

· 会议报道 ·

凝聚态光谱与光电子学国际青年学术讨论会

(1991年10月14-17日, 中国, 上海)

INTERNATIONAL WORKSHOP ON SPECTROSCOPY AND OPTOELECTRONICS OF CONDENSED MATTERS

(October 14-17, 1991, Shanghai, China)

由中国科学院上海技术物理研究所研究生部和红外物理国家实验室联合主办的“凝聚态光谱与光电子学国际青年学术讨论会”于1991年10月14日至17日在上海技术物理研究所召开, 会议得到中国科学院教育局和第三世界科学院国际理论物理中心的资助。

著名物理学家、学部委员谢希德教授亲临会场致祝辞, 中国科学院红外物理国家实验室主任沈学础研究员担任会议主席。本次学术讨论会特别邀请了来自美国、德国、法国、日本和原苏联的12位外籍知名专家及6位国内著名学者, 就凝聚态光电子物理领域中最具代表性的热门前沿课题作了高水平学术报告(参见附录)。参加会议的代表均为我国高校和研究所从事该领域研究工作的青年学者, 其中多数是博士和硕士研究生, 还包括学成归国的博士后和数名在沪外籍留学生。

这次研讨会为我国从事固体物理和半导体物理的青年工作者提供了一次与国内外一流专家进行交流和学习的良机, 对促进我国青年科技人员参与国际性学术交流、提高专业水平均起到了积极作用, 会议期间学术气氛浓厚, 中外学者之间进行了广泛热烈的学术讨论, 与会代表一致反映参加这次会议受益很大。

大会报告和张贴论文共约50篇, 其中相当一部分涉及到半导体异质结、半导体超晶格量子阱、固体的光学非线性和磁光特性、高温超导体、半导体杂质与缺陷、窄禁带半导体材料等前沿学科, 在相当程度上反映出我国在这些科研领域的发展现状。《红外与毫米波学报》编辑部从特邀报告和参会论文中选编了《凝聚态光谱与光电子学国际青年学术讨论会选集》, 其中包括国内外知名学者的特邀报告各一篇, 我国青年科技工作者的参会论文7篇, 在沪的外籍留学生参会论文3篇。这本《选集》特别注重反映我国青年工作者近期内在半导体超晶格量子阱、固体非线性及磁光特性、高温超导体等前沿学科中取得的成果。

汪艺桦 杨慧芳

(中国科学院上海技术物理所)

附 录

Invited Speeches

Titles	Speakers
Resonant Tunneling in QW's	<i>L. L. Chang</i> (<i>Thomas J. Watson Research Center,</i> <i>New York, U.S.A.</i>)
Hot Electron Relaxation and Electron-phonon Interaction in Semiconductors	<i>Peter Y. Yu</i> (<i>Department of Physics, University of California,</i> <i>Berkeley, California, U.S.A.</i>)
Optical Properties of Superlattices: Barrier Width Dependence	<i>J. J. Song</i> (<i>Department of Physics, Oklahoma State</i> <i>University, Stillwater, Oklahoma, U.S.A.</i>)
STM Study of Oxide Surfaces	<i>E. L. Garfunkel</i> (<i>The State University of New Jersey,</i> <i>Rutgers, Piscataway, New Jersey, U.S.A.</i>)
Cyclotron Resonance Spectroscopy of 2DEG in AIs under high magnetic field	<i>J. Leotin</i> (<i>Laboratoire de Physique des Solides</i> <i>C.N.R.S., I.N.S.A., Toulouse, France</i>)
Magnetic Resonances at Very High Frequencies in Model Magnetic Systems	<i>T. Tuchendler</i> (<i>Laboratoire de Dispositives Infrarouge et</i> <i>Micro-ondes, Paris, France</i>)
Optical Properties of Semiconductors in High Magnetic Fields	<i>G. Martinez</i> (<i>Centre National de la Recherche Scientifique,</i> <i>Service National des Champs Intenses,</i> <i>Grenoble, France</i>)
Quantum Hall Effect in Selectively Doped and Strained P-Ge/Ge _{1-x} Si _x Superlattice	<i>B. Aronzon</i> (<i>Kurchatov Institute of Atomic Energy,</i> <i>Moscow, Russia</i>)
Low Dimension Detector of HgCdTe	<i>G. Nimtz</i> (<i>II. Physik Institute, Universitat zu Köln,</i> <i>Köln, F. R. Germany</i>)

