



President's Annual Report 2016-2017

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President, International Commission on Glass

Submitted to

The Council of the International Commission on Glass

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Foreword

Dear Colleagues,

I am pleased to submit to you my second annual report as the president of the International Congress on Glass (ICG). Since the last annual report submitted at the 24th International Congress on Glass in Shanghai, I have kept you informed through interim reports and topical communications.

Let us begin by thanking the Conference Chair Prof. Shou Peng and his colleagues for making the 24th Congress highly successful and indeed memorable.

I have the sad duty of noting that Dr. William R. Prindle, the ICG President during 1985-1988 passed away. He was a strong leader, a visionary of the potential of science and technology as well as a valued mentor to many young scientists including myself. We will be holding a special session in his honor at the 2017 ICG Annual Meeting in Istanbul.

Like the previous report, this too will emphasize developments that are critical for ICG's vitality and relevance and will include highlights from the 'standard', long-standing features of a President's Report (e.g. Finance, CTC and TCs activities). The standard items are typically described in considerable detail in reports submitted to you on these activities. I am also pleased to inform you that we have carried out significant upgrades in www.icglass.org and you can access crucial details on ICG and its activities through it.

I hope that the present report demonstrates to you the vigor and the vitality of the ICG and its willingness to meet challenges of the future. We have made significant progress in several key initiatives since my becoming your president. I would like to emphasize the following.

- (1) Boosted our financial support of TCs, which are at the very heart of our raison d'être
- (2) Instituted a new TC (TC28: Glass Fibers for Reinforcement and Insulation)
- (3) As noted above, upgraded www.icglass.org to enhance the availability and ease of timely information, including TC annual reports, press releases, information on conferences.
- (4) Enhanced and frequent communication within and beyond the ICG.
- (5) Involved the Youth Outreach Committee in key ICG deliberations including programming.
- (6) Introduced the ICG School format to India by holding the first ICG-CGCRI (Central Glass and Ceramic Research institute) tutorial in Kolkata, India in January 2017.
- (7) To demonstrated ICG's and my personal commitment to our members, we sponsored and participated in several events organized by them. These included the Centenary of the **Society of Glass Technology**, the joint symposium on Glass Science & Technology organized by the **Ceramic Society of Japan** and the **American Ceramic Society**, the International Conference on Advances in Glass Science and Technology (ICAGST-2017) organized by the **Central Glass and Ceramic Research Institute of India**, the **Pacific Rim Conference on Ceramic Science and Glass Technology** in Hawaii, and the Glass: Science and Practice conference in Saint Petersburg, Russia organized by the **National Commission on Glass of the Russian Federation** and the **Institute of Silicate Chemistry of the Russian Academy of Sciences**. I further note that ICG was represented at the **Fist Convention of Glass Associations in Murano, Italy** and will be represented at the second convention in Milan and we will be showing our support for our Balkan colleagues by attending the **7th Balkan Conference on Glass Science & Technology in Nessebar, Bulgaria**.

We can also take great pride in the developments in ongoing vital activities on the following fronts.

- (1) We had highly successful second ICG Winter School in Wuhan China (March 31- April 5, 2016) and the 9th Summer School in Montpellier, France (July 3-7, 2017). We will celebrate the 10th anniversary of the Montpellier School next year.
- (2) ICG is financially healthy and confident of maintaining and expanding some of its core activities, particularly in its focus on the TCs.
- (3) We have several very active TCs and a strong CTC to provide strategic directions to them.

We need to continue progress in actively engage and promote younger colleagues, and further enhancing internal and external communications. In addition, we should develop programs and incentives to recruit and retain industry members, pursue collaborative projects with members and expand our resource (financial and personnel) base.

I believe ICG has the potential to grow in key areas such as expanding the global outreach of its educational /training programs especially through topical workshops and web-based tools, enhanced use of social media for communication, collaboration with NPOs on funded initiatives, and deriving value from the stellar work of its Technical committees. These activities in conjunction with other creative steps may also generate much needed resources.

I thank my colleagues in the Management Board and the Steering Committee for their support, collaboration, and guidance. Nothing could have been accomplished with active support from you and your organizations. On behalf of the ICG and myself, I offer you our sincere gratitude.

It is my honor and pleasure to serve this great organization and I am dedicated to do my utmost for its continued vitality and relevance.

Sincerely,

Manoj Choudhary

Dr. Manoj Choudhary
President, International Commission on Glass

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The detailed reports on the key activities and affairs of the ICG will, as usual, be provided to the Council by individuals in charge of them. In the following, I will provide an overall perspective on ICG's activities, accomplishments, and challenges since my last report in 2016. You may recall that in addition to the President's Report submitted to you at the time of the 2016 Congress in Shanghai, I had also sent you updates in September 2016 and December 2016. In addition, periodic communications on topics of relevance to the ICG (e.g. my interviews with Glass International and Glass worldwide) were also sent to you. We have also actively used our website (www.icglass.org) to convey timely information to you. I hope, you would agree, that we have endeavored to keep you, our members, well informed of what the ICG has been up to.

Tribute to Dr. William R. Prindle (ICG President during 1985-1988)

I begin this report on a sad note that Dr. William R. Prindle, ICG President during 1985-1988, passed away peacefully in his sleep on 29th December 2016 at his home in Santa Barbara. Dr. Prindle was 90 years old.

