エール・マリー・キュリー大学学長から同賞がThierry Woignier氏(Université de Montpellier II, フランス)(基礎)ならびにHervé G. Floch氏(CEA-Centre d'études de Limeil-Valenton, フランス)(応用)に授与された.

クロージングセッションでは,次回のゲルワークショップがInstituto Superior Tecnico (ポルトガル)のR. M. Almeida博士をチェアマンとして1995年9月にポルトガルで開催されることが発表された.筆者も久々にゾル-ゲル関係の国際会議に出席し,本稿にて記したような研究テーマの差異からのみならず刺激を受けることが多かった.是非は別とし,研究内容や発表の仕方に起因すると思われる発表の場でのウケのよしあしが,国内学会と国際会議の場とでは随分違うようにも思った.頭の洗濯をするためにも次回のワークショップにも出席できればと思い,帰途についた.

## 海外の話題

# Advances in Glass and Optical Materials
## Glass and Optical Materials Symposium at the 95th Annual Meeting of the American Ceramic Society

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The 95th Annual Meeting of the American Ceramic Society was held at the Dr. Albert B.Sabin Convention Center in Cincinnati, Ohio on April 18-22, 1993. There were eighteen symposia and nine joint sessions. In addition, each division in the society had its own program. In the glass and optical materials division, there were a total of 135 presentations and posters, which covered a wide range of topics: glass structure, modeling of structure and properties of glass, relaxation near the glass transition temperature, mechanical properties of glasses and optical fibers, optical materials, glass medicine, crystal growth, glass ceramics, glass manufacturing, and sol-gel technology.

There were more than ten presentations on heavy metal oxide glasses, such as $Bi_2O_3$, PbO, $TeO_2$ and $Ga_2O_3$ based glasses. These are novel glass systems. They have infrared transmittance up to 5 μm, high density (> 8 g/cm$^3$), low phonon energy, and relatively good chemical durability. Although their glass structure are still not clear, their potential applications have been considered to be infrared transmitting materials, calorimeter materials in superconducting super-collider accelerator and host glasses for active rare earth ions.

There is still interest in the glass structure of boron-containing glasses. In $M_2S$-$B_2S_3$ (M=Na, K) glass systems, the structure was reported to be analogous to

the structure of $M_2O$-$B_2O_3$ glasses with a higher fractions of four-coordinated borons. The fact that the glass transition temperature of these systems decreases with added $M_2S$ indicates the difference between oxide glasses and sulfide glasses. Research on oxide glasses has also extended into high rubidium content. Nothing was unusual except that $Rb_2O$ may act as a network former. Tomozawa's group reported on a small phase separation caused by water in sodium silicate glasses and also reported on the phase separation in the rare earth-silica system. Research on glass structure also moved into the unsolved medium range structure. Different approaches such as topological assessment, spectroscopic, solid state NMR methods were used to study the structure in this range. However, no solid results were obtained. Studies on lead borate and borosilicate glasses as well as the structure of oxynitride and oxyfluoride glasses were also presented.

Besides its use as a tool to investigate glass structure, molecular dynamics simulation using a computer has been applied to modeling the fracture process of glasses and ionic conduction. However, this method is still being used for duplicating experimental results and its validity needs more proof.

Glass is a metastable phase, and its relaxation continuously takes place. Glass relaxation will thus affect the properties of the glass. In the relaxation near the glass transition temperature section, this phenomena was investigated with respect to ionic conductance, viscosity, heat capacities and water diffusion.

Glasses have been used for many applications in the past. In this year's symposium, a section was devoted to the topic of Glass in Medicine. Dr. Day and his group at the University of Missouri-Rolla developed in-vivo radiation delivery vehicles by using glass microspheres. Glass ceramics, as usual, was investigated as dental materials by several groups.

Since the Glass Division was renamed as the Glass and Optical Materials Division, optical materials was a major part of this symposium. This year, there were three sections: Optical Materials, Infrared Transmitting Materials and Non-Linear Materials. The research in optical fibers has concentrated on the effects of various radiations such as neutron, UV laser, and UV light on optical fibers. In addition, doping rare earths into optical fibers was an interesting point because of optical amplifier applications. In bulk optical materials, heavy metal oxide glasses of PbO-$Bi_2O_3$ based systems were investigated due to their potential as optical materials. Diamond, sapphire, heavy metal oxide glasses, Te-chalcohalide glasses, chalcogenide glasses and heavy metal fluoride glasses were the infrared transmitting materials presented in this symposium. The research on conventional infrared transmitting materials extended into some unsolved problems, e.g. chemical durability in heavy metal fluoride glasses and optical loss in chalcogenide glasses. Various non-linear optical materials were presented including sol-gel

derived KTP waveguides, $KNbO_3$, semiconductor-doped glasses, germanium-doped silica fibers as well as up-conversion materials.

Sol-gel technology, because of its versatility in processing ceramics, is still a rapidly developing fabrication process. In this symposium, there were reports on preparing various coatings or thin films: $KTiOPO_4$, $Li_2SiO_3$, $TiO_2$, $ZrO_2$, photochromic, and other ceramic materials including oxycarbide, nanocomposites, glass ceramics and silica fibers. In the conventional glass manufacturing section, various manufacturing problems and solutions were presented and discussed. These problems included gas emissions, bubbles, sulfate formation, surface corrosion and glass melting.

## 告知板

**第26回やさしいニューガラス講座**

「バーチャルリアリティの現状と将来展望」

日時：平成6年1月12日（水）14：00～16：00

場所：日本ガラス工業センタービル　9階

港区新橋3-1-9

テーマ：バーチャルリアリティの現状と将来展望

主催：社団法人ニューガラスフォーラム

参加費：会員 5000円，非会員 10000円

当日会場にてお払い下さい．

申込方法：葉書大の用紙に，勤務先，氏名および連絡先（住所，電話番号，FAX番号）を明記の上，下記へお申込み下さい．

申込先：〒105 東京都港区新橋3-1-9

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本紙8巻3号(Serial No. 30) 206ページの記事に下記の通り誤りがありましたので，お詫びのうえ訂正させていただきます。

誤（東芝セラミックス(株)　久保　邦彦）

正（東芝セラミックス(株)　崎久保　邦彦）