JISTES 2012 Kyoto

Final Program

Japan International SAMPE Technical Seminar 2012 Kyoto

SAMPE-Japan 先端材料技術協会 京都国際会議 2012

July 12 (Thu) & 13 (Fri), 2012

DOSHISHA UNIVERSITY, Kyoto, Japan

2012 年 7 月 12 日（木）、13（金）

同志社大学 今出川キャンパス（京都）

JISTES 2012 Kyoto

1. Date : July 12th. (Thu) & 13th. (Fri), 2012
   開催日：2012 年 7 月 12 日(木)、13 日(金)

2. Venue : Kanbaikan Hall, at the Doshisha University in Kyoto
   場　所：同志社大学 今出川キャンパス(烏丸今出川上ル)、寒梅館 地下会議室

3. Lecturers to be invited : From Europe 5, Taiwan 1, Japan 3, Total 9
   講演者：日本３名、欧州５名、台湾１名の計９名

4. Program Schedule：プログラム

7/12（Thu. 木）		7/13（Fri. 金）	
10:30 – 10:40	Opening Remarks Mr. Ishikawa Chairman SAMPE-Japan	Session Chair : Mr. Yamaguchi	
Session Chair : Mr. Matsui		9:30 – 10:30	Mr. Hector Hui PORCHER France
10:40 – 11:40	Mr. Nobuyuki Odagiri TORAY Japan	10:30 – 11:30	Mr. Mattias Graf DIEFFENBACHER Germany
11:40 – 13:00	Lunch	11:30 – 13:00	Lunch
Session Chair : Mr. Someya		Session Chair : Mr. Kuratani	
13:00 – 14:00	Mr. Robert Lenferink TENCATE Netherlands	13:00 – 14:00	Mr. Atsushi Miyabo ARKEMA Japan (France)
14:00 – 15:00	Mr. Davy Leboucher CORIOLIS France	14:00 – 15:00	Mr. Alan C.T.Chen TOPKEY Taiwan
15:00 – 15:30	Coffee Break	15:00 – 15:30	Coffee Break
Session Chair : Mr. Tanaka		Session Chair : Mr. Yamane	
15:30 – 16:30	Mr. David Manten DTC Netherlands	15:30 – 17:00	Mr. Masayuki Kiyama Ministry of Economy, Trade and Industry Prof. Jun Takahashi & Ass. Prof. Kiyoshi Uzawa The University of TOKYO Japan
17:00 –19:00	Banquet at SECOND HOUSE will (Kanbaikan 7F)	17:00 –17:10	Closing Remark

5. Table-top Exhibition

Tables are provided for showing brochures and samples enabling the attendees to understand the lectures, and for the exhibits of any composites relevant products.

テーブルトップ展示

講演の内容の理解を高めるためのカタログ･サンプルをテーブルに展示すると共に、企業･大学からの展示も行います。

From Japan

- **Carbon fiber - World changing material**

  Mr. Nobuyuki ODAGIRI

  General Manager, ACM Technology Dept.

  TORAY Industries, Inc.

ABSTRACT

“Since 41 years ago, when Toray, first in the world, started carbon fiber manufacturing, Toray holds strong company policy to support continuous R&D to realize revolutional world change through the excellent performance of the material. With other carbon fiber manufacturers, Japan is leading development of high performance carbon fibers and related intermediate materials. It should be noted that excellent high end sporting equipment manufacturer in Japan for fishing rods and golf shafts has incubated high performance carbon fiber technologies from early days of this material.

Especially nowadays, key to success is to integrate material design, product design and process design. Carbon fiber material for Boeing 787 "Dreamliner", dominating 50% of structural weight, yielding significant energy savings over previous generation aircraft, is a result of typical success story out of vertical partnership with Toray and end user Boeing, representing the true spirit of ‘mono-zukuri’ (‘making things’ in a unique Japanese way).

