International Symposium on Wood Science and Technology 2015

Tower Hall Funabori, Tokyo, Japan
March 15-17, 2015

Conference Program
IAWPS 2015
International Symposium on Wood Science and Technology 2015
Tower Hall Funabori, Tokyo, Japan March 15-17, 2015

Organized by
The Japan Wood Research Society (JWRS)

Supported by
International Association of Wood Products Societies (IAWPS)

Conference Chairman of IAWPS 2015: Akira Isogai (The University of Tokyo)

Organizing Chairman of IAWPS 2015: Tadahisa Iwata (The University of Tokyo)

Organizing Committee:
Nobuaki Hattori (Tokyo University of Agriculture and Technology)
Takuro Hirai (Hokkaido University)
Akio Inoue (Forestry and Forest Products Research Institute)
Tetsuo Kondo (Kyushu University)
Shigehiko Suzuki (Shizuoka University)
Hiroyuki Yano (Kyoto University)

President of JWRS: Junji Sugiyama (Kyoto University)

Conference Chairman of 65th Annual Meeting: Masamitsu Ohta (The University of Tokyo)

International Committee:
Martin P. Ansell, UK
David Cown, New Zealand
Charles E. Frazier, USA
Barry Goodell, USA
Joseph Gril, France
John F. Kadla, Canada
Stephen S. Kelley, USA
Yoon Soo Kim, Republic of Korea
Rémy Marchal, France
Robert H. Pelton, Canada
John Ralph, USA
Jack N. Saddler, Canada
Lennart Salmén, Sweden
Gary S. Schajer, Canada
Todd F. Shupe, USA
John S. Sperry, USA
Session Organizers:

1. Wood Physics
   Yoshihisa Fujii (Kyoto University)
   Satoru Tsuchikawa (Nagoya University)
   Masamitsu Ohta (The University of Tokyo)

2. Timber Engineering
   Kenji Aoki (The University of Tokyo)
   Nasahiro Inayama (The University of Tokyo)
   Takuro Mori (Kyoto University)
   Kei Tanaka (Oita University)

3. Wood Chemistry
   Toshiyuki Takano (Kyoto University)
   Yuji Tsutsumi (Kyushu University)
   Tomoya Yokoyama (The University of Tokyo)

4. Composite Materials and Adhesion
   Tsuguyuki Saito (The University of Tokyo)
   Akio Takemura (The University of Tokyo)
   Shin-ichiro Tomura (Forestry and Forest Products Research Institute)
   Hiroyuki Yano (Kyoto University)

5. Cell Formation and Wood Structures
   Kazuhiro Fukushima (Nagoya University)
   Keiji Takabe (Kyoto University)
   Masahisa Wada (Kyoto University)

6. Biodegradation and Preservation of Wood
   Fumio Eguchi (Tokyo University of Agriculture)
   Kiyohiko Igarashi (The University of Tokyo)
   Tsuyoshi Yoshimura (Kyoto University)

7. Biorefinery
   Tadahisa Iwata (The University of Tokyo)
   Takashi Watanabe (Kyoto University)
   Yasumitsu Uraki (Hokaido University)

Local Committee:
Tadahisa Iwata, Kiyohiko Igarashi, Tsuguyuki Saito, Takuya Akiyama, Kenji Aoki, Takuya Ishida
Daisuke Ishii, Satoshi Kimura, Hirotaka Koga, Ryota Kose, Kei Maeda, Satoshi Nakaba
Tomoaki Soma, Miyuki Takeuchi, Tamami Terada, Tomoya Yokoyama, Makoto Yoshida

Conference Secretariat:
Kiyohiko Igarashi (The University of Tokyo)
60th Anniversary Welcoming remarks

As chair of the 60th Anniversary of the Japan Wood Research Society (JWRS), it is an honor to share our thought on this special occasion in the history and to welcome you to the IAWPS International Symposium on Wood Science and Technology 2015.

In 1955, members of the Japanese Forest Society launched the JWRS to serve as a hub for the development in the field of wood science and technology in Japan. The JWRS was for a long time an unincorporated organization but was reformed and established as a Ippan Shadan Hojin (general incorporated association) in 2010.

Traditionally in eastern Asia, sixty years from birth is specially celebrated. In Japan, this celebration is called “Kanreki”, which means renewal or reborn. According to the traditional lunar calendar, the number 60 means accomplishing one great circle of life and starting another one. The JWRS is now, at the beginning of 2015, ready to seek solutions for the paradigm shift to achieve "sustainable development" from all the fields of wood science and technology.

Memorial ceremony is scheduled on March 15, followed by special symposium " Wood science brings future ". We also publish a book entitled “ Wood era revives - signpost to the future - “. Moreover our official journal, Journal of Wood Science and Mokuzai Gakkaishi, will provide special editions of volumes in 2015.

Lastly, on behalf of the JWRS, I would like to appreciate again all the participants to IAWPS2015 and but not least, to the organizing committee who brought this conference successful.

Junji Sugiyama
President
The Japan Wood Research Society
Preface for IAWPS 2015

On behalf of the Organizing Committee, I wish you a warm welcome to the capital of Japan and The International Symposium on Wood Science and Technologies (IAWPS2015), which is held from March 15th to 17th, 2015, at Tower Hall Funabori. This symposium is co-organized by The Japan Wood Research Society (JWRS) and The International Association of Wood Products Societies (IAWPS), and is held as the 60th Anniversary of JWRS.

Wood is the most abundant renewable resource for chemicals, materials, furniture, and building components in this planet. Besides the importance of wood to our society, the research & developments and education in this topic have been somewhat scattered in Japan and around the world. In this 21st century, creation and establishment of the environmentally friendly and sustainable society is a part of our obligations as researchers, engineers and educators, handling wood and its related science and technologies. This is because so far only plants can immobilize atmospheric carbon dioxide to renewable biomass, contributing to prevention of the issue of global warming. The adequate cycling and balance between the tree plantation and wood utilization is an efficient way to create the low-carbon society. Therefore, it is meaningful that now we gather here, Tokyo, from all over the world, discuss wood science and technologies and proceed with information and human exchanges in this symposium.