Dr. Prindle received his Sc.D. in Ceramic Engineering from Massachusetts Institute of Technology and had a long and illustrious career in the fields of glass, ceramics, and materials research and development. He retired from Corning in 1992 as Division Vice president and Associate Director, Technology Group. His numerous honors and awards included being the President, Distinguished Life Member and Fellow of the American Ceramic Society (ACerS), a member of the National Academy of Engineering, and a recipient of the Phoenix Award in 1983. I was fortunate to meet Dr. Prindle (and am proud to note that we share a common alma mater, namely, Massachusetts Institute of Technology) when I was making my professional transition from the broader materials and chemical engineering fields to glass and getting active in the ACerS. I am grateful for the guidance and counsel I received from him. He was a great visionary of the potential of science and technology as well as a valued mentor to many young scientists including myself.

On behalf of the ICG and myself I had sent our condolences to Dr. Prindle's family and I am pleased to note that we will have a special session in his honor at the ICG Annual Meeting in Istanbul.

I. The 24th International Congress on Glass

I thank **Prof. John Parker** for the following write-up on the International Congress on Glass held in Shanghai, China in April 2016.

From 7-11th April 2016 the Shanghai International Convention Centre in Shanghai, China became the opulent venue for the 24th International Congress on Glasses. The Congress was hosted by the Chinese Ceramic Society working with the International Commission on Glass.

The Congress Chairman was **Prof. Shou Peng** of China Triumph International Engineering Co., the former president of ICG, Chair of the Scientific Committee was **Prof. Jianrong Qiu** and Chair of the Organizing Committee was **Mr. Zhanping Jin**. The opening ceremony began with welcomes from the ICG president, **Dr. Manoj Choudhary**, president of the Chinese Ceramic Society, **Dr. Yongmo Xu**, a representative of the Municipal Government and finally **Prof. Shou Peng**.

The welcome remarks were followed by the Awards Ceremony. First were the prestigious **President's Awards** given to: **Dr. N. F. Borrelli** (USA), **Prof. A. Makashima** (JP), **Prof. J. Parker** (UK) and **Prof. Shou Peng** (CN). Next, the **Turner Prize** was awarded to **Prof. A. Boccaccini** and **Dr. S. Slade**. **Prof. R. Martin**

(UK) was the recipient of the **Gottardi Prize** and he later gave a plenary presentation entitled 'A structural insight into bioactive glass'. The **Weyl Award** was presented to **Dr. Qiang Fu** (USA) who subsequently spoke on 'Glasses for healthcare: research, development and industrialization'.

Altogether, 803 people registered for the Congress of whom 169 were students. The 270 international participants represented 33 countries. During the conference copies of the latest book to be authored by Prof. Fuxi Gan and Prof. J. Henderson were made available.

Each session was preceded by at least one Plenary Lecture. An unusual session examined good teaching practice and was aimed at young lecturers. Another highlight was the congress banquet, held on the penultimate evening. It took place in the Sea Palace Floating Restaurant, a large moored barge not far up the river from the congress center and with wonderful views of the Bund.

The Stevanato Group provided invaluable support by sponsoring the poster competition. Altogether 104 posters were offered and covered a wide range of subjects. Prizes were given to: **T. Nakaya** (Nagaoka University of Technology, Japan), **W. Chung** (Kongju National University, Korea) and **W.C. Peng** (South China University of Technology, Guangzhou, China). The Chinese Ceramic Society also generously sponsored 5 prizes in the oral sessions for the best young speakers: **T. M. Dubernet** (the University of Rennes, France), **C. Ragoen** (the University of Brussels, Belgium), **W. Chung** (the Kognju National University, Korea), **S. Cozic** (the University of Rennes, France and Yamagata University, Japan), and **M. Xi** (Wuhan University of Technology, China).

The Poster and Young Speaker prizes were distributed during the closing ceremony and were followed by a formal handover to the American Ceramic Society who will organize the 25th Congress in Boston, where we were promised a warm welcome.

The congress banquet, held on the penultimate evening, was yet another memorable event! It took place in the Sea Palace Floating Restaurant, a large moored barge not far up the river from the congress center and with wonderful views of the Bund. We were entertained with a varied and rich diet both of Chinese culinary expertise as well as traditional acrobatic and dancing skills. These included such wonders as a dancer whose mask magically flipped from one image to another, and a more modern dance synchronized with butterflies projected on a large illuminated screen acting as a backcloth.

II. Updates on Key Strategic Initiatives

I am pleased to note that we have made progress in several key initiatives we began on my becoming the president of the ICG. Given ICG's financial and personnel constraints, the progress is necessarily uneven but encouraging, nevertheless.

II. A Youth Outreach

We had set-up a "Youth Outreach Committee" composed of the following colleagues to identify and recommend strategies ICG could implement to achieve the goal of attracting and retaining younger colleagues.

Dr. Randall Youngman (Corning Inc., USA) – Chair

Prof. Delia Brauer (Univ. Jena, Germany)

Dr. Mathieu Hubert (Corning, Inc., USA)

Prof. Julian Jones (Imperial College, UK)

Mr. Erik Muijsenberg (Glass Service, CZ)

The following write-up is based, in part, on a report from the Youth Outreach Committee provided by **Dr. Randall Youngman**. I thank him and the Committee for the report.

