu Köln, Germany*

**W5**

FULDE-FERRELL-LARKIN-OVCHINNIKOV STATE IN D-WAVE SUPERCONDUCTORS

**K. Maki\***, H. Won<sup>^</sup>

*\*Max-Planck-Institute for the Physics of Complex Systems, Dresden, Germany*

*^Hallym University, Chunchon, South Korea*

**W6**

DISORDERED QUANTUM SMECTICS

**E. Orignac\***, R. Chitra<sup>^</sup>

*\*LPTENS, Paris, France, ^LPTL, Paris, France*

**W7**

STATISTICAL AND THERMODYNAMIC PROPERTIES OF CHARGED TOPOLOGICAL DEFECTS

**Sofian Teber**

*Laboratoire de Physique Théorique et Modeles Statistiques, Orsay, France*

**W8**

RESISTANCE FLUCTUATIONS IN A LOW DENSITY 2D HOLE GAS IN GaAs

**R. Leturcq\***, D. L'Hote\*, R. Tourbot\*, C. J. Mellor<sup>^</sup>, M. Henini<sup>^</sup>

*\*SPEC, CEA Saclay, France, ^University of Nottingham, Nottingham, UK*

**W9**

QUANTUM NUCLEATION OF TOPOLOGICAL DEFECTS

**J. H. Miller, Jr.**, W. More, A. W. Beckwith, G. Cardenas, and A. Garcia-Perez

*University of Houston, Houston, Texas, USA*

**W10**

REAL ONE-DIMENSIONAL CDW FORMATION ASSURED BY NOISE OBSERVATIONS.

**K. Morikawa\***, H. Kubota\*, K. Nakamura<sup>^</sup>, A. Nakada\*

*\*Kumamoto University, Kumamoto, Japan,*

*^Kumamoto Technology and Industry Foundation, Kumamoto, Japan*

**W11**

TECHNIQUES FOR STUDYING CHARGE-DENSITY WAVE SLIDING PAST MACROSCOPIC DEFECTS AND IN FABRICATED GEOMETRIES IN NbSe<sub>3</sub>

**K. O'Neill+**, E. Slot\*, H. van der Zant\*, K. Cicak+, R. Thorne+

*+Department of Physics, Cornell University, Ithaca, USA \*TU Delft, Delft, The Netherlands*

**W12**

FOCUSED-ION-BEAM FABRICATED CHARGE-DENSITY-WAVE DEVICES.

**E. Slot** and H.S.J. van der Zant*Department of Applied Sciences and DIMES, Delft University of Technology, Delft, The Netherlands***W13**

UNUSUAL PHYSICAL PHENOMENA IN QUASI-ONE-DIMENSIONAL BARIUM IRIDATE

**J.W. Brill**, G. Cao, and G. Shaw*University of Kentucky, Lexington, Kentucky, USA***W14**RESISTIVITY OF THE QUASI-TWO DIMENSIONAL DIPHOSPHATE TUNGSTEN BRONZES  $K_x(P_2O_4)_2(WO_3)_{2m}$ ,  $m=8$ **J. Dumas**<sup>+</sup>, H. Devlin<sup>+</sup>, C. Schlenker<sup>+</sup>, O. Perez<sup>\*</sup><sup>+</sup>*LEPES, CNRS, BP 166, 38042 Grenoble Cedex 9, France*<sup>\*</sup>*CRISMAT, ISMRA, 14032 Caen Cedex, France***W15**ELECTRONIC STRUCTURE OF THE PEIERLS COMPOUND  $K_{0.9}Mo_6O_{17}$ **H. Guyot**<sup>\*</sup>, H. Balaska<sup>\* ^</sup>, J. Marcus<sup>\*</sup> and P. Perrier<sup>\*</sup>.<sup>\*</sup> *CNRS-LEPES, BP 166, 38042 Grenoble Cédex 9, France;*<sup>^</sup> *University of Skikda, BP 26, Skikda, Algeria.***W16**