Besides the 2 keynote and 16 invited lectures, 385 oral and poster papers are presented in this symposium, and the presentation fields widely expand to wood physics, timber engineering, wood chemistry, composite materials and adhesion, cell formation and wood structures, biodegradation and preservation of wood, and wood biorefinery. The latest fundamental and application researches & developments and engineering of the above fields are presented in this symposium, and I believe that it is surely fruitful and enjoyable for all of you to participate in this event.

Tokyo is the famous city of OMOTENASHI or kind hospitality as other cities in Japan. Therefore, you would enjoy not only wood science and technologies, participating in this symposium, but also beautiful early spring season, having sightseeing in and around Tokyo. I would like to thank all of invitees and participants, coming from various countries of the world.

Sincerely yours,

Akira Isogai
Conference Chairman of IAWPS 2015
Bionanomaterials and Cellulose Science
Department of Biomaterials Science
The University of Tokyo
**Invitation to the 65th Annual Meeting of Japan Wood Research Society**

Dear participants of IAWPS 2015,

Following to the International Symposium on Wood Science and Technology 2015, the Japan Wood Research Society (JWRS) holds the 65th Annual Meeting at the same place, from the afternoon of the 17th March 2015. This annual meeting was planned as one of the events celebrating the 60th Anniversary of the JWRS, then all participants of the IAWPS 2015 are welcomed to attend it. It is regrettable that almost presentations will be done by Japanese, because this meeting is a domestic one, but it would be a chance for you to witness the vast fields of Japanese researches on the wood related sciences: I am sure that you can understand many figures of poster presentations.

The banquet of the 16th March evening is also co-organized with the International Symposium and the Annual Meeting of JWRS. It will be also for your chance to have acquaintance with many Japanese researchers.

Hoping see you at our annual meeting also,

Sincerely yours,

[Signature]

Masamitsu Ohta
Chairman of the Annual Meeting of JWRS
**General Information**

**Registration desk** will be open at the following time:

- **March 15 (Sun)** 17:30-20:00  
  82 Ale House, Lotte City Hotel Kinshicho 4F  
  (at Welcome reception)
- **March 16 (Mon)** 9:00-19:00  
  Tenji hall, Tower Hall Funabori 1F
- **March 17 (Tue)** 9:00-12:00  
  Tenji hall, Tower Hall Funabori 1F

**Shuttle bus service** (prior reservation essential) between Tobu Hotel Levant Tokyo and Tower Hall Funabori is available free of charge. The buses will depart at the following time (approx. 30 min for each way):

<table>
<thead>
<tr>
<th>From Tobu Hotel Levant Tokyo</th>
<th>From Tower Hall Funabori</th>
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<tbody>
<tr>
<td><strong>March 16 (Mon)</strong></td>
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<td><strong>March 17 (Tue)</strong></td>
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**Lunch box** (prior reservation essential) will be delivered at the following rooms of Tower Hall Funabori:

- **March 16 (Mon)**  
  room Heian, 2F  
  11:00-15:00
- **March 17 (Tue)**  
  rooms Fukujyu and Tougen, 2F  
  12:30-14:30

**Wireless internet access** will be freely available in the Tenji hall, 1F.

**Communication space** and free drinks will be provided at the back rooms of Tenji hall, 1F.

**Cloakroom service** will be available at the rooms 302 and 303, 3F.
Social Hours

Welcome reception:
March 15 (Sun), 18:00-20:00, 82 Ale House, Lotte City Hotel Kinshicho 4F
All participants are invited free of charge to the welcome reception.

Banquet (prior reservation essential):
March 16 (Mon), 19:00-20:30, room Zuiun-Heian, Tower Hall Funabori 2F
Welcome drinks will be provided from 18:30.

Notes for Presentations

Oral Presentation
A LCD projector with a D-sub 15 pin connector will be set up in each session room. Presenters are required to bring your own computer for presentation.
Total time for oral presentations including Q&A time is 20 min. It is thus recommended to finish your talk within around 15 min.
Total time for invited lectures including Q&A time is 30 min. It is thus recommended to finish your talk within around 25 min.

Poster Presentation
The size of the poster board is 120 cm (W) x 180 cm (H). Pins or tape for putting your poster on the board will be supplied by the organizing committee.
Poster presentations for each session will be held at the following schedule,

Sessions 3, 5, and 7: 13:00–14:30 (obligation time), March 16 (Mon)
All the presenters are required to display posters from 11:00 to 14:30, and remove them by 15:00.

Sessions 1, 2, 4, and 6: 17:10–18:40 (obligation time), March 16 (Mon)
All the presenters are required to display posters from 15:30 to 18:40, and remove them by 19:00.
**Floor Map, Tower Hall Funabori**

**1st floor (ground)**
- Registration desk
- Poster presentations
- Exhibition
- Wireless Internet
- Communication space
- Entrance
- Escalator
- Elevator
- Tenji hall

**2nd floor**
- Session 3, WC
- Session 4-1, CA
- Session 4-2, CA
- Banquet
- Session 5, FS for 17th March
- Closing ceremony