Expanding markets for carbon fiber materials are range from new generation automobile parts, sporting goods to energy related application like fuel cell, advanced power cable, deep sea oil platform and windmills. With continuous challenge to pursuit ultimate strength and modulus, Toray holds the world largest production capacity for carbon fiber.

- **ARKEMA High Performance Polymers for Composite Applications**

  Atsushi MIYABO, Ph. D.

  General Manager

  ARKEMA K. K.

ABSTRACT

Improvement of material properties and processing technology are key factors for further growth of thermoset and thermoplastic composite market. Arkema, a major French chemical company which highly focus on nanotechnology and innovative high performance materials, has some key materials for this application. Brief introduction will be made for Poly Ether Ketone Ketone (PEKK), Nano-structured Block Copolymer (Nanostrength®) and Polyamide powder (Orgasol®).

- **Towards Japanese National Composite Center**

Mr. Masayuki KIYAMA

Chief, Next Generation Division, Economic Policy Department

Chubu Bureau, Ministry of Economy, Trade and Industry

ABSTRACT

NCC will be the first open hub in Japan of verifying and evaluating composite material manufacturing technologies. NCC will be built with assistance extended by Ministry of Economy, Trade and Industry in the GNI region (Nagoya University) where the largest number of aircraft and automobile manufacturers are concentrated.

Academic, business and government organizations will work together at the site to perform and standardize evaluation tests for large material molding technology, lightning, and heat- and flame-resistance building up a network with in-country composite advanced research institutes such as Tokyo University and the Japan Aerospace Exploration Agency. Large composite material makers and users in Japan such as aircraft and automobile makers are scheduled to participate.

The prime task is to develop a high rate molding technology that has a low cost which can replace autoclaves. The primary goal is to contribute to the practical manufacturing of high performance and low cost composite material manufacturing technology for automobile-related fields that require weight savings which electric vehicles lead and the integration of construction parts from the viewpoint of the aerospace field and reduction of CO2.

NCC will also work on proving product quality though material evaluations of fireproof and incombustible performance, durability, fire spreading and occurrence of toxic gases, fire-and flame-resistance test evaluation technology and clarification of the damage mechanism due to currents, and lightning resistance test evaluation technology to develop and verify countermeasure technology.

- **Japanese Activity For Realizing Lightweight Mass Production Automobile by using CFRTP**

Prof. Jun TAKAHASHI and Associate Prof. Kiyoshi UZAWA
School of Engineering, Department of Systems Innovation,
The University of Tokyo

ABSTRACT

To realize ultra‐lightweight mass production automobile by CFRP (carbon fiber reinforced plastics), we have to solve the problems concerning cost, manufacturing, recycling, etc.

Japanese national project which started at 2008 fiscal year to solve these problems by using CFRTP (carbon fiber reinforced thermoplastics) and related national activity including NCC will be introduced.

From Europe

- **Thermoplastic Composites for high volume production**

Mr. Robert Lenferink
new business development manager
TEN CATE Advanced Composites

ABSTRACT

Thermoplastic composites usage is growing rapidly in aerostructures applications, replacing conventional materials like metals and thermoset composites. The main drivers for using thermoplastic composites are high volume capability and decreased materials and processing costs. As the automotive industry does urgently need these properties for their next generation vehicles, new applications are being developed using thermoplastic composite materials.

This presentation will give an overview of the TenCate Cetex® thermoplastic composite technology, properties and usage in aerospace and automotive applications. Existing and future technologies will be compared and most attractive technologies will be highlighted.

Royal Ten Cate (TenCate) is a multinational company which combines fiber and fabric technology with chemical processes in the development and production of functional materials. On this technological basis, TenCate develops a range of applications aimed at growth markets. TenCate selects market areas mainly on the basis of global trends, specifically in the safety/protection and sustainability/ environmental fields. TenCate's direct customers are mainly public-sector bodies, system integrators, original equipment manufacturers and their direct suppliers.