LAYERED TUNGSTEN BRONZES: TUNING THE OPTICAL PROPERTIES BY CHANGING THE LAYER THICKNESS

**J.L. Musfeldt** (1), Z.T. Zhu (1), Z.S. Teweldemedhin (2), and M. Greenblatt (2)(1)*University of Tennessee*, (2)*Rutgers University***W17**CHARGE-DENSITY-WAVE, SUPERCONDUCTIVITY, AND NON-METALLIC BEHAVIOR UNDER HIGH PRESSURE IN  $ZrTe_3$ **K. Yamaya**<sup>\*</sup>, K. Igarashi<sup>\*</sup>, S. Yasuzuka<sup>\*</sup>, K. Inagaki<sup>\*</sup>, S. Tanda<sup>\*</sup>, Y. Okajima<sup>^</sup>,M. Hedo<sup>+</sup>, and Y. Uwatoko<sup>+</sup><sup>\*</sup>*Department of Applied Physics, Hokkaido University, Sapporo, Japan,*<sup>^</sup>*Asahikawa National College of Technology, Asahikawa, Japan,*<sup>+</sup>*ISSP, University of Tokyo, Kashiwa, Japan***W18**

POLARONS AT THE FIELD-EFFECT JUNCTIONS.

**N. Kirova**<sup>1,2,3</sup>, M.-N. Bussac<sup>1</sup>,<sup>1</sup>*CPHT, Ecole Polytechnique, Palaiseau, France.*<sup>2</sup>*Laboratoire de Physique Théorique et Modèles Statistiques, Orsay, France.*<sup>3</sup>*POMA, Université d'Angers, France.*

*Thursday, September 5*

**8:30 - 10:30                      Stripes**

8:30-9:00  
THE STRIPE LIQUID PHASE IN CUPRATES AND NICKELATES

**J.M. Tranquada**  
*Brookhaven National Lab, Upton, NY, USA*

9:00-9:30  
QUANTUM LIQUID CRYSTALS FROM A FIELD THEORETIC PERSPECTIVE

**J. Zaanen**  
*Leiden University, Leiden, The Netherlands*

9:30 -9:50  
CHARGE DENSITY WAVE FORMATION IN THE LOW-TEMPERATURE-TETRAGONAL PHASE OF CUPRATES

**C. Morais Smith\***, N. Hasselmann<sup>^</sup>, A.~H.~Castro Neto<sup>#</sup>  
*\*Institut de Physique Theorique, Fribourg, Switzerland,*  
*<sup>^</sup>MPI f. Physik komplexer Systeme, Dresden, Germany,*  
*<sup>#</sup> Department of Physics, Boston University, Boston, MA, USA*

9:50-10:10  
STRIPES, STRINGS AND ELECTRONIC MOLECULES.

**F. V. Kusmartsev**  
*Loughborough, LE11, 3TU, U.K. and L D Landau Institute, Moscow, Russia*

10:10-10:30  
CHARGE AND ORBITAL ORDERING IN TRANSITION METAL OXIDES

**D.Khomskii**  
*Laboratory of Solid State Physics, Groningen University, Nijenborgh 4, 9747 AG Groningen, The Netherlands*

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**10:30 – 11:00 Coffee break**

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**11:00 - 12:55                      Pinning I**

11:00 -11:30  
STATIC AGING VS DYNAMIC REJUVENATION IN SOLID FRICTION.