Lunch
- 16th March, 平安 Heian
- 17th March, 福寿 & 桃源 Fukujyu & Tougen
<table>
<thead>
<tr>
<th>店名 / Name</th>
<th>营业时间 / Business Hours</th>
<th>定休日 / Regular Holiday</th>
<th>種別 / type</th>
<th>電話番号 / Phone</th>
<th>備考 / Remarks</th>
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<tbody>
<tr>
<td>1 キャラバンコーヒー Caravan Coffee</td>
<td>9:00~20:30</td>
<td>年中無休 No Holidays</td>
<td>喫茶・軽食 Coffee / Light Meal</td>
<td>03-5605-8559</td>
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<tr>
<td>2 上野総合医院 Ueno Seiyoken</td>
<td>11:00~21:00</td>
<td>年中無休 No Holidays</td>
<td>洋食 / Western</td>
<td>03-5676-2701</td>
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<td>3 つ橋植木ちち泉坊 船橋店 Tsukiji Uemura</td>
<td>平日/Weekday 11:00<del>15:00 17:00</del>22:00 日祝祭/Holidays 11:00~22:00</td>
<td>年中無休 No Holidays</td>
<td>和食 / Japanese</td>
<td>03-5667-2633</td>
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<td>4 サロン・サロン(展望レストラン) Salon de Salon</td>
<td>11:00~21:00</td>
<td>年中無休 No Holidays</td>
<td>洋食 / Western</td>
<td>03-5676-3307</td>
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<td>5 すき家 船橋駅前店 Sukiya</td>
<td>0:00~24:00</td>
<td>年中無休 No Holidays</td>
<td>牛丼 Beef Rice</td>
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<td>6 モスバーガー 船橋駅前店 Mos Burger</td>
<td>7:00~24:00</td>
<td>年中無休 No Holidays</td>
<td>ハンバーガー Hamburger</td>
<td>03-3688-9888</td>
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<tr>
<td>7 ミスタードーナツ 船橋駅前店 Mister Donut</td>
<td>7:00~24:00</td>
<td>年中無休 No Holidays</td>
<td>喫茶ドーナツ Coffee / Donut</td>
<td>03-3688-3715</td>
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<tr>
<td>8 すし 三崎丸 Sushi Misakimaru</td>
<td>11:00~23:00</td>
<td>年中無休 No Holidays</td>
<td>回転寿司 Revolving Sushi bar</td>
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<td>9 かるび家 Karubiya</td>
<td>11:00~23:00</td>
<td>年中無休 No Holidays</td>
<td>焼肉 Korean Barbecue</td>
<td>03-5605-9021</td>
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<tr>
<td>10 オリエンタルビックフット Oriental Big Foot</td>
<td>11:00<del>15:00 17:00</del>23:30</td>
<td>年中無休 No Holidays</td>
<td>無国籍料理 Multinational</td>
<td>03-5679-5788</td>
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<tr>
<td>11 とり鶏亭 Tori Jutei</td>
<td>17:00~23:30</td>
<td>水曜日／Wednesday</td>
<td>地鶏料理／Japanese</td>
<td>03-3686-2273</td>
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<tr>
<td>12 ポテトマッサ Popolamaama</td>
<td>11:00~23:00</td>
<td>年中無休 No Holidays</td>
<td>イタリアン Italian</td>
<td>03-3689-0780</td>
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<tr>
<td>13 コンパスポイント Compass Point</td>
<td>11:30<del>14:30 18:00</del>23:30</td>
<td>月曜日／Monday</td>
<td>日本料理 &amp;西洋料理 Japanese &amp; Western Restaurant</td>
<td>03-3877-2129</td>
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<tr>
<td>14 デニーズ Danny's</td>
<td>0:00~24:00</td>
<td>年中無休 No Holidays</td>
<td>ファミリーレストラン Coffee &amp; Restaurant</td>
<td>03-5675-1138</td>
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<td>15 マクドナルド McDonald's</td>
<td>10:00~21:30</td>
<td>年中無休 No Holidays</td>
<td>ハンバーガー Hamburger</td>
<td>03-6663-7317</td>
<td>ダイエット 1階 DAIEI, 1F</td>
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<td>16 上海漬民 Shanghai Rakumin</td>
<td>10:00~21:00</td>
<td>年中無休 No Holidays</td>
<td>中華 Chinese Restaurant</td>
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<td>ダイエット 1階 DAIEI, 1F</td>
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<td>17 のぼはん Nohohon</td>
<td>7:00~21:00</td>
<td>年中無休 No Holidays</td>
<td>韓国料理 Korean Restaurant</td>
<td>03-3869-5334</td>
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<td>18 寿司 Suyoshi</td>
<td>11:00~22:00</td>
<td>年中無休 No Holidays</td>
<td>中華 Chinese Restaurant</td>
<td>03-3877-3715</td>
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<tr>
<td>19 とんかつ 田 Tonkatsu Den</td>
<td>11:30<del>14:30 17:00</del>21:30</td>
<td>年中無休 No Holidays</td>
<td>とんかつ (Breaded) Pork Cutlet</td>
<td>03-5676-7555</td>
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<tr>
<td>20 バンミヤン Bamiyan</td>
<td>10:00~5:00</td>
<td>年中無休 No Holidays</td>
<td>中華 Chinese Restaurant</td>
<td>03-5667-3248</td>
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<tr>
<td>21 アザレ AZALEE</td>
<td>8:00~20:00</td>
<td>年中無休 No Holidays</td>
<td>喫茶 Café &amp; Bakery</td>
<td>03-3680-7819</td>
<td>船橋駅 Funabori station</td>
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<td>22 ジシナサン Jonathan’s</td>
<td>0:00~24:00</td>
<td>年中無休 No Holidays</td>
<td>ファミリーレストラン Coffee &amp; Restaurant</td>
<td>03-5696-7384</td>
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この案内と実態は一致しない場合があります。/ This guide and actual condition may not be in agreement.
The following numbers correspond to those in the previous page.
# Symposium Schedule at a Glance

