

**RAPORT ON  
INTERNATIONAL CONFERENCE  
FIFTH INTERNATIONAL CONFERENCE ON SOLID STATE CRYSTALS &  
EIGHTH POLISH CONFERENCE ON CRYSTAL GROWTH  
(ICSSC-5 & PCCG-8 CONFERENCE)**

Zakopane/Kościelisko 20 – 24 May 2007

and

**WORKSHOP  
SECOND POLISH-JAPANESE-GERMAN CRYSTAL GROWTH MEETING  
(PJG-2 CGM WORKSHOP)**

Zakopane/Kościelisko 24 – 25 May 2007

International Conference: Fifth International Conference on Solid State Crystals and Eighth Polish Conference on Crystal Growth (ICSSC-4 & PCCG-8) was held in Wojskowy Dom Wypoczynkowy Zakopane-Kościelisko, on 20 – 24 May 2007. After ICSSC-5 & PCCG-8 Conference, on 24-25 May 2007 satellite Second Polish-Japanese-German Crystal Growth Meeting (PJG-2 CMG) was held in the same location. The satellite workshop PJG-2 CGM was devoted to the growth of bulk crystals of wide bandgap semiconductors.

ICSSC-5 & PCCG-8 was organized by Polish Society for Crystal Growth (PSCG) located at the Institute of Electronic Materials Technology (IEMT). The Conference was chaired by Prof. Stanisław Krukowski – President of PSCG for 2004-2007 and co-chaired by Prof. Wojciech Sadowski – President-elect of PSCG for this term. The Scientific and Organization Committees and also International Advisory Committee of the Conference are listed in Abstract Book of the Conference. PJG-2 CGM workshop was organized jointly by Polish, Japanese and German Societies for Crystal Growth. The Workshop was co-chaired by Prof. Stanisław Krukowski, Prof. Tsuguo Fukuda and Prof. Jochen Friedrich.

ICSSC-4 & PCCG-8 Conference was organized using the financial aid of Poland's Ministry of Science and Higher Education (<http://www.nauka.gov.pl/>). The Conference also obtained the grant from International Union of Crystallography – IUCr (<http://www.iucr.org/>). Several other institutions like Institute of Physics of Lodz University of Technology, Institute of High Pressure Physics of Polish Academy of Sciences (IWC PAN), Institute of Electronic Materials Technology (IEMT), Silicon CEMAT

also supported the Conference financially. A special in the preparation of the Conference was given by the IWC PAN and IEM, who allowed their employees to work in the organization.

In ICSSC-5 & PCCG-8 Conference took part 164 participants, including 52 participants from 18 foreign countries and 108 from Poland. There were 3 accompanying persons participating in the „Lady Programme”.

The organizers have waived Conference fee to 32 participants, which include 24 invited lecturers and 8 organizers. Lower (student) fee was granted to 28 participants. The PSCG members were entitled to lower fee, supported by PSCG financial aid. 39 PSCG members paid the lower fee. All other participants paid the full fee either for the Conference or for the Workshop.

The scientific Program of the Conference included 24 invited lectures, ½ hour long and 16 oral presentations (15 min). One of the invited lecturer was not presented and also one oral presentation. In case of the invited lectures, the planned lecture was substituted by presentation of the achievements of Prof. Tsuguo Fukuda, the laureate of Czochralski medal, The oral presentation of dr Ihor Prytula was cancelled, due to absence of the presenting person. No explanation of the absence was provided. The organizers adjusted the program of the Conference at the time

During the Conference special presentation was given by dr Jaroslaw Borc from Lublin University of Technology, the co-laureate of PSCG prize with dr Iwona Joźwik, also from the same University. Dr Joźwik was absent, because of her scientific stage in France and could not present her thesis.

At the Conference the two Poster Sessions were held at which 143 contributions was presented. These contributions were divided into the following categories: growth of bulk crystals, epitaxy, characterization of the crystal properties. A separate Section was created by the papers devoted to the optoelectronic devices, based on quantum well structure.

The Conference began from the Czochralski honor lecture, established by PSCG, presented by Prof. Georg Mueller, from Erlangen University, a member of Executive Committee of International Organization of Crystal Growth (<http://www.iocg.org>). The lecture was devoted the Czochralski method in historical perspective, in application to many different types of crystals.

