

SAMPE

Europe



07th International Technical Conference & Forum
September 19th – 20th 2012

Advanced Composites – Design & Process for Sustainability

SETEC 12

2 days Conference & Forum with key-notes,
plenary-sessions, Table Top Exhibition – and Plant Tours



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SETEC 12: Preliminary Programme & Registration Forms

SAMPE Europe 7th SETEC Technical Conference & Table Top Expo

At a Glance

Tuesday, Sept. 18th	Registration	16.00 – 18.00
	Welcome Reception	18.30 – 20.00
Wednesday Sept. 19th	Registration	07.30 – 15.00
	Table Top Exhibition	09.00 – 15.30
Thursday, Sept. 20th	Registration	07.30 – 16.00
	Table Top Exhibition	08.30 – 16.30

Wednesday, September 19 th 2012	Thursday, September 20 th 2012
08.30 – 09.00 Opening & Key-Note Opening SETEC 12, Paolo Ermanni <i>President SAMPE Europe</i>	08.30 – 09.00 Key-Note 2 «Swiss Innovation Focus» J. Giesbrecht, Taenia Tec.
Key-Note 1 «Design and Manufacturing for Next Generation Aircraft» – John Russell US Air Force, Wright-Paterson AFB	09.00 – 10.30 Session 4 – Engineering <i>Chairman: C. Dransfeld</i> P 24, Speaker: D. Schmid, RUAG, Emmen P 06, Speaker: W. Machunze, EADS Deutschland P 07, Speaker: J. Moran, UNI Mar del Plata
09.00 – 10.00 Session 1 – Thermoplastics <i>Chairman: N. Pini</i> P 10, Speaker: P. Parlevliet, EUROCOPTER P 18, Speaker: N. Eguémann, FHNW P 26, Speaker: J. Tröltsch, TU Chemnitz	10.30 – 11.00 Coffee Break
10.00 – 10.30 Coffee Break	11.00 – 12.30 Session 5 – Design <i>Chairman: M. Giger</i> P 04, Speaker: M. Carmen-Rodriguez, AIRBUS P 03, Speaker: F. HärteI, UNI Stuttgart, IFB P 22, Speaker: K. Horejsi, FACC, A-Ried P 23, Speaker: S. von Bergen, RUAG, Emmen
10.30 – 12.00 Session 2 – Materials <i>Chairman: J. Grindling</i> P 13, Speaker: M. Arnold HT Rapperswil P 34, Speaker: K. Adamov, Fraunhofer IFM P 14, Speaker: S. Costantino, Huntsman P 33, Speaker: C. Weder, Université Fribourg	12.30 – 13.30 Lunch
12.00 – 13.00 Lunch	13.30 – 15.00 Session 6 – IMAC-Pro 1 <i>Chairman: P. Middendorf</i> P 19, Speaker: K. Massania, FHNW P 29, Speaker: B. Rittenschober, ALPEX Technologies P 27, Speaker: C. Breu, EADS Deutschland P 28, Speaker: M. Danilov, DLR
13.00 – 14.30 Session 3 – Processing <i>Chairwoman: V. Michaud</i> P 16, Speaker: J. Filsinger, EADS Deutschland P 20, Speaker: J. Studer, FHNW, Windisch P 15, Speaker: K. Birkefeld, UNI Stuttgart, IFB P 01, Speaker: M. Tsunehisa, AIST, Nagoya	15.00 – 15.30 Coffee Break
14.30 – 15.00 Coffee Break	15.30 – 17.00 Session 7 – IMAC-Pro 2 <i>Chairman: P. Middendorf</i> P 30, Speaker: A. Vigoureux, Dassault-Aviation P 31, Speaker: C. Katsirpoulos, UNI Patras P 32, Speaker: A. Gessler, EADS Deutschland
15.15 Departure for Plant Visit Tours PILATUS AIRCRAFT Works, Stans RUAG, Emmen AF Airfield	17.00 – 17.10 Closure SETEC 12 <i>P. Ermanni, President SAMPE Europe</i>
18.45 – 19.00 Return from Plant Visit Tours to Hotel SEEHOF	
19.00 – 22.30 SETEC Dinner Hotel SEEHOF	

SAMPE EUROPE SETEC 12 Lucerne

Technical Conference, Table Top Exhibition and Plant Visit Tours

SAMPE Europe and SAMPE Switzerland are pleased to present you the Preliminary Programme of SETEC 12, Technical Conference, Table Top exhibition and Plant Visit Tours – to be held on September 19th – 20th, 2012, at the «Verkehrshaus» (Museum of Transportation) in Lucerne.