- **FIBER PLACEMENT: NEW Materials and Process.**

Mr. Alexandre HAMLYN, Mr. Davy LEBOUCHER,
CORIOLIS COMPOSITES TECHNOLOGIES

ABSTRACT

Fiber placement is a key technology for the manufacturing of composites parts. It has been used for many years in the aeronautic industry for panels, barrels, vessels, beams and primary structure production. Due to the increasing amounts of composites structures in aircraft, there are many other parts that need to be produced with this technology or any automated process.

This paper presents the latest development in the automation of manufacturing of composite parts using thermoplastic materials.

After a brief review of the existing systems in the introduction, section 2 gives a description of the Coriolis Composites fiber placement robot that can process different kinds of materials with a high production rate and low investment cost. The following section details the use of the thermoplastic materials utilized by the Coriolis Composites robot. The challenge in the development of this technology is the use of a "standard" robotic arm, the development of interactive engineering software and the management of key processing parameters (temperature, bonding, tension) all meeting aeronautic industry requirements.

- **Mass Production with CFRTP**

Mr. David MANTEN
Managing director
Dutch Thermoplastic Components (DTC)

ABSTRACT

Modern aerospace structures are extensively relying on composites to reduce weight and increase performance. The use of composites is no longer restricted to large secondary and primary structures; large numbers of small parts are made in composites as well. Some new aircraft have more than 10.000 small composite parts in the structure, parts that used to be made from sheet metal. With build rates of these aircraft up of to 10 per month, more than one million parts per year need to be manufactured. Although the batch size per individual part is small, the total quantities are so large they require fast and robust, yet flexible manufacturing processes. Press forming of carbon fiber reinforced thermoplastics allows mass manufacturing at lower cost and higher reproducibility while allowing for (very) small production batches and a large part variation.

The next challenge after this first phase of sheet metal-like parts will be to make parts with thermoplastics that offer greater complexity and higher performance. Developments are made in press forming with highly oriented UD tapes and press

forming of parts with variable thickness.

DTC manufactures over 1.500 different parts for various aircraft. Some examples of these will be discussed as well as the new techniques for manufacturing more complex parts.

- **Porcher's Innovative Thermoplastic Composites and Porcher Greenlite**

Mr. Hector HUI

Area Sales Manager, PORCHER Industries (Asia Pacific) Limited

ABSTRACT

This year is a special year to Porcher Industries as Porcher's 100th anniversary. Thermoplastic composites combine the advantages of continuous fibers and polymers. It results in lighter, sometimes thinner, stronger and more durable structures compared to conventional materials. Porcher's innovative thermoplastic composites, Pi preg® and Porcher Greenlite, are introduced in this lecture.

With flexible and competitive powdering technology, Porcher can offer a broad range of thermoplastic composites, Pi preg®. Besides, other polymer / reinforcement combination and / or polymer volume content can be developed on request.

Porcher Greenlite is an innovative materials based on pure cellulose fibers for high performance and renewable applications in composites industry. The combination of low density and superior mechanical properties allows biocomposites to be made on an excellent weight/performance basis. It constitutes a significant advancement in terms of quality, reproducibility, transparency and strength with respect to common bio-based solutions.

- **Tailored Fiber Placement LFT-D – Endless Fiber Reinforced Hybrid Composites – Flexible and economical process technology for structural applications**

Mr. Mattias GRAF

Technical Director, Business Unit Forming

DIEFFENBACHER GMBH Maschinen– und Anlagenbau

ABSTRACT

So far, long-fiber reinforced thermoplastics have only been used in a few cases for structural applications. The reasons can be found in the comparatively small stiffness and the small creep strength, especially with increased operating temperatures.

With the Tailored-Fiberplacement LFT-D Technology applications in the semi-structural and structural field are possible. Contrary to the Tailored LFT-D procedure already developed at the end of the nineties by Dieffenbacher and the Fraunhofer ICT, where local endless fiber textile reinforcements lead to higher structural stiffness in the LFT-D component, with the new TFP-LFT-D process, the

UD fiber reinforcements will now be possible in freely selectable anisotropic fiber alignment of the individual layers according to strength requirements. In order to realize this, Dieffenbacher integrated an upstream Tape-Placement Process in the LFT-D system. Hereby, freely programmable layouts of fiber tapes can be generated showing almost no limits with regard to inner- and outer contour, material thickness, fiber alignment and layer configuration.