<table>
<thead>
<tr>
<th>Session</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>18:00-20:00</td>
<td>Welcome reception &amp; registration (82 Ale House, Lotte City hotel)</td>
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<td>8:45-9:30</td>
<td>Registration</td>
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<td>9:30-9:45</td>
<td>Opening remark (Dai hall)</td>
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<td>9:45-10:20</td>
<td>Keynote lecture 1</td>
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<td>10:20-10:55</td>
<td>Keynote lecture 2</td>
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<td>12:25-12:50</td>
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<td>Oral-1 (12:50-17:00)</td>
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<td>Oral-1</td>
<td>Oral-2 (13:20-17:00)</td>
<td>Oral-2 (13:20-17:00)</td>
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<td>Oral-1 (13:00-17:00)</td>
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<td>12:50-13:00</td>
<td>Ororal-1 (12:50-17:00)</td>
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<td>19:00-20:30</td>
<td>Banquet (room Zuiun &amp; Heian)</td>
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<td><strong>17th March</strong></td>
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<td>12:20-13:00</td>
<td>Closing remark (room Zuiun &amp; Heian)</td>
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<td>13:00-14:00</td>
<td>Lunch (room Fukujyu &amp; Tougen, 13:00-14:30)</td>
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**Abbreviations**

WP: Wood Physics  
TE: Timber Engineering  
WC: Wood Chemistry  
CA: Composite Materials and Adhesion  
FS: Cell Formation and Wood Structures  
BP: Biodegradation and Preservation of Wood  
BR: Biorefinery
Keynote Lectures
March 16

9:45-10:20
John Ralph  
*University of Wisconsin, USA*
Designing Plant Cell Walls for Deconstruction: Using Monolignol Ferulate Conjugates to Introduce Cleavable Ester Bonds into the Lignin Backbone

Chair: Yuji Matsumoto, *The University of Tokyo, Japan*

10:20-10:55
Kohei Komatsu  
*Kyoto University, Japan*
Development of Glulam and Glulam Structures

Chair: Masamitsu Ohta, *The University of Tokyo, Japan*
Oral Presentations
# Session 1: Wood Physics

<table>
<thead>
<tr>
<th>March 16</th>
<th>Chair</th>
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</table>
| 13:00-13:30 | 1WP-I01 | Yoshihisa Fujii  
*Kyoto University, Japan* |
| 13:30-13:50 | 1WP-O01 | Eiichi Obataya  
*University of Tsukuba, Japan* |
| 13:50-14:10 | 1WP-O02 | Satoru Tsuchikawa  
*Nagoya University, Japan* |
| 14:10-14:30 | 1WP-O03 |  |
| 14:30-14:50 | 1WP-O04 |  |
| 14:50-15:20 | 1WP-I02 |  |
| 15:20-15:40 | 1WP-O05 |  |
| 15:40-16:00 | 1WP-O06 |  |
| 16:00-16:20 | 1WP-O07 |  |
| 16:20-16:40 | 1WP-O08 |  |
| 16:40-17:00 | 1WP-O09 |  |

*Poster (17:10-18:40)*

<table>
<thead>
<tr>
<th>March 17</th>
<th>Chair</th>
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</thead>
</table>
| 10:00-10:30 | 1WP-I03 | Masamitsu Ohta  
*The University of Tokyo, Japan* |
| 10:30-10:50 | 1WP-O10 | Peer Haller  
*Technische Universität Dresden, Germany* |
| 10:50-11:10 | 1WP-O11 |  |
| 11:10-11:30 | 1WP-O12 |  |
| 11:30-11:50 | 1WP-O13 |  |
| 11:50-12:10 | 1WP-O14 |  |
March 16

13:00-13:30  1WP-I01 Invited Lecture
Joseph Gril
CNRS, Montpellier University, France
Modelling mechano-sorption in wood through hygro-locks and other approaches

13:30-13:50  1WP-O01
Yoyo Suhaya, Aos Akyas, Titin Supriatun and Imam Wahyudi
School of Life Sciences and Technology Institut Teknologi Bandung, Indonesia
Variation of Surian Woods (Toona sinensis Roem.) Characteristics in West Java, Indonesia

13:50-14:10  1WP-O02
Paulo Hein, José Tarcísio Lima, Selma Goulart, José Reinaldo Silva, Taiana Arriel and Fernanda Nascimento
Federal University of Lavras, Brazil
Dynamic elastic properties variation of 37 year-old Eucalyptus species grown in Brazil

14:10-14:30  1WP-O03
Takashi Yojo, Raphael Pigozzo, Suelem Macena and Maria Miranda
Institute for Technological Research, Brazil
Compressive Strength Of Wood in Direction Parallel to the Cell

14:30-14:50  1WP-O04
Tetsuya Inagaki, Belal Ahmed, Ian Hartley, Satoru Tsuchikawa and Matthew Reid
Nagoya University, Japan
Simultaneous prediction of density and moisture content of wood by terahertz time domain spectroscopy

14:50-15:20  1WP-I02 Invited Lecture
Peter Niemz, Michaela Zauner and Franziska Baensch
ETH Zürich, Switzerland
In-situ Synchrotron micro-tomography and acoustic emission of Norway spruce samples under tensile load

15:20-15:40  1WP-O05
Tsunehisa Miki, Masako Seki, Soichi Tanaka, Nobuo Sobue, Masakazu Nishida, Ichinori Shigematsu and Kozo Kanayama
National Institute of Advanced Industrial Science and Technology, Japan
Dynamic heat capacity changes of wood related to microstructure alterations caused by drying

15:40-16:00  1WP-O06
Yu Ogawa, Pan Chen, Yoshiharu Nishiyama and Karim Mazeau
CNRS, France
The role of shear deformation of cellulosic crystals
The interface in biomimetic xylan/cellulose nanocomposites probed by multiscale modelling.