With reference to the defined «Leitmotiv» of «Advanced Composites – Design & Process for sustainability» – 2 KEY-NOTE addresses and 26 papers have been appointed for presentation in the very attractive conference room and extraordinary infrastructure of the «Verkehrshaus».

On Tuesday, September 18th 2012, early-evening – at 18.30 a Welcome-reception will be given to all Table Top Exhibitors and Conference Attendees who have already reached Lucerne, who is known as a very attractive tourist-city located on the shore of lake Lucerne, in the heart of Switzerland.

Parallel to the SETEC 12 Conference – and very next to the Conference Room – a Table-Top Exhibition consisting of 30 units will be built up and proposed for renting to Companies, Organisations, Universities – to present the latest creations, projects and innovations made in the field of Advanced Composites Technology, Materials and Applications. The Coffee Breaks and the Lunch for all SETEC 12 attendees will be served at the Table Top Exhibition area – which provides to the Exhibitor the means to have all attendees very next to them for two hours per conference!

Since Lucerne is visited during the summer months by a very large amount of tourists coming from the whole world, SAMPE Europe designated 18 months ahead of the event the Conference Hotel – named SEEBURG – which is located on the shore of lake Lucerne in walking distance to the «Verkehrshaus». At hotel SEEBURG a contingent of 40 rooms have been reserved for SEMAT 12 attendees. Complementary 150 rooms are available at 6 hotels in Lucerne, named Schweizerhof, Hermitage, Wilden Mann, Flora, Cascada and Ambassador. Whilst reservations for Hotel SEEBURG is to be made electronically via SAMPE Europe – reservations for the other 6 hotels are to be made via Internet. All information re price and location are defined on the enclosed Hotel Reservation Form. Since Lucerne will expect in the week of SETEC 12 a high demand for hotel rooms due to the International Music Festival – it is herewith strongly recommended to make your hotel-reservation as early as possible !

For SETEC 12 Lucerne SAMPE Europe is very pleased to provide to its attendees the possibility to participate to one of two very interesting Plant Tours for which you are invited to make your mind for going either to PILATUS Aircraft Works, Stans – or to visit the Headquarter of RUAG located at the Emmen Airfield of the Swiss Air Force. Whilst PILATUS is worldwide well known as A/C manufacturer of Trainer A/C and Turbo-Prop utility aircrafts. RUAG is active for the maintenance of the Swiss Air Force Aircrafts and Helicopters and is a recognized manufacturer of Tier 1 A/C components and structures required for Space applications.

The SETEC 12 Conference Dinner will be organized on Wednesday evening, September 19th. 2012, at the SEEBURG Hotel – taking advantage if the weather is favourable to get the aperitif served in the garden – providing an unmatched view on the Alps and the lake of Lucerne.

**SAMPE Europe – 7th Technical Conference and Table Top Exhibition
SETEC 12, Verkehrshaus Lucerne**

PROGRAMME on Wednesday, Sept. 19th 2012

08.30 – 09.00

Opening and Key-Note Presentation

Opening

Welcome address by Prof. Paolo Ermanni, ETH Zürich
President SAMPE Europe



Key-Note 1

Speaker & Author:

«Design and Manufacturing for next Generation Aircraft»

John Russell, US Air Force, Wright-Paterson AFB, OH45433
Programme Mgr Defense, Manufacturing Science & Technology



09.00 – 10.00

Session 1 – Thermoplastics

Chairman: N. Pini

Paper 10:

Speaker:

Authors:

EcoDesigned Thermoplastic Composite Helicopter Airframe Structures

Patricia Parlevliet, EUROCOPTER Deutschland GmbH., D-81663 München

C. Pudenz, C. Weimer, P.Parlevliet, EUROCOPTER Deutschland GmbH

Paper 18:

Speaker:

Authors:

Manufacturing and Recycling of complex Composite Thermoplastic Parts
for Aerospace Application

N. Eguémann, Fachhochschule Nordwestschweiz, IFK, CH-5210 Windisch

F. Thiebaud, D. Perreux, Université de Franch Compté, F- Besançon

L.Giger, M. Roux, C. Dransfeld, N. Eguémann FHNW, IFK, CH-5210 Windisch

Paper 26:

Speaker:

Authors:

Investigation of injection moulded Sandwich Structures with melt
impregnated Glass Fibre Tapes

J. Tröltzsch, Chemnitz University of Technology, D-09107 Chemnitz,

F. Helbig, L. Kroll, J. Tröltzsch, TU Chemnitz, D-09107 Chemnitz

10.00 – 10.30

Coffee Break

10.30 – 12.00

Session 2 – Materials

Chairman: J. Grindling

Paper 13:

Speaker:

Authors:

Interlayer Toughening: Influence on the impact strength when using
various Thermoplastic Semi-Finished Products

M. Arnold, Hochschule für Technik, IWK-Institut, CH-8640 Rapperswil

M. Henne, K. Drechsler, TU München, M. Arnold HAT Rapperswil

Paper 34:

Speaker & Author:

Influence of water on a model Carbon Fibre / Epoxy Matrix System

Katharina Adamow, Fraunhofer Institut, IFAM, D - Bremen

Paper 14:

Speaker & Author:

Solutions supporting increasing demands for fast carbon parts
production in mass transportation

S. Costantino, Huntsman Advanced Materials, Technical Support
Applications & Processes, CH-4057 Basel

Paper 33: Polymer Nanocomposites with Cellulose Nanocrystals
Speaker & Author: C. Weder, Université de Fribourg, Adolphe Merkle Institute, CH-1723 Marly

12.00 – 13.00 Lunch

13.00 – 14.30 **Session 3 – Processing**

Chairwoman: V. Michaud

Paper 16: New Variant of VAP (Vacuum assisted Process) to enable an Automated process setup

Speaker & Author: J. Filsinger, EADS Deutschland GmbH., Dept. IW-CT, D-81663 Munich

Paper 20: The Compression Resin Transfer moulding process for efficient Composite Manufacture

Speaker: Kunal Masania, FH Nordwestschweiz, IFK, CH-5210 Windisch

Authors: K. Masani, C. Dransfeld, FH Nordwestschweiz, CH-5210 Windisch

Paper 15: Optimisation of braided Structures with a Genetic Algorithm considering Production Aspects

Speaker & Author: Karin Birkefeld, Universität Stuttgart, IFB-Institut, D-70569 Stuttgart

Paper 01: Possibility and Problem in application of Wood-Plastic Composite prepared by wood flow processing to automotive parts

Speaker: M. Tsunehisa, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

Authors: N. Takeswhi, S. Hiroyuki, K. Kozo, M. Tsunehisa, AIST, Nagoya
 S. Masako, Gifu University, Gifu, Japan

14.30 – 15.00 Coffee Break

15.15 – 19.00 Departure Plant-Visit-Tours, PILATUS AIRCRAFT WORKS, Stans
 RUAG, Emmen Airfield of Swiss Air Force

19.00 – 22.30 Hotel SEEBURG, Lucerne – SETEC 12 Conference Dinner

PROGRAMME on Thursday, Sept. 20th 2012

08.30 – 09.00 Key-Note 2

Key-Note 2 **Swiss Innovation Focus**

Speaker & Author: J. Giesbrecht, Taenia Technology,

09.00 – 10.30 **Session 4 – Engineering**

Chairman: C. Dransfeld

Paper 24: Endurance Testing of Composite Parts: Challenges and Pitfalls

Speaker: D. Schmid, RUAG Emmen, CH-6032 Emmen

Authors: B. Bucher, D. Schmid, RUAG Emmen

Paper 06: Optimization assisted design of Braided Aircraft Floor Structures

Speaker & Author: W. Machunze, EADS Innovation Works Germany GmbH., D-81663 Munich