Furthermore, the system technology offers full flexibility for the manufacture of the different material combinations. Beside an attractive strength-/weight performance and the high flexibility of component-specific material configurations, there is a very high profitability because of the considerably lower material costs of thermoplastics (PP, PA 66, PET, PPS) with glass fiber. Beside the low material costs, the low cycle times of less than one minute also contribute to this. In comparison with thermoset matrix material, there are furthermore some additional advantages like high impact resistance, high damage tolerance and a very good recyclability.

From Taiwan

- **Excellence in Composites / New Business style with Global Friendly**

Mr.Alan C.T.Chen（陳 敬達 氏）
General Manager, Strategic Business Unit.
TOPKEY Corporation

ABSTRACT

Topkey Group, founded in 1980, started with Racket business, and diverse its corporate strength in composite Bike business, helmet, aviation, medical parts and corporate strategic business. With more than 30 years of composite application experiences with various products and industrial application, Topkey has successfully upgraded the modernization of composite application industry, transformed the manufacturing oriented business type into technology oriented business type proactively, and contributed its findings & results for a wide range of corporate products and for the composite industry. Topkey successfully develops its unique strength and corporate synergy to assist customers to realize their dreams, and wins market leading customers' satisfactory and long term support.

Equipped with the most advanced technicians and state-of-the-art devices, Topkey facilitates all research and development projects. Furthermore, these research results are shared and incorporated with our leading-edge alliances partners & suppliers to help promote the development of various technologies.

7/14 (Sat.) – 16 (Mon.) : Gion Festival, Pre-Festival Evening
7/17 (Tue.) : Gion Festival Grand Parade　(9:00 – 12:00)

7 月 14（土）～16 日（月）: 祇園祭の宵々々山、宵々山、宵山の夕べ
7 月 17 日（火）　　: 祇園祭の山鉾巡行（午前 9 時～12 時）

Pre-Festival Evening

Grand parade

6. 参加費

SAMPE 会員	¥30,000
非会員	¥40,000
学生	¥ 5,000（バンケットは別途料金必要）
テーブルトップ展示	¥50,000（セミナー１名無料）

主催

先端材料技術協会（SAMPE-Japan）

会　長	石川　隆司	名古屋大学　工学研究科 複合材料工学研究センター

JISTES 2012 KYOTO 実行委員会

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	松井　醇一	金沢工業大学　工学部、(株)ベンチャーラボ
	片山　傳生	同志社大学　生命医科学部
	田中　和人	同志社大学　生命医科学部
	上野山　雅樹	帝人エンテック(株)
	松尾　達樹	SCI-TEX

協賛

(社)日本材料学会　複合材料部門委員会　量産車用コンポジットの開発ＷＧ

同志社大学 先端複合材料研究センター

問い合せ先：

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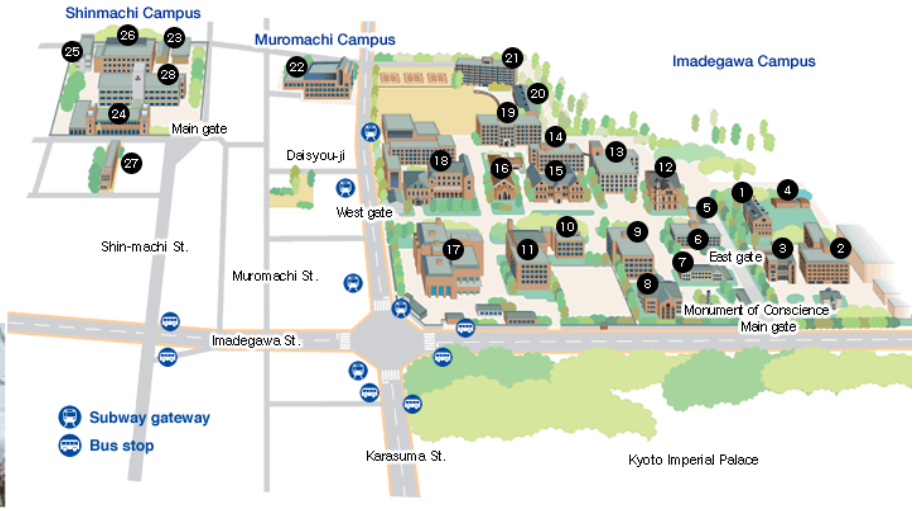
舞鶴工業高等専門学校　機械工学科　篠原　正浩