Magnetic Resonance in Semiconductors

M. Von Ortenberg

*(Institute für Halbleiter Physik und Optik
Technische Universität, Braunschweig,
Braunschweig, F. R. Germany)*

Segregant-Assisted Growth (SAG) of High
Quality Si/Ge Superlattice

Y. Shiraki

*(Research Center for Advanced Science and
Technology, University of Tokyo, Tokyo,
Japan)*

Spectroscopy of Photoexcited Semiconductors

H. Nakata

*(Department of Physics, College of General
Education, Osaka University, Osaka, Japan)*

Ge/Si Superlattice and QW

X. Wang

(Fudan University, Shanghai, China)

Nonlinear Optical Susceptibility of Polymer &
M-X Complex

S. Sun

(Fudan University, Shanghai, China)

Acoustic Superlattice and Optical Superlattice

N. B. Min

*(Laboratory of Solid State Micro-Structures,
Nanjing University, Nanjing, China)*

Resonant Tunneling in SL's

H. Z. Zheng

*(Beijing Institute of Semiconductors,
National Laboratory of Microstructure
and Superlattice, Beijing, China)*

New Method for Growth of Ge/Si Superlattice

Y. D. Zheng

*(Department of Physics, Nanjing University,
Nanjing, China)*

Resonant Excitation of Cyclotron Resonance in
Semiconductors

Lu Wei

*(Shanghai Institute of Technical Physics,
Chinese Academy of Sciences, Shanghai, China)*

Oral Presentations

Zhu Jingbing, Liu Puling, Shi Guoliang, Liu W.J., Lu X.F., Shen S.C.:

Photo-thermal Ionization Spectra of Shallow Donors in Ultra-pure Silicon Under Magnetic Field

Zhou Haiyan, Zhu Kade, Gu Shiwei:

Cyclotron Resonance of Magnetopolaron in a Quantum Well Wire

Shao Hua, Zheng Houzhi, Li Yuexia:

A New Method for Measuring Effective Diffusion Constant of Two-dimensional Electrons in the Presence of Magnetic Fields

Wei Baohua, Liu Youyan, Gu Shiwei, Yu Kinwah:

The Ground State Energies of an Excitation in a Quantum Well Structure for Arbitrary Magnetic Field Strength

Zhou Shiping, Jabbar A., Wu Keqing, Bao Jiashan:

Electromagnetic Behavior of Semiconductors in Microwave Field

Ping Wensheng, Feng Weigu, Wu Xiang:

Transport through Fibonacci Coupled Quantum Dots

Shi Wei, Liou Yansheng:

Influence of Photovoltaic Action on Photorefractive Effect

Wang Qiuping, Lun Lijun, Chi Yuanbin, Wang Lizhong:

High Pressure Effects on the Crystal Field and Free Ion Energy Levels of Eu^{3+} in $\text{La}_2\text{O}_2\text{S}$, $\text{Y}_2\text{O}_2\text{S}$ and LaOCl Crystals

Xu Xiangang, Huang Beibiao, Ren Hongwen, Liou Shiwen, Jiang Minhua:

MOVPE Growth and TEM Characterization of $\text{GaAs}/\text{Al}_x\text{Ga}_{1-x}\text{As}$ Superlattice

Wei X., Zhou T.C., Yang X.P., Yu M.R., Zhang X.J., Wang X.:

Accurate In-Situ Auger Analysis of MBE Grown $\text{Ge}_x\text{Si}_{1-x}$

Wang Jie, Lu Hongqian, Shen Jun, Wang Jianhan:

Epitaxial Growth of $\text{Zn}_{1-x}\text{Mn}_x\text{Se}$ on GaAs by Hot Wall Epitaxy