**C.Caroli**  
*Groupe de Physique des Solides, Univ. Paris VI et VII, Paris France*

11:30 –11:50  
DOMAIN WALL DEPINNING IN RANDOM MEDIA BY AC FIELDS

**T. Nattermann\***, A. Glatz\* and V. Pokrovsky<sup>^</sup>  
*\*Institut für Theoretische Physik, Universität zu Köln, Germany,*  
*<sup>^</sup>Department of Physics, Texas A&M University, College Station, Texas and*  
*Landau Institute for Theoretical Physics, Chernogolovka, Russia*

11:50-12:20

DISORDERED ELASTIC SYSTEMS AND ELECTRONIC CRYSTALS

**T. Giamarchi**<sup>1</sup>, R. Chitra<sup>2</sup>, P. Le Doussal<sup>3</sup>

<sup>1</sup>DPMC, Universite de Geneve, Geneve, Switzerland, <sup>2</sup>LPTL, Universite Pierre et Marie Curie, Paris, France, <sup>3</sup>LPT, Ecole Normale Supérieure, Paris, France

12:20-12:40

COMPARISON OF ELASTIC ANOMALIES ACCOMPANYING CDW DEPINNING  
IN TANTALUM TRISULFIDE AND NIOBIUM TRISELENIDE

**J.W. Brill**

*University of Kentucky, Lexington, KY, USA*

12:40-12:55

HYSTERESIS IN THERMAL EXPANSION OF THE QUASI 1-DIMENSIONAL  
CONDUCTOR TaS<sub>3</sub>: COUPLING OF THE UNDERLYING AND THE ELECTRONIC  
CRYSTALS.

**V. Ya. Pokrovskii**, A. V. Golovnya, and P. M. Shadrin

*Institute of Radioengineering and Electronics, Moscow, Russia*

**Friday, September 6.**

**8:30 – 10:00**

**Pinning II**

8:30 – 9:00

MYSTERIES IN THE COLLECTIVE RESPONSE OF DENSITY WAVE CONDUCTORS  
AT LOW TEMPERATURES

**R.E. Thorne**,

*Cornell University Ithaca, NY 14853-2501*

9:00 – 9:30

PHOTOCONTROL OF A DYNAMIC PHASE TRANSITION IN THE CDW STATE

**K. Miyano** and N. Ogawa

*RCAST, The University of Tokyo, Tokyo, JAPAN*

9:30 – 9:45

OPTICALLY INDUCED COHERENT OSCILLATIONS IN BLUE BRONZE

**P.H.M. van Loosdrecht**<sup>1</sup>, B. Beschoten<sup>2</sup>, I. Dotsenko<sup>2</sup>, S. van Smaalen<sup>3</sup>

<sup>1</sup>. Material Science Center, University of Groningen, The Netherlands.

<sup>2</sup>. II Physikalisches Institut, RWTH-Aachen, Germany.

<sup>3</sup>. Lab. of Crystallography, Univ. of Bayreuth, Germany.

9:45 – 10:00

CURRENT INHOMOGENEITY AND EFFECT OF A TRANSVERSE ELECTRIC FIELD  
IN THE CDW TRANSPORT PROPERTIES OF QUASI-ONE-DIMENSIONAL  
COMPOUNDS

**A.Ayari**<sup>\*</sup>, P. Monceau<sup>\*^</sup>

<sup>\*</sup>CRTBT, Grenoble, France, <sup>^</sup>LLB, CEA-CNRS, Saclay, France

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**10:00 – 10:30**

**Coffee break**

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## 10:30 – 12:35 Charge Ordering II

10:30-11:00

CRITICAL FIELD ENHANCEMENT NEAR AN SDW SUPERCONDUCTOR PHASE BOUNDARY

I.J. Lee\*, M. J. Naughton<sup>1</sup> and **P. M. Chaikin**\*

*\*Princeton University, Princeton, NJ, USA <sup>1</sup>Boston College, Boston, MA, USA*

11:00-11:20

COEXISTENCE OF SUPERCONDUCTIVITY AND SPIN DENSITY WAVE ORDERINGS IN BECHGAARD AND FABRE SALTS

**C.Pasquier**<sup>\*</sup>, P.Auban-Senzier<sup>\*</sup>, T.Vuletić<sup>^</sup>, S.Tomic<sup>^</sup>, M.Héritier<sup>\*</sup>, D.Jérôme<sup>\*</sup>