Physical cross-linking of nanofibrillated cellulose with chitosan by surface adsorption and desolubilization in transparent hybrid nanopaper

Pattern recognition system toward identification of culturally important wooden artifacts

Poster session (17:10-18:40)
March 17

10:00-10:30 1WP-I03 Invited Lecture
Peer Haller, Jens Hartig and Joerg Wehsener
Technische Universität Dresden, Germany
Recent Advancements for the Application of Moulded Wooden Tubes as Structural Elements

10:30-10:50 1WP-O10
Masayuki Ishihara, Yoshihiro Ootao and Yoshitaka Kameo
Osaka Prefecture University, Japan
Transient Hygrothermal Field in One-dimensional Porus Media Considering Nonlinear Coupling Between Heat and Moisture Diffusion

10:50-11:10 1WP-O11
Yonggun Park, Yeonjung Han, Jun-Ho Park, Yoon-Seong Chang, Sang-Yun Yang, Hyun Woo Chung and Hwanmyeong Yeo
Seoul National University, Republic of Korea
The Process of Superheated Steam Heat Treatment for Properties of Treated Wood

11:10-11:30 1WP-O12
Mayumi Utsumi, Koji Murata and Takato Nakano
Kyoto University, Japan
Stress relaxation and fracture toughness of thermally modified wood

11:30-11:50 1WP-O13
Kaoru Yamagishi-Nishikiori, Tomohiro Yamada, Takayuki Yamagishi and Koji Adachi
Akita Prefectural University, Japan
Water repellency of Diamond-like carbon coated wood

11:50-12:10 1WP-O14
Soichi Tanaka, Tsunehisa Miki, Masako Seki, Ichinori Shigematsu and Kozo Kanayama
National Institute of Advanced Industrial Science and Technology, Japan
Migration of polymers into cell walls in wood impregnated with an aqueous polymer solution under conditioning in controlled atmosphere: Effect of solution concentration on swelling and shrinkage behaviors of wood treated with polyethylene glycol polymers
## Session 2: Timber Engineering

### March 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair</th>
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</table>
| 12:50-13:20| 2TE-I01 | Kei Tanaka
              | Oita University, Japan       |
| 13:20-13:40| 2TE-O01 | Haiqing Ren
              | Chinese Academy of Forestry, China |
| 13:40-14:00| 2TE-O02 | Toshiro Harada
              | Forestry and Forest Products Institute, Japan |
| 14:00-14:20| 2TE-O03 | Masashi Nakamura
              | Kyoto University, Japan      |
| 14:20-14:40| 2TE-O04 | Takuro Mori
              | Kyoto University, Japan      |
| 14:40-15:00| 2TE-O05 | Ying Hei Chui
              | New Brunswick University, Canada |
| 15:00-15:20| 2TE-O06 | Solomon Tesfamariam
              | University of British Columbia, Canada |
| 15:20-15:40| 2TE-O07 |                           |
| 15:40-16:00| 2TE-O08 |                           |
| 16:00-16:20| 2TE-O09 |                           |
| 16:20-16:40| 2TE-O10 |                           |
| 16:40-17:00| 2TE-O11 |                           |

**Poster (17:10-18:40)**

### March 17

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<tr>
<th>Time</th>
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</table>
| 9:20-9:50  | 2TE-I02 | Takuro Mori
              | Kyoto University, Japan      |
| 9:50-10:10 | 2TE-O12 |                           |
| 10:10-10:30| 2TE-O13 |                           |
| 10:30-10:50| 2TE-O14 |                           |
| 10:50-11:10| 2TE-O15 |                           |
| 11:10-11:30| 2TE-O16 |                           |
| 11:30-11:50| 2TE-O17 |                           |
| 11:50-12:10| 2TE-O18 |                           |
March 16

12:50-13:20  2TE-I01 Invited Lecture
Haiqing Ren
Chinese Academy of Forestry, China
Design value of the compressive strength parallel to grain for Larch 2×4 lumber based on a reliability analysis

13:20-13:40  2TE-O01
Zhaoxia Guo, Ying Gao, Songlin Yi
Beijing Forestry University, China
Dovetail Joints Mechanics of Solid Wood Furniture Based on Finite Element Analysis

13:40-14:00  2TE-O02
Raquel Gonçalves, Cinthya Bertoldo, Alex Julio Trinca, Rafael Lorensani and Monica Ruy
University of Campinas, Brazil
The role of nondestructive testing in the timber characterization and classification

14:00-14:20  2TE-O03
Kango Sato and Tadatoshi Furukawa
Nagoya University, Japan
Study on Bonding Technique and Bending Performance of Built-up Beam

14:20-14:40  2TE-O04
Hidemaru Shimizu and Yoshiaki Wakashima
Toyama Prefectural Forest Products Research Institute, Japan
Study on seismic grid wall using compression wood of shape recovery behavior

14:40-15:00  2TE-O05
André Luiz Silva Matos Matos, Antônio Alves Dias Dias, Orlando Ferreira Gomes Gomes and Francisco Antônio Rocco Lhar Lhar
Universidade Federal de Goiás, Brazil
Influence of torque control in wooden beams juxtaposed bolts

15:00-15:20  2TE-O06
Andreja Kutnar and Dick Sandberg
University of Primorska, Slovenia
Sustainable Development, Wood, and Build Environment in Slovenia and Sweden

15:20-15:40  2TE-O07
Shin Ikhyun, Andi Hermawan and Noboru Fujimoto
Kyushu University, Japan
Effect of treatment time and temperature for High temperature and low humidity (HT-LH) pretreatment on drying characteristics of Sugi boxed-heart timber
15:40-16:00  2TE-O08
Dick Sandberg and Andreja Kutnar
*Luleå University of Technology Sweden*
Recent Development of Thermal Wood Treatments: Relationship between Modification Processing, Product Properties, and the Associated Environmental Impacts

16:00-16:20  2TE-O09
Manja Kitek Kuzman and Milan Šernek
*University of Ljubljana, Slovenia*
Timber Passive House for Sustainability