One of the most important activities for this committee was to work with **Dr. Tunc Goruney** of Sisecam to recommend features that would encourage young colleagues to participate in the 2017 ICG Annual Meeting in Istanbul. I am especially grateful to **Dr. Goruney** and **Dr. Hubert** for their initiative and hard work in this area. As a result, post-docs and students at national and international level can register for this meeting at half the regular fee; they must simply confirm their position by presenting a letter from their head of the department. Any student whose submitted abstract is accepted as an oral presentation will be offered free registration. I hope that we will continue to use this practice of special consideration for young colleagues at our future technical meetings.

In addition, the Youth Outreach Committee has also taken the following steps.

- Dr. Goruney and the local organizing committee have organized a Youth Outreach Event for the 2017 ICG meeting, to be held on Wednesday, October 25. The intent is to assemble a panel of academic and industrial professionals to share experiences and career advice for those in attendance. Tunc and Erik will be making themselves available for presentations and networking.
- Initiated plan to create a Youth Outreach brochure to be used in attracting students and young professionals to ICG. The brochure will include the following.
 - Contact information on the members of the Youth Outreach Committee
 - Objectives of the Committee
 - Other contacts in ICG for information on TCs, mentoring opportunities, etc.

The Youth Outreach Team will take learnings from the events in Istanbul to develop plans for engaging young professionals at the 2018 ICG meeting in Japan.

I am also pleased to note that **Dr. Brauer** was a lecturer at the first ever ICG – CGCRI tutorial organized in India in January 2017. [There will be more on this in the next section of the report. **CGCRI stands for Central Glass and Ceramic Research Institute and is the National Participating Organization from India**].

As you know, ICG also offers schools for young researchers from industry and academia. They take place in Europe (Summer School) and Asia (Winter School) annually. These are highly regarded and well attended.

II. B Expanding Educational Offerings from ICG

This initiative is underway through the Education Committee (TC23) and led by **Prof. Reinhard Conradt**, the Chair of TC23. The following write-up is based, in part on the reports provided by **Prof. Conradt** and **Prof. Jon Parker**, in charge of the Technical Committee Cluster: Communications, Education, History and chair if the Technical committee on Information (TC01). I thank them for their inputs.

It is important to begin by acknowledging that numerous educational activities, with official and unofficial connections with the ICG are and have been going on for some time. Among these are: the courses taught by **Alicia Duran**⊗, the **Celsian Glass Courses** (run by Celsian b.v., The Netherlands), the internet glass courses organized by Lehigh University, U.S., the “Clear-as-Glass” student workshops by **Reinhard Conradt**⊗, last held at the 2016 Centenary celebration of Society of Glass Technology meeting in Sheffield, the “Introduction to Glass” courses given by **Arun Varshneya**. The ones marked ⊗ explicitly run under the ICG label. And, of course, we have the ICG Summer and Winter Schools, described separately in this report.

In the following we focus on an event that was explicitly connected with the initiative to extend ICG’s educational outreach beyond those referred to above.

I am pleased to report that the ICG joined the CGCRI to offer a 3-day tutorial in Kolkata, India. The 3-tutorial was given January 19-21, 2017 prior to the International Conference on Advances in Glass Science & Technology (ICAGST-2017) organized by the CGCRI.