- Paper 07:** Mold filling simulation of the processing of natural fiber reinforced Composites by Resin Transfer Molding (RTM)
Speaker: J. Morán, National University of Mar del Plata, Argentina
Authors: G. Francucci, E. S. Rodriguez, J. Morán, University Mar del Plata
- 10.30 – 11.00** **Coffee Break**
- 11.00 – 12.30** **Session 5 – Design**
Chairman: M. Giger
- Paper 04:** Stringer run-out design process based on advanced numerical simulation
Speaker & Author: Maria Del-Carmen Rodriguez-Gomes, AIRBUS Spain
- Paper 03:** Draping strategies for complex geometries and its automation
Speaker: F. Härtel, Stuttgart University, IFB-Institut, D-70569 Stuttgart
Authors: J. Fleischer, H. Wagner, WBK, Institut of Production Science, D-76131 Karlsruhe, P. Middendorf, F. Härtel, Stuttgart University, D-70569
- Paper 22:** Cost-based process selection in early design stages for composite Aircrafts Parts
Speaker: K. Horejsi, FACC AG., A-Ried im Innkreis
Authors: R. Schledjewski, J. Noistering, O. Koch, K. Horejsi, FACC AG, A-Ried
- Paper 23:** The use of adequate CAE for the development of complex FRP parts
Speaker: S. Von Bergen, RUAG Aviation, CH-6032 Emmen
Authors: H. Könen, S. von Bergen, RUAG Aviation Ch-6032 Emmen
- 12.30 – 13.30** **Lunch**
- 13.30 – 15.00** **Session 6 – IMAC-Pro 1**
Chairman: P. Middendorf
- Paper 19:** The Compression Resin Transfer moulding process for efficient Composite Manufacture
Speaker: K. Masania, FH Nordwestschweiz, IFK-Institut, CH-5210 Windisch
Authors: C. Dransfeld, K. Masania, FH Nordwestschweiz, CH-5210 Windisch
- Paper 29:** Investigation of Tooling Strategies for high volume industrialized RTM Manufacturing of Profiles for Aerospace Applications
Speaker: B. Rittenschober, ALPEX-Technologies GmbH., A-6068-Mils
Authors: M. Klautzsch, T. Stern, B. Rittenschober, ALPEX-Technologies, G. Peikert, B. Fiedler, S. Klausner, RUAG Technology GmbH, CH-6032 Emmen, C. Dransfeld, K. Masania, S. Moser, FH Nordwestschweiz, IFK-Institut, CH-5210 Windisch
- Paper 27:** Industrialization of Profile manufacturing techniques- an overview of the IMAC-PRO Project
Speaker: C. Breu, EADS Deutschland GmbH., Innovation Works, D-81663 Munich
Authors: A. Gessler, C. Breu, EADS Deutschland GmbH., D-81663 München

Paper 28: Microwave-based curing of CFRP Struts
Speaker & Author: M. Danilov, DLR German Aerospace Center, D-38108 Braunschweig

15.00 – 15.30 Coffee Break

15.30 – 17.00 Session 7 – IMAC-Pro 2
Chairman: P. Middendorf

Paper 30: Mechanical Performance of an UD braided Spar
Speaker: Karin Birkefeld, Stuttgart University, IFB Institut, D-70569 Stuttgart
Authors: A. Vigoureux, Y. Blanchard, Dassault-Aviation, F-92552 Saint Cloud

Paper 31: Optimization of JF-Frames and C-Beams manufacturing by means of an extensive Cost Analysis Study
Speaker: C. Katsiropoulos, University of Patras, GR-26500 Patras
Authors: S. Klauser, RUAG Aerospace, CH-6032 Emmen, A. Gessler, EADS Deutschland GmbH., Innovation Works, D-81663 Munich, C. Katsiropoulos Patras University, GR-26500 Patras

Paper 32: Innovative Aircraft Fuselage Frames made from tailored braided profiles
Speaker: A. Gessler, EADS Deutschland GmbH., Innovation Works, D-81663 Munich
Authors: P. Bara, G. Xolin, SABCA SA., B-1130 Brussels, S. Klauser, RUAG Aerospace, CH-6032 Emmen, M. Danilov, DLR, D-38103 Hannover, B. Rittenschober, ALPEX-Technologies, A-6068 Mils, D. Dumas, CENAERO, B-6041 Gosselis, R. Ruzek, VZLU, CZ-199 05 Praha-Letnany

17.00 – 17.15 Closure of SETEC12 – Paolo Ermanni, President SAMPE Europe



The Swiss Museum of Transportation presents a very unique collection of exhibits which should be visited during your stay at SETEC 12. For that purpose each SETEC 12 attendee will get a free entrance ticket to access to the museum as per your individual time-table.

Sponsor support to organize SETEC 12

SAMPE Europe, acting in all its activities as a volunteer organisation greatly appreciates the much generous sponsorship from the following Organisations and Companies, shown here by their Logo, for the setting-up and realization of the SETEC 12 Conference, Lucerne. SAMPE Europe would be very pleased to add your Logo for the printing and publishing of the Final Programme and Proceedings of SETEC 12. Please contact SAMPE Europe under e-Mail sebo@sampe-europe.org for getting in contact with you. Thank you.



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