16:20-16:40  2TE-O10
Yuuki Kawamura, Yuko Tsunetsugu, Kohta Miyamoto, Takahiro Kounoike and Kenji Kariya
*Sumitomo Forestry co.,ltd, Japan*
Physiological and psychological responses to touching wooden balls in school-age children-I: physical properties of the balls and pools

16:40-17:00  2TE-O11
Yuko Tsunetsugu, Yuuki Kawamura, Kohta Miyamoto, Takahiro Kounoike and Kenji Kariya
*Forestry and Forest Products Research Institute, Japan*
Physiological and psychological responses to touching wooden balls in school-age children-II: heart rate variability and cerebral blood flow changes

*Poster session (17:10-18:40)*
March 17

9:20-9:50  2TE-I02 Invited Lecture
Ying-Hei Chui  
*University of New Brunswick, Canada*
A multi-disciplinary Canadian research network to support the use of wood products multi-storey building construction

9:50-10:10  2TE-O12
Shoichi Nakashima, Yasuhiro Araki and Hiroshi Isoda  
*Utsunomiya University, Japan*
Tensile structural performance of multiple dowels type joint with CLT

10:10-10:30  2TE-O13
Akihisa Kitamori, Shoichi Nakashima, Mami Wada and Hiroshi Isoda  
*Kyoto University, Japan*
FE analysis on in-plane shear performance of frame structure composed of L-shape CLT members

10:30-10:50  2TE-O14
Kohei Komatsu, Hiroshi Nakatani, Kenho Okura, Yoshikuni Okura, Yoshinori Okura, Yoshiaki Wakashima, Hidemaru Shimizu and Kuninari Ueda  
*Kyoto University, Japan*
Shaking Table Tests on a Two Storey & Two Span Glulam Frame Structure Whose Moment-Resisting Joints are Composed of Steel Hybrid Dampers

10:50-11:10  2TE-O15
Ryota Haba, Akihisa Kitamori, Takuro Mori and Hiroshi Isoda  
*Kyoto University, Japan*
Development of CLT panels bond-in method for seismic retrofitting of RC frame structure

11:10-11:30  2TE-O16
Weibo Dong, Ying Gao, Zhiming Yu and Tingge Yuan  
*Beijing Forestry University, China*
Test research on nail joints of MIDPLY wood shear wall

11:30-11:50  2TE-O17
Ying Gao, Weibo Dong, Zhiming Yu and Tingge Yuan  
*Beijing Forestry University, China*
Analysis of Nail Joints of MIDPLY Wood Shear Wall

11:50-12:10  2TE-O18
Vilma França Monteiro Monteiro, Edgar Bacarji Bacarji, Orlando Ferreira Gomes Gomes and Francisco Antônio Rocco Lhar Lhar  
*Universidade Federal De Goiás, Brazil*
Mixed wood frame-bent plate submitted to bending simple
## Session 3: Wood Chemistry

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair</th>
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<tbody>
<tr>
<td>11:15-11:45</td>
<td>3WC-I01</td>
<td>Hiroshi Ohi, University of Tsukuba, Japan</td>
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<td>11:45-12:05</td>
<td>3WC-O01</td>
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<td>12:05-12:25</td>
<td>3WC-O02</td>
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<td>Lunch, Poster</td>
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<tr>
<td>14:40-15:00</td>
<td>3WC-O03</td>
<td>Tatsuhiko Yamada, Forestry and Forest Products Research Institute, Japan</td>
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<td>15:00-15:20</td>
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<td>3WC-O06</td>
<td>Yuki Tobimatsu, Kyoto University, Japan</td>
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<td>17:00-17:20</td>
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<td>Yasuyuki Matsushita, Nagoya University, Japan</td>
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<td>17:40-18:00</td>
<td>3WC-O12</td>
<td>Yuji Tsutsumi, Kyushu University, Japan</td>
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<td>9:20-9:50</td>
<td>3WC-I02</td>
<td>Toshiyuki Takano, Kyoto University, Japan</td>
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<td>3WC-O17</td>
<td>Keiichi Koda, Hokkaido University, Japan</td>
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<td>11:30-11:50</td>
<td>3WC-O20</td>
<td>Satoshi Kubo, Forestry and Forest Products Research Institute, Japan</td>
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<td>11:50-12:10</td>
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</table>
March 16

11:15-11:45  3WC-I01  Invited Lecture
Yonghao Ni
University of New Brunswick, Canada
Prehydrolysis kraft (PHK) dissolving pulp production, pulp quality improvement and its integration into forest biorefinery

11:45-12:05  3WC-O01
Haruka Goto, Akari Tamai, Takuya Akiyama and Yuji Matsumoto
The University of Tokyo, Japan
Variety of the content of biphenyl structures in softwood and hardwood lignins

12:05-12:25  3WC-O02
Morikazu Toda, Takuya Akiyama, Tomoya Yokoyama and Yuji Matsumoto
The University of Tokyo, Japan
Methoxyl analysis of Klason residue of tree leaves

Lunch Break

Poster session (13:00-14:30)

14:40-15:00  3WC-O03
Satoko Nishikawa, Hidehiro Daidoji and Bunji Hashimoto
HORIBA, Ltd., Japan
X-ray Fluorescence Quantitative Analysis of CCA and Other Preservative Treated Wood

15:00-15:20  3WC-O04
Gilles Chaix, Sophie Nourissier, Tahiana Ramananantsoandro, Garel Makouanzi and Mario Tomazello Filho
CIRAD, Brazil
Near Infrared Spectroscopy for Eucalyptus wood chemical compounds

15:20-15:40  3WC-O05
Te Ma, Tetsuya Inagaki, Guanxiong Wang and Satoru Tsuchikawa
Nagoya University, Japan
Evaluation of chemical composition in wood using NIR hyperspectral imaging