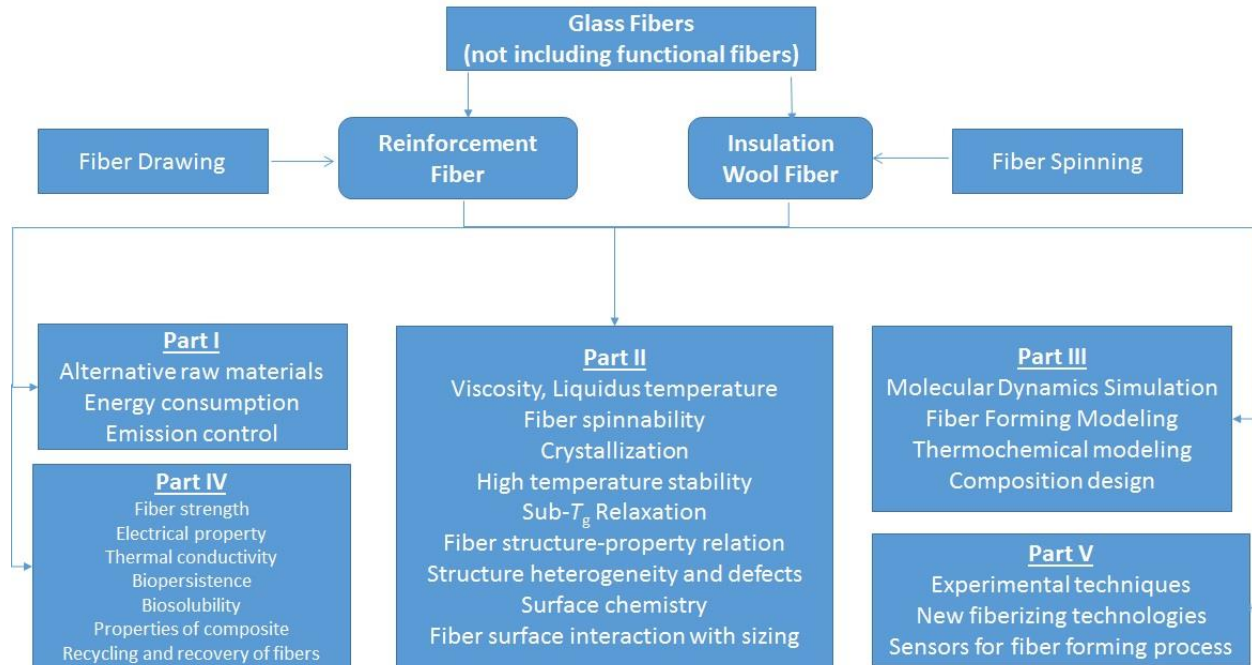
ICAGST-2017 was conceived by **Dr Ranjan Sen**, Chief Scientist and Head of the Glass Division and Fiber Optics and Photonics Division at the prestigious CSIR-Central Glass and Ceramic Research Institute (CGCRI) in Kolkata, West Bengal, India. The involvement of ICG had its origins in discussions between Dr. Sen and myself, during the ICG triennial Congress in Shanghai in April 2016. As a result, both a meeting of ICG's Steering Committee and the tutorial session were organized, with the latter following the pattern of ICG's Summer and Winter Schools (in France and China), alongside the planned conference. This was the first time that such a tutorial in association with the ICG was held in India and both it and the conference received enthusiastic support and guidance from **Dr. K. Muraleedharan**, Director of CSIR-CGCR, and from the following patrons: **Dr. V. K. Saraswat**; Member, of National Institution for Transforming India Aayog, Government of India. **Dr. Girish Sahni**, Director General, Council of Scientific and Industrial Research (CSIR) and Secretary, DSIR. **Dr. S. Christopher**, Director General, Defense Research & Development Organization.

II. C Strategic Focus for the CTC and TCs

One of the outcomes of a workshop we had held in Madrid, Spain in February 2016, was for the CTC and TCs to identify critically important Glass Science & Technology topics for the CTC to recommend for the TCs to pursue and, as needed, for the TCs to be formed and re-constituted. It is with pleasure that I announce the formation of a new TC (**TC28: Glass Fibers for Reinforcement and Insulation**) with **Prof. Yuanzheng Yue** of Aalborg University as the chair and **Dr. Hong Li** of NEG as the co-chair.

Glass fibers are playing an increasingly important role, specifically in light vehicle, lightweight structure, renewable energy production, thermal insulation, etc., all of which contribute either to energy generation or to energy saving and thus address concerns about sustainability and climate change. Considering that fiber glass is far from equilibrium state and is greatly different from bulk glass in many ways, there are still many scientific problems to be addressed.

I thank **Prof. Yue** and **Dr. Li** for providing the following details on the scope and planned activities of TC28.



Activity plan:

- 1) Book to be published by Springer in 2019: *Fiberglass Science and Technology: Chemistry, Processing, Characterization, Applications and Sustainability* (international contributions)
- 2) Fiber session has been programmed for the 11th Advances in Fusion and Processing of Glass Symposium in Columbus OH (Nov 2017).
- 3) ICG Annual Meeting 2018 in Japan – Fiber symposium in the early preparation
- 4) ICG Congress 2019 in US - Fiber symposium in the early preparation
- 5) Two chapters about glass fibers to be published in *Encyclopedia of Glass Science, Technology, History and Culture*: Chapter “Stone and Glass Wool” by Y.Z. Yue and M. Solvang; Chapter “Continuous Glass Fibers for Reinforcement” by H. Li and J.C. Watson

In further recognition of the TCs as the vital core of the ICG, in 2016-2017, we significantly enhanced budget allocation to them. Thus, in 2016, we spent € 10, 492 on the activities of TC09, TC17 and TC23 and, for 2017, have allocated € 13, 900 for TC03, TC04, TC07, TC13, TC16 and TC27 and additional € 7,635 for activities of TC23 and TC20.

II. D ICG Communication Strategy

Prof. John Parker in his capacity as the chair of TC01 has been instrumental in timely and effective compilation of information and its transmission to the wider public. He has also very ably handled communications inside ICG and its interaction with outside organizations. He has been joined by **Dr. Gabriele Peron**, a Steering Committee member, and **Mr. Lucien Belmonte**, a member of the Advisory Committee, to thoroughly review our current approaches and formulate strategies for enhancing the means and effectiveness of our communication, especially through digital means.

The following highlights on enhancing the digital communication approaches, are based on reports provided by **Prof. Parker and Dr. Peron**.

- TCs have been requested to submit their Annual Reports directly to the web.
- The Coordinating Technical Committee (CTC) plans to use LinkedIn as a communication medium and is also making more use of telephone conferencing. In addition, Skype has proved a useful mode of communications and Drop Box has provided a useful mechanism of sharing documents that need extensive editing.
- Press releases on important matters are now placed on the news section of the web site and circulated by K Bange to a wide variety of interested parties, for example for publication in international glass journals.