All other inviter lecturers discussed wide subject spectrum starting from modeling and experiments on growth of standard semiconductor crystals, through technology of optoelectronic devices, oxide, fluoride to properties of quantum nano-structures and description of magnetic properties and their coupling to optical properties of crystals. It has to be stressed that the authors discussed wide band of subjects, including silicon and silicon carbide, crystals of group III metal nitride semiconductors, other III-V semiconductors, to properties of II-VI crystals and structures. In addition the growth and properties of superconductors were discussed and also scintillating and piezoelectric materials. In total 24 invited lectures and 16 oral presentations were presented at the Conference.

Other important issue was the relatively narrow scope of the problems discussed during satellite PJG-2 CGM workshop. The Workshop was specialized, devoted to the growth of SiC, AlN, GaN, InN and ZnO single crystals. Also special important physical properties of several crystals were discussed, especially indium nitride. This was related to the fact that InN is very difficult to synthesize and at present it is not available in the form of high quality bulk crystals, needed for the determination

of its basic physical properties. Due to special scope of the Workshop no Poster Session was organized, and also no oral presentation were given. At the Workshop 16 invited lectures were presented, including 3 from Poland, 4 from Germany and 9 from Japan. Large number of Japanese contributions was caused by the condition posed by the Japan government financing, which require the presentation of the lecture to obtain the financial aid. Due to that the Workshop has very intensive schedule encompassing 16 lectures, 30 minutes each, presented in single day. One has to stress the Japanese participants participated jointly in PJG-2 CGM workshop and EMRS Conference in Strasbourg which stimulated so powerful Japanese presence in the Workshop.

During first Session of PJG-2 CGM workshop, Czochralski Medal was handed to Prof. Tsuguo Fukuda, for his achievements in the growth of various crystals, including semiconductors, scintillating and optical materials, etc. It has to be stressed that the Awardee was very active during the Conference and actively participated in the shaping of the future plans related to continuation of the Workshop. It was planned that future PJG CGM workshop will be held in Japan. The precise time and location of the future Workshop will be selected later after the sufficient financing will be obtained.

The characterization works presented at the Conference were related to applications of these materials, and determination of their basic properties. The papers discussing the optical properties obtained by the application of many different methods, like absorption, PL, Raman etc. were presented. Also the results of the structural defects investigation by means of the electron microscopy, x-ray topography, synchrotron radiation and hardness measurements were reported.

The majority of the presented contribution joined problems of the growth and the related physical properties, which led to explanation of the processes important for the application of the investigated materials. Apart from the experimental research, the theoretical papers were presented, discussing the newest trends in science and applications starting from quantum dots through multilayer structures, to photonic materials, etc. In addition the paper discussing ab initio modeling, based on DFT approach, were reported. These papers were mainly devoted to surface processes. Part of these paper investigated defects in semiconductors, hence investigations of the bulk properties were also present.

The summary of the personal opinions led to conclusions that the Conference fulfilled the expectations of the participants both from Poland and from abroad. The papers submitted to publication will be published in two separate international scientific journals: Crystal Research and Technology (<http://www.crt-journal.org/>) and Opto-Electronics Review (<http://www.springerlink.com/content/1230-3402/>).

At the Conference seventh General Assembly of PSCG members was convened, at which the Board of PSCG presented report on his triennial term. The Board has obtained the approval of the Assembly. According to the Constitution of PSCG, the President-Elect prof. Wojciech Sadowski from Gdansk University of Technology, elected during previous PSCG General Assembly in Zakopane-Koscielisko on 17 May 2004 assumed the office of President. According to PSCG Constitution the new Board was elected, including President-Elect Prof. Ewa Talik from Silesia University, Secretary – Dr Ludwika Lipińska from IEMT, Treasurer - mgr. Bolesław Łuczniak from IWC PAN, Technical Secretary Dr Tomasz Klimczuk from Gdansk University of Technology and chairmen of the Divisions: Bulk

Crystals – Dr Dorota Pawlak from ITME and Crystalline Microstructure – Prof. Zbigniew Zytkeiwicz from Institute of Physics of Polish Academy of Sciences (IF PAN). The Board includes also Past-President – Prof. Stanisław Krukowski from IWC PAN.

The information on ICSSC-5 & PCCG-8 Conference and also on PJG-2 CGM Workshop could be found at the Conference Home Page at the following URL: <http://www.unipress.waw.pl/~zakopane>. The information of the PSCG activities could be found the Home Page of the Society at: <http://www.ptwk.org.pl>. Additionally the links allowing to learn on the problems investigated by the members of the Society.

Chairman of ICSSC-5 & PCCG-8 Conference

Professor Stanisław Krukowski

Co-chair of ICSSC-5 & PCCG-8 Conference

Professor Wojciech Sadowski

Warsaw 31 May 2007