15:40-16:00  3WC-O06
Peiming Zheng, Dan Aoki, Yasuyuki Matsushita, Sachie Yagami, Yuzou Sano and Kazuhiko Fukushima
Nagoya University, Japan
Lignification of ray parenchyma cells in the xylem of Phellodendron amurense detected by LMD and TOF-SIMS
16:00-16:20  3WC-O07
Chisato Ko, Yasuyuki Matsushita, Sachie Yagami, Dan Aoki and Kazuhiko Fukushima
Nagoya University, Japan
Studies on Enzymatic Dehydrogenative Polymerization of Monolignol Dimers

16:20-16:40  3WC-O08
Li Qiang, Tasaki Yuka, Yoshinaga Arata, Takabe Keiji, Koda Keiichi and Uraki Yasumitsu
Hokkaido University, Japan
Xylan as a scaffold for DHP deposition on cellulose

16:40-17:00  3WC-O09
Hiroshi Kamitakahara, Ryo Suhara, Mao Yamagami, Haruko Kawano, Yoshimasa Tanaka,
Arata Yoshinaga and Toshiyuki Takano
Kyoto University, Japan
Thermoresponsive supramolecular hydrogels based on amphiphilic end-functionalized methylcellulose derivatives

17:00-17:20  3WC-O10
Yasuko Saito, Hiroshi Kamitakahara and Toshiyuki Takano
Kyoto University, Japan
Photosensitizer-bound cellulose derivatives for photocurrent generation

17:20-17:40  3WC-O11
Yasuhito Sugano, Tiina Saloranta, Chunlin Xu, Johan Bobacka and Ari Ivaska
Abo Akademi University, Finland
Electro-catalytic oxidation and degradation of cellulose at Au electrode

17:40-18:00  3WC-O12
Jun-ichi Azuma, Tomoki Maruoka, Shohei Shiomi, Hiroaki Kanayama and Shuntaro Tsubaki
Osaka University, Japan
Visualization of Three-Dimensional Structure of Plant Cuticular Membrane by X-Ray Computed Tomography

18:00-18:20  3WC-O13
Dimas Andrianto, Takeshi Katayama and Toshisada Suzuki
Kagawa University, Japan
Antioxidant and antihyperlipidemic activity of various Indonesian underutilized forest fruits

18:20-18:40  3WC-O14
Kosei Yamauchi, Tohru Mitsunaga and Irmanida Batubara
Gifu University, Japan
Quercetin methylethers stimulate melanosome transportation in B16 melanoma cells
March 17

9:20-9:50  WC-I02 Invited Lecture
Yongcan Jin
Nanjing Forestry University, China
Does lignin always inhibit the enzymatic saccharification of lignocellulose?

9:50-10:10  3WC-O15
Hao Ren, Shuang Qian, Xin Dai, Yongcan Jin and Shigetoshi Omori
Nanjing Forestry University, China
Water Solubility Comparisons of Carboxymethylated Celluloses and Lignins

10:10-10:30  3WC-O16
Zhulan Liu, Yunfeng Cao, Zhiguo Wang and Hao Ren
Nanjing Forestry University, China
Isolation and Characterization of Lignin from Soybean Straw by the Combination of Total Dissolution–Regeneration and Enzyme Hydrolysis

10:30-10:50  3WC-O17
Xu Tan, Jialong Wen, Yiqin Yang and Yongcan Jin
Nanjing Forestry University, China
Using QCM-D to study the effect of lignin structures on the non-productive adsorption of cellulase on residual lignin in GL pretreated solids

10:50-11:10  3WC-O18
Wiwin Suwinarti and Rudianto Amirta
Mulawarman University, Indonesia
The Use of Alkaline Pretreatment on Bioethanol Production

11:10-11:30  3WC-O19
Felix Kilian Haiduk, Bodo Saake and Carsten Mai
Georg-August Universität Göttingen, Germany
Effect of Hot-water Hemicellulose Extraction of Wood Particles on Properties of Particle Boards made thereof

11:30-11:50  3WC-O20
XinWei Miao and JunWen Pu
Beijing Forestry University, China
In situ polymerization of urea-formaldehyde pre-polymer in cell wall and induction of pulse-pressure impregnation on Ailanthus altissima green wood

11:50-12:10  3WC-O21
Takayuki Yamagishi, Yasuji Kurimoto and Shigeru Yamauchi
Akita prefectural University, Japan
Visualization of the cesium ions adsorbed onto Japanese cedar charcoals and their acetylated samples.
### Session 4-1: Composite Materials and Adhesion 1

<table>
<thead>
<tr>
<th>March 16</th>
<th>Chair</th>
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<tbody>
<tr>
<td>11:15-11:45</td>
<td>Akio Takemura&lt;br&gt;&lt;i&gt;The University of Tokyo, Japan&lt;/i&gt;</td>
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<td>11:45-12:05</td>
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<td>12:05-12:25</td>
<td>Akio Takemura&lt;br&gt;&lt;i&gt;The University of Tokyo, Japan&lt;/i&gt;</td>
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**Lunch**

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<tr>
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<tbody>
<tr>
<td>13:20-13:40</td>
<td>Charles R. Frihart&lt;br&gt;&lt;i&gt;USDA, Madison, USA&lt;/i&gt;</td>
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<td>14:00-14:20</td>
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<td>Akio Inoue&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<td>Akio Inoue&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<td>15:20-15:40</td>
<td>Shin-ichiro Tomura&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<td>15:40-16:00</td>
<td>Shin-ichiro Tomura&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<tr>
<td>16:00-16:20</td>
<td>Shin-ichiro Tomura&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<tr>
<td>16:20-16:40</td>
<td>Shin-ichiro Tomura&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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<tr>
<td>16:40-17:00</td>
<td>Shin-ichiro Tomura&lt;br&gt;&lt;i&gt;Forestry and Forest Products Research Institute, Japan&lt;/i&gt;</td>
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**Poster (17:10-18:40)**