Some important activities planned and in progress are listed below.

- Plans for the website include:
 - Filling gaps in the members' database and promoting its use,
 - Encourage more TCs to upload documents for password protected access
 - Develop the 'What is Glass' section in more detail, with educational materials in mind
 - Through more in-depth Google Analytics develop better understanding of the audience
 - Improve the appearance of the web site and add in more links to social media
- Maintain and develop links to ICG members and associate members e.g. by advertising their activities on the ICG web pages and to provide them with News items from the ICG. Encourage TCs to help us maintain the currency of the conference web page and to optimize promotion of ICG at these events
- Although little progress has been made on the Glass/ICG Entries on Wikipedia this area will need to be pursued as time permits.

Communication Strategy for Future

The need for an in-depth deep review of ICG communication approaches was recognized and discussed by Steering Committee. Dr. Peron and Prof. Parker have led several discussions and we have established the following guidelines /goals:

- Make ICG a point of reference worldwide
- Establish ICG as the Glass authority: always
- Keep independency of the ICG

To reach these goals:

- ICG needs to empower its communication capabilities, adding resources and tools
- ICG needs to have a higher budget: we need to evaluate the chance to open to external sponsors

- ICG: must maintain its independence and authority in Glass science

No major initiatives can be undertaken with the current financial and personnel resources available to the ICG.

One of the ideas proposed to allow ICG to generate financial resources without compromising its authority and credibility is to create different levels of sponsorship for the global glass industry and entities affiliate with it.

ICG would welcome sponsors who share ICG's vision, and wish to support and benefit from the continuing professional education of a skilled and competent workforce needed for sustainable manufacturing excellence. They would be invited to join ICG events, benefit from them and ICG can facilitate topical workshops and training programs in relevant areas.

To proceed with major ideas like the one mentioned above, ICG needs to carefully define the steps and actions needed. Once the tasks have been delineated and assuming funding can be available, implementing and maintaining them will require full time resource or third part agency.

The next step involves two phases:

1. **Analysis of current situation:** ICG stakeholders would engage in a facilitated workshop (for two days) to assess the current situation and where ICG wants to be.
2. **Action plan:** would be prepared with concrete steps, schedule, resources outlined.

II. E Additional Financial Resources

As expected, this is a very challenging task and thus far we have no specific activity ongoing in this area. **We need help from our members, especially NPOs to identify funding opportunities for programs on which ICG could collaborate.** As mentioned above, we are in the preliminary stages of discussing various levels of sponsorship where for their support, ICG could provide services of interest to the sponsors. the

III. Support for and Focus on Members

As noted earlier, through more frequent communications from myself and thanks to **Prof. John Parker** and **Dr. Klaus Bange**, a member of the Advisory Committee, timely press releases and communications through the website, we have endeavored to keep members well informed of the ICG activities. In addition, I am very pleased to note the following activities especially aimed at making ICG supportive of our members.

- Vice president **Prof. Alicia Duran** and I represented the ICG at the Centenary of the Society of Glass Technology (SGT) in Sheffield during September 4-8, 2016. **Prof. Michael Cable**, an esteemed colleague and a friend to many of us, had unfortunately passed away a few days before the start of the Centenary program. Quite a few of us had the privilege of knowing professor Cable and his passing away only a few days before the Centenary celebrations was very poignant. On behalf of the ICG, I sent a letter of condolence to Mrs. Cable and the family and I also made a few

comments about Professor Cable in my opening remarks at the Centenary.

Our host, the SGT, was most gracious in allowing us to offer ICG's Congratulations at the 'Opening Ceremony'. As a gift, we also offered beautiful bottles made by the Spanish Royal Glass Factory. We congratulated **Prof. Russell Hand, Dr. Paul Bingham, Prof. John Parker, Ms. Christine Brown, Ms. Lisa Fearn and the SGT Team** for a superbly organized Centenary and THANK them for their warm and kind hospitality.

- I had the pleasure to represent the ICG and present an invited lecture at the "Joint Symposium on Glass Science and Technologies" organized by **the Ceramic Society of Japan and the Glass and Optical Materials Division of the American Ceramic Society**. The symposium was held at Kyoto University and was co-chaired by our Steering Committee member **Prof. Setsuhisa Tanabe** (Kyoto University) and **Prof. John Ballato** (Clemson University). It was a superbly organized symposium held in the majestic and beautiful city of Kyoto! I also had the honor of meeting **Prof. N. Soga (ICG President 1994-1997)** and brief him on recent ICG developments. I congratulated Profs. Tanabe and Ballato for a great symposium and thank them and all our hosts in Kyoto for their superb organization and warm and kind hospitality.
- As noted earlier in Section II.B, ICG had the pleasure of sponsoring the International Conference on Advances in Glass Science and Technology organized by the **Central Glass and Ceramic Research Institute (CGCRI)** and held in Kolkata, India. In addition, ICG also participated, for the first time ever, in a ICG-CGCRI 3-day tutorial that preceded the conference and held its Steering Committee meeting in Kolkata.
- **Dr. Peter Simurka**, ICG Executive Secretary and I were very pleased to attend the **Glass: Science and Practice** conference organized by the **National Commission on Glass of the Russian Federation** held at the **Institute of Silicate Chemistry of the Russian Academy of Sciences** in Saint Petersburg, during June 6-8, 2017. We gave invited lectures and greatly appreciated the chance to meet and interact with our colleagues in Russia. We thank **Academician Vladimir Ya. Shevchenko** for his kind invitation and to the members of the organizing committee for an excellent program.
- **Dr. Simurka and Prof. Hiroyuki Inoue**, the CTC-Chair will be representing the ICG and giving invited lectures at the 7th Balkan Conference on Science 7 Technology to be held in Nessebar, Bulgaria during October 1-4, 2017. We thank **Prof. Vesselin Dimitrov** of University of Chemical Technology and Metallurgy, Sofia, Bulgaria for the invitation.