Jiang S., Shen S.C., Li G.H.:

Photoluminescence Investigations of $\text{Cd}_{1-x}\text{Mn}_x\text{Te}$ under Hydrostatic Pressure

Hu Canming, Huang Yexiao, Ye Hongjuan, Shen Xuechu, Qi Mingwei:

Photothermal Ionization Spectroscopy under Uniaxial Stress

Cai Min, Liu Wenming:

Electric Field Effect on Spatially Dependent Screening of Columbic Bound States in Quantum Wells

Zhao Zhihong, Xiong G.N., Xu Xurong, Li Delu:

The Time Process of the Electric Field Effect on Nonlinear Absorption

Lu Chunming, Dong Guoshen, Li Zheshen, Wan Xun:

Study of Ammonium Sulfide Treated InSb (111) Surface by XPS and UPS

Han Yujie:

The Effect of Na_2S_x and $(\text{NH}_4)_2\text{S}_x$ Treatment on the Interface Characteristics of GaAs MESFET and InP JFET

Liu Junmin:

In-Situ Observations of Dislocations as Step Sources of Transparent Crystals Grown From an Aqueous Solution

Poster Presentations

Li Jie, Zhang Jiaming, He Li, Yuan Shixin:

A Novel Lattice-Matched Superlattice: CdSe-ZnTe

Zhu Kadi, Gu Shiwei:

Bound Impurity States in a Quantum Box

Zhu Wenzhang, Chen Chao, Liu Shiyi:

Investigation of Interband Optical Transition in Ge/Si and $\text{Ge}_x\text{Si}_{1-x}$ /Si Strained Layer Superlattices by Photovoltaic Spectra

Zhou T.C., Wang J.B., Fang Y.L., Yang X.P., Wei X., Sheng C., Zhang X.J., Yu M.R., Wang X.:

Property Improvement of Symmetrically Strained Ge/Si Superlattice by Changing the Structure of Buffer Layer

Sun Hong, Gu Shiwei:

Impurity States on Periodically Structured Semiconductor Interfaces

Wang Hong:

Theory of Photoconductivity in a-Si:H and a-Si:H/a-SiN_x:H Superlattices

Zhang Yaohui, Jiang Desheng, Liu Wei, Li Feng, Luo Changping, Zhou Junming, Feng Wei:
Optical Studies of InGaAs/GaAs Strained Layer Multi-Quantum Wells

Luo Changping:

The Steady Photovoltaic Effects of NIPI Structures

Zhu Jingbing, Lu W., Liu P.L., Shi G.L., Liu W.J., Shen S.C.:

Optical Absorption Measurement of Magnetic Ion Interaction in Semimagnetic Semiconductors

Tang Zhijie, Wang Yie, Zhuang Weisha, He Jinfu:

Structure Defects in CdZnTe Crystal

Zhou T., Han P., Ma K.J., Shen S.C.:

Photoluminescence Study of CdTe:Cd Crystals

Liu K., Chu J.H., Mi Z.Y., Tang D.Y.:

Dispersion of Refractive Index Calculated from Intrinsic Absorption Spectroscopy in $\text{Hg}_{1-x}\text{Cd}_x\text{Te}$

Shen Jinxi, Zheng Guozhen, Guo Shaoling, Tang Dingyuan:

Quantum Transport Behavior of Zero-Gap P-Hg_{1-x}Mn_xTe

Xiong Guangying, Liu Yihua:

Magnetic Properties of the Dilute Magnetic Semiconductor $\text{Zn}_{1-x}\text{Fe}_x\text{Se}$

Peng Jianping:

On the Quantized Magnetoresistance in Two-Dimensional Electron Systems

Cui Jingbiao, Fang Rongchuan:

X-ray and IR Studies on the Interface Properties of a-C:H/a-SiO_x:H Multilayered Films

Pan Jinsheng, Bi Lijiang, Sun Runguang, Li Doulu:

The Deep Centers in Photoconductive Cadmium Sulfide Power

Xiao Deyuan, Xu Shaohua, Guo Kangjin:

Diffusion of Zinc into InP through InGaAsP

Li Ming, Wang Zhiming:

Optical Second-Harmonic Generation of Substituted Benzene

Mao Huibing, Wang Hailong:

Liquid Phase Epitaxial Growth of AlGaSb

Hou Qingrun, Shi Waquan, Lu Liwu, Liu Shixiang, Liu Xuejun:

Point Defects in Si Resulting from LRTD

Hu Canming, Huang Yexiao, Ye Hongjuan, Shen Xuechu:

Fano Resonances in Impurity Transition of Si Observed by Photoconduction Spectroscopy

Lee Wei, Xu Yueshen, Liu Caici:

Photo-Emission of Defect in Neutron Eliminated CZ-Si

Li Dejun, Zhao Jie:

Surface Modification on Wettability and Structure of Si⁺-Implanted Polyurethane

Zhang Jiaming, Zhou Tao, Jian Shan, Xie Yuanbao, Xu Yongchen, Shen Xuechu:

Studies of the Lattice Vibrations and Raman Scattering Spectra in Mixed (NH₄)₂Te_xSn_{1-x}Cl₆ Crystals

Ma Jun:

N-Body Boson Problem

Zeng Wensheng, Yang Xiaoming, Li Zengfa, Zhang G. Y.:

Infrared Reflectance Spectroscopy Studies of Single-Phase Y_{1-x}Pr_xBa₂Cu₃O₇ Compounds

Lu Zhenguo, Li Qingxing, Yu Zhenxin:

Frequency-Doubling Crystal KTP for Model-Locking in Nd:YAG Laser

Wang Yongsheng, Xiao Guangnan, Xu Xurong, Wang X. J.:

Relation between Defects and Position Annihilation Lifetime in BaF_xCl_{2-x}:Eu²⁺ Phosphorus

Zhang Zhixian, Ling Yinnong, Wang Wenjing, Guo Shaozhang, Li Hong:

A Study on the F₂⁺ Center Attenuation Dynamics of LiF and LiF:OH⁻ Crystal and effect of Irradiation Dose on the Law by the Method of Position Annihilation

She Weilong, Lu Zhengguo, Li Qingxin, Yu Zhenxin, Yang Hua, Zhang Jinxiu:

A New Optical Frequency-Doubling Phenomenon in Strontium Tetraborate Crystal

Yu Xiaoyan, Su Dazhao, Li Zengfa, Zhang Guangyin:

Study on Raman Spectra of Polyphenylene Sulfide and Vibrational Modes Recognition

Liu Yichun, Jiao Zhiwei, Xing Xu:

ESR, Raman Scattering and Photoluminescence Studies of Polyacenic Conducting Polymer

Ma Jun:

Mixture of Weakly Interacting Boson Gas and Fermion Gas—Influences on Fermion Gas by Boson Condensation

Hu Ze, Wang Youtang, Gu Shiwei:

Magnetopolaron Near the Interface of Polar—Polar Crystals

Peng Junbiao, Cui Deliang, Li Lan, Hua Yulin, Xu Zheng:

The Influence of Charge Carrier Layer on Organic Thin Film Electroluminescent Characteristics

Hao Jianhua, Zhou Fangqiao, Zhao Xingrong, Sun Handong, Wang Lingjie, Yi Xinjian:

Photoresponse of High T_c Superconducting YBaCuO Films for Detecting Infrared Spectrum

Guo Tongan:

Physical Mechanism and Ageing Problem of ZnS:Mn DCEL Panel

Li Jin, Xu Linyun, Hu Qiyi, Hu Jiacong:

Studies on Polymeric Nonlinear Optical Materials—Synthesis, LB Film Deposition and Nonlinear Optical Properties

Ch. Sajjad Ahmad, Jin Bianjun, Huang Tongkai, Zhang Yibing, Gu Jinmo:

The Influence of Boron on Specific Heat Near T_c of YBCO Ceramic Superconductors