*<sup>\*</sup>Laboratoire de Physique des Solides, Université d'Orsay, F-91405 Orsay Cédex, France*

*<sup>^</sup>Institut za fiziku, p.p 304, 10001 Zagreb, Croatia*

11:20 – 11:45

CHARGE ORDERING IN NON-DIMERIZED BEDT-TTF BASED ORGANIC CONDUCTORS: <sup>13</sup>C-NMR EXPERIMENTS

**T.Takahashi**<sup>\*</sup>, R.Chiba<sup>\*</sup>, Y.Takano<sup>\*</sup>, Y.Kubo<sup>\*</sup>, K.Hiraki<sup>\*</sup>, H.Yamamoto<sup>\*\*</sup> and T.Nakamura<sup>\*\*\*</sup>

*<sup>\*</sup>Gakushuin University, Tokyo, Japan, <sup>\*\*</sup>RIKEN (The Institute of Physical and Chemical Research), Wako, Japan, <sup>\*\*\*</sup>Institute for Molecular Science, Okazaki, Japan*

11:45 - 12:10

CO-EXISTENCE OF CHARGE ORDER AND SPIN PEIERLS BOND ORDER IN ONE-DIMENSIONAL ORGANIC COMPOUNDS

**H. Seo**<sup>\*,%</sup>, M. Kuwabara<sup>^</sup>, M. Ogata<sup>@</sup>

*<sup>\*</sup>CERC-AIST, Tsukuba, Japan, <sup>%</sup>JSPS, Tokyo, Japan, <sup>^</sup>Kobe Univ., Kobe, Japan, <sup>@</sup>Univ. of Tokyo, Tokyo, Japan*

12:10 – 12:35

MODALITIES OF SELF-ORGANIZED CHARGE RESPONSE IN LOW DIMENSIONAL SYSTEMS

**S. Tomic**, M.Pinteric, T.Vuletic, B.Hamzic

*Institute of Physics, Zagreb, Croatia*

## 16:00 - 17:45 2D Electron Solids

16:00 - 16:30

TRANSVERSE DEPINNING THRESHOLD REVEALED BY NON LINEAR HALL EFFECT OF WIGNER SOLID IN A DISORDER FIELD

**F.I.B.Williams**<sup>1</sup>, F.Perruchot<sup>1</sup>, B.Etienne<sup>2</sup>, C.J.Mellor<sup>3</sup>, <sup>1</sup>R.Gaal, B.Sas<sup>4</sup>, M.Hannini<sup>3</sup>, T.Foxon<sup>3</sup>, J.Harris<sup>5</sup>

*<sup>1</sup>CEA Saclay, France. <sup>2</sup>CNRS, France, <sup>3</sup>University of Nottingham, UK. <sup>4</sup>SzFKI Budapest, Hungary. <sup>5</sup>Imperial College, University of London, UK.*

16:30 - 17:00

STIFFENING AND SOLIDIFYING OF THE 2D ELECTRON LIQUID

**V.M.Pudalov**

*P.N.Lebedev Physics Institute, Moscow, Russia*

17:00 -17:30

PROPERTIES OF 2-DIMENSIONAL ELECTRON SYSTEM IN MOSFET'S AT SMALL ELECTRON CONCENTRATION".

**B. Spivak**

*University of Washington WA 98195 Seattle USA*

17:30 - 17:45

INSTABILITY AND RECONSTRUCTION OF A THIN CHARGED HELIUM FILM.