The activities noted above not only demonstrate ICG's support of our members, they also enhance ICG's visibility. In this connection, I would like to note the following events which have given us the opportunity to expose ICG to a large group of glass and affiliated organizations.

- **Vice president, Prof. Duran** represented ICG at the First Convention of the Glass Associations in Murano, Italy. We will also be represented at the second convention in Milan during October 3-6 by **Prof. Parker**.

IV. CTC and Technical Committees Update

The 2016-2017 period has been marked by intense activities by several of the TCs. The CTC Annual Report provides detailed information on them. Also, as noted earlier, TC Chairs have been requested to post their reports on the ICG website (www.icglass.org) so that they are readily accessible and available in a timely manner. **I thank the CTC, and the TC Chairs for taking this step and request you to visit www.icglass.org.**

The significant developments of organizational interest are highlighted below.

- Prof. H. Inoue took over as CTC Chair at the meeting in Shanghai. The position of Prof. Inoue on CTC was taken by prof. B. Hehlen.
- Dr. H. Sesigur was made an acting member of CTC for the next year.
- Prof. R. Conradt has completed 9 years as chair of TC23. He will continue as acting chair for 1 more year and during this time will seek a replacement.
- Prof. J. Parker has also completed a second term of 9 years as chair of TC01 and secretary of the CTC.
- Prof. R. Almeida has also completed 9 years as Chair of TC16. He is willing to continue as acting chair for the next year and during this time will look for replacement.
- Dr. R. Eiden became the new chair of TC02 (Durability & Analysis) replacing D Michiels.
- Dr. J. van Deelen was appointed the new chair of TC24 (Coating on Glass).
- Prof. S. Kim was appointed the new chair of TC19 (Glass Surfaces).
- As mentioned before, a new TC (Glass Fibers for Reinforcement and Insulation, TC28) was formed (Chair Prof. Y. Yue, Vice-Chair Dr. H. Li).

Some of the especially noteworthy activities/achievements are noted below.

- ICG provided a grant to support the publication of an open access e-book published in Frontiers series on "Inorganic Biomaterials" co-edited by Prof. W. Holand and Prof. Aldo R. Boccaccini.
- ICG offered € 14,000 of financial support to the TCs. The TCs selected for the support and the amount received by them are listed below.

Technical Committee		Amount of Support (€)
TC03	Glass structure	2000
TC04	Bioglass	2800
TC07	Crystallisation & GCs	2500
TC13	Environment	1600
TC16	Nanostructures	2700
TC27	Atomistic Simulation	2300

V. Financial Update (2016-September 2017)

First, on behalf of the ICG and myself, I thank **Dr. María Jesús Pascual Francisco**, the ICG treasurer, for her commendable stewardship of our finances! I also thank her for kindly providing the information included in the following write-up. Dr. Pascual Francisco's report will provide the financial information in considerable details. Only some highlights are included here.

- As of now, ICG membership consists of 32 National Participating Organizations (NPOs), 5 Associated Organisations (AOs), and 14 Associated Member Companies (AMCs). (9 Chinese companies, and 5 more from Vietnam, Italy, Germany, India and Russia) have joined ICG, taking profit of the new membership opportunities designed in our constitution. The Australian Glass & Glazing Association (AGGA) has indicate its interest in being the Australian NPO.
- The 2016 income due to membership fees was € 35,677. The other sources of income were the sales and copyright from ICG publications at € 728, and € 648 from interest on investments. There was no income from the sales of References Glasses, because all the samples were sold out.
- Several AMCs from China were in debt at the end of 2016. We thank Prof. Shou Peng, our former president and Chinese colleagues for facilitating contacts with AMCs and AOs.
- The fee structure of ICG is as follows:
China, France, Germany, Italy, Russia and USA: € 1,486 €.
Japan, Korea, Mexico, UK and Spain: € 991.
Belgium, Brazil, Czech Rep., India, Netherlands, Poland, Thailand, Turkey, Iran: € 495.
Argentina, Canada, Finland, Greece, Hungary, Liechtenstein, Portugal, Slovak Republic, Denmark, Bulgaria, Romania and Sweden: € 398.
Associated Organisations (AOs): € 195.
Associated Member Companies (AMCs): € 725 €.
- The accumulated capital of ICG at the end of 2016 was € 180,960.53. The Expenses were, € 39,327.
- As mentioned earlier, in 2016-2017, we significantly enhanced budget allocation to the TCs. Thus, in 2016, we spent € 10, 492 on the activities of TC09, TC17 and TC and , for 2017, have allocated € 13, 900 for TC03 (Structure), TC04 (Bioglasses), TC07 (Crystallization), TC13 (Environment) , TC16 (Nanostructure) and TC27 (Atomistic Simulation) and additional € 7,635 for activities of TC23 (Education) and TC20 (optoelectronics).The boost for TCs marks a new way in the direction of strengthening TCs as backbone of ICG, also allowing accomplishing the objectives of a non-profit society as ICG.
- With respect to investments, ICG maintains its financial dealings with BBVA bank, the second largest Spanish bank and the 19th in the Global finance world's 50 safest banks. At the end of 2016 we had € 86000, earning 0. 19% of interest. The rest of capital and accounts are maintained at BSCH. We have invested € 25,000 in fixed rent plus € 60,000 in shares BSCH, with a medium interest rate of 0.076 % in 2016. At the end of 2016, ICG had € 9,980.36 in the current accounts.

