Welcome to Glass Service newsletter dedicated to 10th modeling seminar

By Josef Chmelar
President of Glass Service Group

Dear customers, partners and friends,

Welcome to our special Glass Service (GS) newsletter. It is dedicated to the 10th mathematical seminar on glass melting and forming. This modeling seminar is recognized as the most specialized international forum regarding modeling of glass furnaces and forming of glass. We are pleased that this event is already approaching its 18 years anniversary. At the same time, GS is soon to celebrate 20 years of our services to the glass industry. We would like to share with you some of our recent developments, achievements and thoughts about the future.

There are many challenges caused by the current economic situation; however, GS is prepared to face these difficulties through innovation of our services and products.

Our focus is primarily on glass quality, energy efficiency, ecology and productivity.

In order to be able to support these areas, GS has been continuously developing new software solutions, forming new partnerships and designing new hardware solutions. We hope that this way we can support our customers during difficult times.

We are looking forward to a very interesting discussion during our modeling seminar. We hope all participants will enjoy the open atmosphere of this event as well as the social program.

Josef Chmelar
GS Modeling Award

By Erik Muijsenberg

In 2005, Glass Service began a new tradition: the presentation of the GS MODELING AWARD to outstanding individuals who have made a noteworthy contribution to the glass industry in the field of mathematical modeling. As a symbol of this Award the recipient shall be represented with a Czech glass brilliant.

The Committee has decided unanimously to select Mr. Fabrice Fasilow as the recipient of the GS Modeling Award for 2009.

The 10th International Seminar on furnace design – operation & process simulation

By Jana Schachlova and Jana Chovancova

The first seminar, 18 years ago, was an international meeting place for all people involved in the optimization of the glass melting process, combined with numerical methods. It was shown that the seminar presents a very practical approach, demonstrating how advanced tools can give operators a better understanding of their equipment and optimize production.

The 1st international seminar was attended by approximately 30 people from the Czech Republic and The Netherlands. Over the years, Seminar has become an international event, hosting participants from countries worldwide and having attendance above 100 people.

The seminar has focused always on the optimization of melting and conditioning. Since the 9th seminar, there is a workshop on modeling of the forming processes. The 10th seminar is again well attended with valuable lectures and contributors:

Float Tin Bath Model - P. Schill (Glass Service, Inc.)
FMP – A New Simulation Method For Glass Forming Processes - A. Möller, J. Kuhnert, M. Stein (Nogrid GmbH – GS Partner)
Preliminary Experience Of Using Nogrid Software For Glass Forming Processes - M. Moravský (GS ACT)
Advanced Simulation of 3D Glass Bottle Forming With GS Galileo+ - E. Muijsenberg (Glass Service, B.V.), V. Bouwman (Dassault Systemes Simulia B.V. – GS Partner)
The General Conditions Of Glass Melting – The Sand Dissolution And Bubble Removal - L. Němec, M. Arkosiová, P. Cincibusová, M. Jebavá, J. Kloužek, V. Tonarová (Laboratory of Inorganic Materials)
ICG TC21 Modeling Of Glass Melting Processes - The History & Future Of Comparative Mathematical Modeling Studies of Glass Furnaces To Improve Their Reliability - E. Muijsenberg (Glass Service, B.V.)
An Evaluation Method Of Thermal Convection Of Molten Glass Flow In A Glass Tank Furnace - K. Oda (AGC Flat Glass Japan), M. Kaminoyama (Yokohama National University)
GLASS SERVICE and NOGRID form a new partnership in developing new dedicated Glass Forming Simulation solutions

By Erik Muijsenberg

Glass Service and NOGRID have formed a new alliance with the aim to further improve services to our glass customers.

GS and NOGRID started a co-operation in applying NOGRID new Finite Pointset Method (FPM) to develop it further for the most specific complicated glass forming applications.

NOGRID, based in Mainz Germany started just 3 years ago and has already achieved a wide customer base. The FPM particle method solution does not require any meshing and remeshing technique and, therefore, allows us to simulate glass deformation processes that have not been possible (within a reasonable time) with typical finite element solutions. Especially for free surface flow, the FPM offers unique solutions. The FPM software had been developed by the Fraunhofer Institute, in Kaiserslautern Germany, over the past 10 years, before NOGRID has taken over the market approach. Today NOGRID is not only active on the glass market but, also, on other markets such as the automotive market. The automotive industry always has given strong demands for state of the art simulation tools.
Glass Service, based in Vsetin Czech Republic, has extensive knowledge of furnace modeling using GS GFM, furnace operation, advanced control (ES III™), glass quality troubleshooting and glass production optimization, including already several glass forming processes. However, for some very complicated forming processes, such as gob formation, spout overflow, tin bath spreading of the ribbon, overflow fusion and glass fiber forming, no other software gives reliable solutions within acceptable calculation times. Glass Service and NOGRID started co-operation on finding tuned and validated solutions with FPM as the basic solver for these special applications as already has been done for axi-symmetric container forming and 3D complex flaconage forming in close cooperation with its respective partners COMPASS (Spain) and Dassault Systemes Simulia BV (Abaqus Netherlands).

Besides the technical solutions and know-how, the wide customer network of Glass Service will allow us to introduce new glass forming modeling products into the worldwide glass market in an efficient way, with minimum costs for marketing new solutions.

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Glass Service and The Float Glass Consortium (FGC) announce new joint project to develop a unique intelligent system to manage the float bath operation and environment „FLOAT BATH EXPERT“

By David Woodward (FGC) and Josef Chmelar

FGC is a fully independent company with the depth and breadth of design, construction and operating expertise, experience and resources who can offer a full turnkey package for high capability flat glass lines based on objective assessment and independent experience, and incorporating the latest technology and operating procedures, drawn from the best equipment and suppliers that are available worldwide. Senior FGC personnel have an average of 35 years experience designing, building and operating float glass plants around the world.

Glass Service has installed more than 80 advanced control solutions and Expert System ES III™ (ES III™) in glass plants worldwide until 2009. Our main areas in glass production are:

- Float and Sheet Glass
- Solar Glass
- Composite Fiber
- Insulation Fiber
- Container glass
- Specialty Glasses
This market leadership has given GS extensive experience in application of the control strategy proving concept of ESIII resulting in clear benefits to glass production efficiency.

The float bath expert system (FBE) is a software system that analyses actual float bath operation - including lehr speed, top roll set up, bath symmetry, bath chemistry environment, temperature, ribbon thickness contour and other important operating parameters using the latest state-of-the-art numerical methods.

FBE compares ideal bath operation settings for each product against actual settings and computes recommended changes to achieve improved product quality and yield.

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FLAMMATEC – New Combustion Technology for Glass Furnaces

By Petr Vojtech

As reported in GS GlassNews No 1, Glass Service and STG have formed a new joint venture FlammaTec Ltd.

The newly established venture decided to combine state-of-the-art modeling technology experience with glass furnace technology, sensors and advanced furnace control knowledge. Using this comprehensive knowledge it was possible to design combustion solutions for improved glass quality, fuel efficiency, and stricter environmental control.
An extensive R&D program resulted in new types of flexible gas burners for application in regenerative furnaces. This new technology has already been successfully installed on container end port furnaces, float tanks and tableware melters.

An integral part of each application is modeling of the burner design and its performance inside the furnace.

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