**V. Shikin**

*Institute of Solid States Physics RAN 142432, Chernogolovka, Moscow District.*

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**17:45 – 18:15**

**Break**

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## **18 :15 – 19:50 Microscopic mechanisms and electronic correlations II**

18:15 -18:35

ELECTRONIC CORRELATIONS IN THE TWO-DIMENSIONAL ORGANIC CONDUCTORS  $\alpha$ -(BEDT-TTF)<sub>2</sub>MHg(SCN)<sub>4</sub> (M= K, NH<sub>4</sub>)

**M. Dressel**<sup>1</sup>, N. Drichko\*, J. Schlueter<sup>2</sup>, and J. Merino<sup>3</sup>

<sup>1</sup>*Physikalisches Institut, Universitat Stuttgart, Germany* <sup>2</sup>*Argonne National Laboratory U.S.A.*

<sup>3</sup>*Max-Planck-Institut fur Festkorperforschung, Stuttgart, Germany*

18:35 –18:55

NON-LINEAR ELECTRICAL RESPONSE AND CURRENT-INDUCED DESTABILIZATION OF THE MAGNETIC STRUCTURE IN MANGANESE OXIDES

**A. Wahl**, S. Mercone, Ch. Simon, C. Martin, D. Saurel

*Laboratoire CRISMAT CNRS UMR 6508 ISMRA - Université de Caen*

18:55 –19:15

ANGLE-RESOLVED DENSITY-WAVES, SUPERCONDUCTIVITY AND PSEUDOGAP IN TWO DIMENSIONS

**D. Zanchi**

*Laboratoire de Physique Théorique et Hautes Energies, Paris, France*

19:15 – 19:35

CHARGE AND SPIN ORDER IN ONE DIMENSIONAL ELECTRON SYSTEMS WITH LONG RANGE COULOMB INTERACTIONS

**S. Fratini**\*, B. Valenzuela<sup>^</sup> and D. Baeriswyl<sup>\$</sup>

\* *LEPES/CNRS, Grenoble, France* <sup>^</sup> *ICMM/CSIC, Madrid, Spain* <sup>\$</sup> *IPT, Université de*

*Fribourg, Switzerland*

19:35 – 19:50

THEORY OF PSEUDOGAPS IN CHARGE DENSITY WAVES IN APPLICATION TO PHOTO ELECTRON SPECTROSCOPY.

**S.I. Matveenko** and S. Brazovskii

<sup>1</sup> *Laboratoire de Physique Théorique et des Modèles Statistiques, CNRS, Orsay France.*

<sup>2</sup> *L.D. Landau Institute for Theoretical Physics, Kosygina Str. 2, 117940, Moscow, Russia.*

*Saturday, September 7*

**8:30 - 10:10                      Materials, Structures, Phases**

8:30-8:55

DIRECTLY MEASURING THE STRUCTURE OF A CONDUCTION-ELECTRON DENSITY MODULATION WITH X-RAYS

**J.D.Brock**, J.-D.Su

*Cornell University, Ithaca, NY, USA*

8:55 –9:15

CHARGE-DENSITY WAVES in Er<sub>5</sub>Ir<sub>4</sub>Si<sub>10</sub> TYPE COMPOUNDS

**S. van Smaalen\***, P. Daniels\*, F. Galli<sup>^</sup>, R. Feyerherm#, E. Dudzik#, G. J. Nieuwenhuys<sup>^</sup> and J. A. Mydosh<sup>^</sup>

*\*Laboratory of Crystallography, Bayreuth, Germany,*

*<sup>^</sup>Kamerlingh Onnes Laboratory, Leiden, The Netherlands,*

*#Hahn–Meitner Institute, Berlin, Germany*

9:15 -9:35

EPR STUDY OF THE QUASI-TWO DIMENSIONAL MAGNETIC LUDWIGITE Fe<sub>3</sub>O<sub>2</sub>BO<sub>3</sub>