The above shows the ICG to be a financially healthy entity, confident of maintaining and even expanding some of its core activities to further serve the interests of the global glass community.

VI. ICG Schools

The ICG Summer and Winter Schools are aimed at those just starting research in Glass Technology.

The 2nd Winter School took place March 31 – April 5, 2016 at Wuhan University in China, just before the ICG Congress in Shanghai, China. Ten topics were covered by lecturers from the Montpellier Summer

School core team and 8 topics were presented by Chinese colleagues. A total of 33 students participated, 30 were from different locations in China, 1 from Japan, 1 from India and 1 from Sudan.

ICG would like to extend thanks to the Dean of Faculty at Wuhan, **Prof Xiujian Zhao** and the local event organizer, **Prof Chao Liu**. The quality of the organization for the event was praised by several students in their final questionnaire with comments such as "Wonderful" and "Don't change anything!"

The next ICG Winter School is currently planned for 13-17th November 2017. Do put the date in your diary and watch the ICG web site (www.icglass.org) for updates.

The 2017 Summer School in Montpellier was held during July 3-7, 2017. Please see the detailed report on www.icglass.org. The following extract is based on reports communicated by **Prof. Parker** and **Prof. Conradt**.

This year we had attracted the largest number ever, with 37 from academia and 12 from several different glass manufacturers. The School timetable consisted of 18 formal one hour lectures either on a pure science theme (Glass formation, structure and properties) or mathematical modelling (How numerical modelling can respond to the technological challenges in glasses). All the students were together on the first day but then split into two groups for the remainder of the event. The rooms used were adjacent to facilitate transfer for those interested in both areas.

I had the pleasure of attending the school as a lecturer and was impressed with the content and the delivery of the lectures, the attentiveness and the enthusiasm of the students and the overall administration of the program. This year 16 individuals contributed to the school at no charge: **K. Bange, M. Choudhary, R. Conradt, L. Cormier, P. Florian, E. Guillard, R. Hand, A. Habraken, B. Hehlen, A. Karadag, H. Mahrenholtz, F. Maurer, H. Mueller-Simon, J. Parker, M. Pascual, A. Takada**. Of these **R. Conradt, B. Hehlen, J. Parker, A Takada and M Hubert** were responsible for the overall planning and publicity for the two themes of the event. The program received many positive comments at the end of the course from the participants. For example, one wrote 'By the end of the week, I can clearly say that we have gained great knowledge not only from the lectures but also from the group project' adding 'To be honest, it overtook my expectations'.

On behalf of the ICG and myself I express my gratitude to the lecturers and the organizers and **to Ms. Mylène Boscus**, the course administrator, and Prof. **Bernard Hehlen** who is the local contact point for all academic matters.

A very special highlight almost just around the corner is the **10th ICG Montpellier Summer School 2018**. It will be a wonderful occasion to celebrate the 10th birthday of this highly appreciated format. On this special occasion, a book shall be edited reflecting the 10 years of the school. It shall comprise 3 parts, i.e., a part presenting the philosophy of the school, a center part summarizing (in 12 pages each) a selection of the main tutorials given through the years, finally a part arranged like an alumni book, presenting statistical data, the students projects, and photos. **Prof. Akira Takada** and **Prof. John Parker** have volunteered to edit this book.

VII. 2017 ICG Awards

The following awards will be presented at the ICG Annual Meeting in Istanbul to be held in October 22-25, 2017.

- The recipient of the **W.E.S. TURNER AWARD** (inaugurated in 2002 in memory of Prof. W.E.S. Turner and awarded every year to those who have made a noteworthy contribution to the ICG Technical Committees) is **Prof. René Vacher** of University of Montpellier. Prof. Vacher served the ICG with distinction for many years and was the chair of the CTC.
- The recipient of the **GOTTARDI PRIZE** (initiated in 1987 in memory of Prof. V. Gottardi and awarded annually to young people with outstanding achievements in the field of glass in research and development, teaching, writing, management or commerce) is **Prof. Ashutosh Goel** of Department of Materials Science and Engineering at Rutgers University. Prof. Goel is a highly-respected name in the field of Glass Science.

I congratulate **Prof. Vacher** and **Prof. Goel** for their well-deserved recognitions.