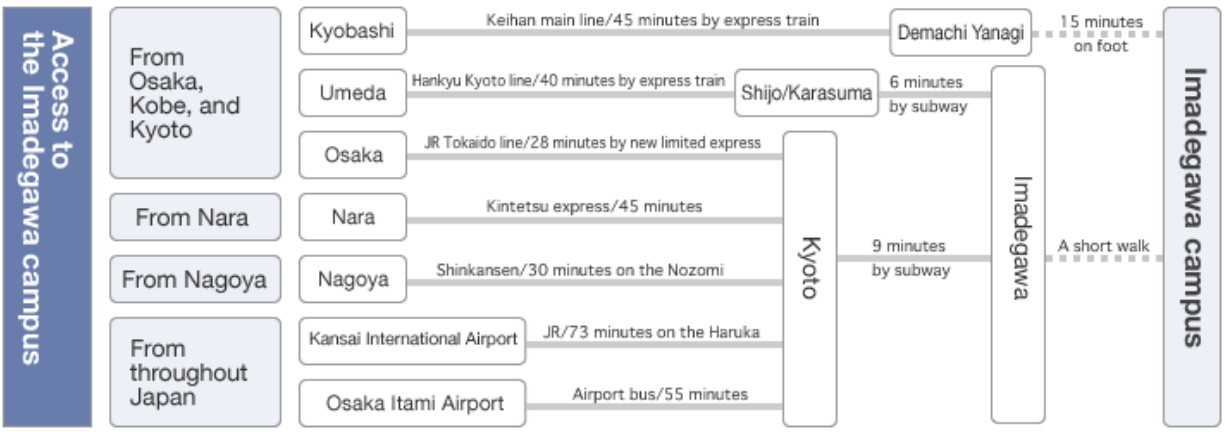
Tel & Fax : 0773-62-8939

e-mail : sinohara@maizuru-ct.ac.jp

Access to Kanbaikan Hall, DOSHISHA UNIVERSITY, Kyoto, Japan



Kanbaikan Hall (22 in the map)



会場アクセス

京都市営地下鉄烏丸線「今出川」駅 2 番出口から北へ徒歩 1 分

申込み方法：

下記申込用紙に必要事項を記載の上、JISTES 2012 KYOTO 実行委員会事務局まで、FAX（0773-62-8939）または、e-mail（sinohara@maizuru-ct.ac.jp）にてお申し込み下さい。（７月６日までにお申し込み下さい）

参加費は『三菱東京 UFJ 銀行 鎌倉支店（普)1276101 先端材料技術協会』宛に、お振り込み下さい。振り込み手数料は、振り込み者負担となっておりますので、よろしくお願い申し上げます。なお、振り込みの際に所属機関名で振り込みをされる場合は、個人名が分かるようにして振り込んで下さい

JISTES 2012 KYOTO　申し込み用紙

JISTES 2012 KYOTO 実行委員会事務局　行

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SAMPE-Japan 先端材料技術協会 京都国際会議 2012

JISTES 2012 Kyoto に参加申し込みします

会社名：　　所　属：

郵便番号：　　TEL：

住　所：　　FAX：

氏　名：　　e-mail：

参加費を振り込んだ日、あるいは振り込む予定の日

月　　日

参加費を振り込んだ名義、あるいは振り込む予定の名義