**J. Dumas+**, J.L. Tholence+, M. Continentino\*, J.C. Fernandes\*, R.B. Guimaraes\*, M.H. Whangbo\*\*

*+LEPES, CNRS, BP 166, 38042 Grenoble Cedex 9, France*

*\*Instituto de Fisica, Universidade Federal Fluminense, 21210-340 RJ, Brazil*

*\*\*North Carolina State University, Raleigh, NC 27695-8204, USA*

9:35 - 9:55

OPTICAL PROPERTIES OF COMPLEX OXIDES: VANADATE LADDERS AND RELATED INORGANIC NANOTUBES

**J.L. Musfeldt** (1), A.B. Sushkov (1), J. Jegoudez (2), A. Revcolevschi (2), P. Millet (3), and J. Galy (3)

*(1) University of Tennessee, (2) Universite Paris - Sud, (3) CNRS Toulouse*

9:55 - 10:10

PHOTO-INDUCED FERROELECTRIC ORDER EVIDENCED BY PICOSECOND X-RAY DIFFRACTION

**M.H. Lemée-Cailleau\***, E. Collet\*, M. Buron\*, H. Cailleau\*, M. Wulff<sup>^</sup>, S. Techert<sup>^</sup>,#

*\*GMCM CNRS-University of Rennes 1, 35042 Rennes, France,*

*<sup>^</sup>ESRF, 38043 Grenoble, France,*

*#Max-Planck Institute for Biophysical Chemistry, D-37070 Goettingen, Germany*

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**10:10 – 10:30                      Coffee break**

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## 10:30 - 12: 20 High magnetic fields

10:30 – 10:50

HIGH MAGNETIC FIELD NMR INVESTIGATION OF THE SPIN DENSITY WAVE PHASE OF  $\text{TMTSF}_2\text{PF}_6$

**W. G. Clark\***, F. Zamborsky\*, B. Alavi\*, P. Vonlanthen\*, W. Moulton<sup>^</sup>, P. Kuhns<sup>^</sup>, and A. Reyes<sup>^</sup>

*\*UCLA Physics and Astronomy, Los Angeles, USA*

*<sup>^</sup>National High Magnetic Field Laboratory, Tallahassee, FL, USA*

10:50-11:20

PHYSICAL PHENOMENA IN ULTRA-HIGH PARALLEL MAGNETIC FIELDS IN LAYERED ORGANIC AND HIGH-TC CONDUCTORS

**A. Lebed**

*Landau Institute, Moscow, Russia*

11:20-11:40

THE CONCEPT OF COMPOSITE FERMIONS IN THE THEORY OF THE FRACTIONAL QUANTUM HALL EFFECT

**M.I. Dyakonov**

*Laboratoire de Physique Mathématique, Université Montpellier II, France*

11:40 –12:00

EVIDENCE FOR A LIQUID CRYSTAL PHASE TRANSITION IN TWO-DIMENSIONAL ELECTRONS IN HIGH LANDAU LEVELS

**K.B. Cooper\***, M.P. Lilly\*, J.P. Eisenstein\*, L.N. Pfeiffer<sup>^</sup>, K.W. West<sup>^</sup>

*\*California Institute of Technology, Pasadena, California*

*<sup>^</sup>Bell Laboratories, Lucent Technologies, Murray Hill, New Jersey*

12:00 - 12:20

FISDW IN QUASI-ONE DIMENSIONAL ORGANIC CONDUCTORS WITH THE DIMERIZED GAP DUE TO ANION ORDERING

**N.Matsunaga<sup>^\*+</sup>**, A.Ayari<sup>\*+</sup>, P.Monceau<sup>\*+</sup>, K.Yamashita<sup>^</sup>, A.Ishikawa<sup>^</sup>, K.Nomura<sup>^</sup>, M.Watanabe<sup>~</sup>, J.Yamada<sup>~</sup>, and S.Nakatsuji<sup>~</sup>

*<sup>^</sup>Hokkaido Univ., \*CRTBT-CNRS, +CNRS/MPI-FKF, ~Himeji Inst. of Tech .*

12:20 – 12:40

PECULIAR VORTEX STRUCTURES IN FULDE-FERRELL-LARKIN-OVCHINNIKOV PHASE.

**A.Buzdin<sup>1</sup>** and M. Houzet<sup>2</sup>

*<sup>1</sup>CPMOH, University of Bordeaux I, France*

*<sup>2</sup>DRFMC, CEA Grenoble, France*

**12:40 – 13 :00 Closing**

## NOTES