VIII. ICG Meetings

We have already described or noted various ICG meetings in the period covered in this report (April 2016- September 2017). These included the following.

- 2nd ICG Winter School, Wuhan, China (March 31- April 5, 2016).
- 24th International Congress on Glass, Shanghai, China (April 7-11, 2016).
- ICG-CGCRI tutorial and the ICG sponsored International Conference on Advances in Glass Science and Technology, Kolkata, India (January 19-25, 2017).
- 9th ICG Summer School, Montpellier, France (July 3-7, 2017).
- ICG Annual Meeting in Istanbul (to be held October 22-25, 2017).
- ICG Winter School in Wuhan, China (to be held November 13-17, 2017).

In addition, also as noted before, ICG sponsored several meetings organized by various of our NPOs.

IX. Advisory Committee

First, on behalf of the ICG and myself I thank **Prof. Arun Varshneya** for his long and dedicated services to the ICG and for serving on the Advisory Committee (AC). He has been a highly-admired colleague and a friend to many of us and I am sure we will continue to benefit from his counsel. At his request, he has stepped down from the AC and his place has been taken by **Prof. Kathleen Richardson**. Prof. Richardson is well known to the ICG community both for her scientific and technical contributions and her services to the ICG as a member of its CTC. We very much welcome her and look forward to her guidance.

On behalf of the ICG and myself I also thank my predecessor and friend, **Prof. Shou Peng**, for his strong leadership of the AC. Under him, the AC has become focused and active and is engaged in several areas of key interest to the ICG. He will present a detailed report on the AC. I want to highlight the following.

- Prof. Shou Peng, has proposed an exchange program to support up to 7 European students to attend the 2017 Winter School and for a similar number of students from Asia to attend the 2018 Winter School. The details will be discussed at the Istanbul meeting.
- The AC, through Prof. Shou Peng, will be exploring ways to further extend ICG influence in Central and South Asia.

X. Concluding Remarks

I conclude this report by noting, with pride and satisfaction, that ICG has made significant progress in several areas that are vital for its remaining the premier professional organization of the global glass science and technology community and for being prepared to meet challenges that are inevitable and confront many materials based professional organizations.

I would like to note the following noteworthy ICG initiatives and developments during the period April 2016-September 2017.

- Boost in our financial support of TCs, which are at the very heart of our raison d'être
- Instituting a new TC (TC28: Glass Fibers for Reinforcement and Insulation)
- Upgrades in www.icglass.org to enhance the availability and ease of timely information, including TCs annual reports, press releases, information on conferences.
- Enhanced and frequent communication within and beyond the ICG. In addition, we have set-up a team to help us develop a comprehensive communication strategy for the future.
- Involving the Youth Outreach Committee in key ICG deliberations including programming.
- Introduction of the ICG School format to India by holding the first ICG-CGCRI tutorial in Kolkata, India in January 2017.
- As a show of ICG's and my personal commitment to our members, we sponsored and participated in several events organized by them. These included the Centenary of the **Society of Glass Technology**, the joint symposium on Glass Science & Technology organized by the **Ceramic Society of Japan** and the **American Ceramic Society**, the International Conference on Advances in Glass Science and Technology (ICAGST-2017) organized by the **Central Glass and Ceramic Research Institute of India**, the **Pacific Rim Conference on Ceramic Science and Glass Technology** in Hawaii, and the Glass: Science and Practice conference in Saint Petersburg, Russia organized by the **National Commission on Glass of the Russian Federation** and the **Institute of Silicate Chemistry of the Russian Academy of Sciences**. I further note that ICG was represented at the **Fist Convention of Glass Associations in Murano, Italy** and will be represented at the second convention in Milan and we will be showing our support for our Balkan colleagues by attending the **7th Balkan Conference on Glass Science & Technology in Nessebar, Bulgaria**.

We can also take great pride in the developments in our ongoing vital activities on the following fronts.

- (1) We had highly successful second ICG Winter School in Wuhan China (March 31- April 5, 2016) and the 9th Summer School in Montpellier, France (July 3-7, 2017). We will celebrate the 10th anniversary of the Montpellier School next year.
- (2) ICG is financially healthy and confident of maintaining and expanding some of its core activities, particularly in its focus on the TCs.
- (3) We have several very active TCs and a strong CTC to provide strategic directions to them.

We need to continue our efforts to actively engage and promote younger colleagues, further enhance internal and external communications, provide incentives for the industry to become our active members, pursue collaborative projects with members and expand our resource (financial and personnel) base.

I believe ICG has the potential to grow in key areas such as expanding the global outreach of its educational /training programs especially through topical workshops and web-based tools, enhanced use of social

media for communication, collaboration with NPOs on funded initiatives, and deriving value from the stellar work of its Technical committees. These activities in conjunction with other creative steps may also generate much needed resources.

It has been a great pleasure to work with my colleagues in the Management Board and the Steering Committee. I thank them for their support, collaboration, and guidance. Of course, nothing could have been accomplished with active support from you and your organizations. On behalf of the ICG and myself, I offer you our sincere gratitude.

It is my honor and pleasure to serve this great organization and I am dedicated to do my utmost for its continued vitality and relevance. I seek your continued support, guidance, and engagement with the ICG.

THANK YOU!