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<td>Kenji Umemura&lt;br&gt;&lt;i&gt;Kyoto University, Japan&lt;/i&gt;</td>
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<td>Masatoshi Sato&lt;br&gt;&lt;i&gt;The University of Tokyo, Japan&lt;/i&gt;</td>
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March 16

11:15-11:45    4CA1-I01 Invited Lecture
Charles R. Frihart
United States Department of Agriculture, USA
Investigation of the interphase for understanding wood adhesion

11:45-12:05    4CA1-O01
Fauzi Febrianto, Tati Karliati, Wasrin Syafii, Imam Wahyudi, Ihak Sumardi, Yoshikuni Teramoto and Nam Hun Kim
Bogor Agricultural University, Indonesia
Properties of Laminated Wood Bonded with Modified Gutta Percha

12:05-12:25    4CA1-O02
Minzhi Chen, Yan Chen, Xiaoyan Zhou, Bitao Lu, Meiping He and Xi Ling
Nanjing Forestry University, China
Effect of poly(ethylene glycol) on adhesion property of soy-based adhesives

Lunch Break

13:20-13:40    4CA1-O03
Eka Alamsyah, Masaaki Yamada and Kinji Taki
Institut Teknologi Bandung, Indonesia
Curing Behavior of Phenol Formaldehyde Resin Adhesives: Effects of Direct Adding of Surian Wood Bark-powder into Pressure Temperature of Resin Adhesives

13:40-14:00    4CA1-O04
Yuliati Indrayani, Dina Setyawati, Sukma Kusuma, Kenji Umemura and Tsuyoshi Yoshimura
Tanjungpura University, Indonesia
A novel utilization of agricultural fiber for molding bonded with citric acid and sucrose

14:00-14:20    4CA1-O05
Zhongyaun Zhao and Kenji Umemura
Kyoto University, Japan
Comparison of adhesiveness of tannin and sucrose adhesive with and without citric acid

14:20-14:40    4CA1-O06
Sukma Kusumah and Kenji Umemura
Kyoto University, Japan
Development of Particleboard made from Super Sweet Sorghum Bagasse (Sorghum bicolor spp) and Citric Acid

14:40-15:00    4CA1-O07
Ru Liu, Jinzhen Cao and Yao Peng
Beijing Forestry University, China
Physical, mechanical, and thermal properties of various anionic surfactant modifiers used in in-situ synthesis of organo-montmorillonite inside wood flour
15:00-15:20  4CA1-O08
Ling-fei Ma
Zhejiang Agriculture & Forestry University, China
Effect of additives on the hydration and flexural and compressive strength of wood flour and Magnesium Oxychloride Cement mixture

15:20-15:40  4CA1-O09
Toshimitsu Hata, Paul Bronsveld and Tomohiko Mitani
Kyoto University, Japan
Microstructural observation of graphene layers from carbonized wood

15:40-16:00  4CA1-O10
Min Lee, Sang-Bum Park and Sung-Phil Mun
Korea Forest Research Institute, Republic of Korea
Photocatalysis and adsorption of formaldehyde and toluene by TiO₂ embedded carbonized medium density fiberboard

16:00-16:20  4CA1-O11
Yuxuan Wu, Ying Gao and Xudong Zhu
Beijing Forestry University, China
Mechanical Properties of Structural Glulam Made by Cathay Poplar

16:20-16:40  4CA1-O12
Byung-Dae Park, Arif Nuryawan, Adya Singh, Valerio Causin and Chuck Frihart
Kyungpook National University, Republic of Korea
Crystalline Structure in Urea-Formaldehyde Resin Adhesives with Low Formaldehyde/Urea Mole Ratio

16:40-17:00  4CA1-O13
Wissanee Yingprasert
Prince of Songkla University, Thailand
Effects of boric acid addition to urea formaldehyde resin on formaldehyde emission, termite resistance and shear strength of rubberwood plywood

Poster session (17:10-18:40)
March 17

9:30-9:50 4CA1-O14
Yi Liu, Jianmin Gao, Hongwu Guo and Brian K. Via
Beijing Forestry University, China
Interface Properties of Loblolly Pine Bonded with Epoxy/Wood Pyrolysis Bio-oil Blended System

9:50-10:10 4CA1-O15
Yoko Kurokochi and Masatoshi Sato
The University of Tokyo, Japan
Properties of binderless board manufactured from rice straw: Effect of pretreatment and pressing condition

10:10-10:30 4CA1-O16
Hiroe Narita, Shun Okubo and Masatoshi Sato
The University of Tokyo, Japan
Binderless boards manufactured from Chenopodium plants

10:30-10:50 4CA1-O17
Xiaoyan Zhou, Minzhi Chen, Yang Li, Lijuan Tang, Minzhu Pan and Xuehui Yang
Nanjing Forestry University, China
Improvement of the interfacial adhesion between wheat straw and urea-formaldehyde resin by means of dielectric barrier discharge (DBD) plasma treatment

10:50-11:10 4CA1-O18
Saori Niwa, Masaki Okamoto, Rie Makise, Itsuro Higuchi, Hirokazu Ito and Yoshikuni Teramoto
Gifu University, Japan
Elucidation of compatibilizing effect for WPC production

11:10-11:30 4CA1-O19
Suiyi Li and Dagang Li
Nanjing Forestry University, China
Electrically conductive charcoal powder/ultra-high molecular weight polyethylene composites

11:30-11:50 4CA1-O20
Sasa Sofyan Munawar, Muhammad Wahyu Darojat, Subyakto, Mohammad Gopar, Ismail Budiman and Wida Banar Kusumaningrum
Indonesian Institute of Sciences, Indonesia
The effect of aggregate types and composition on the mechanical properties of mortar for train carriage floor

11:50-12:10 4CA1-O21
Subyakto Mr, Muhammad Wahyu Darojat, Sasa Sofyan Munawar, Mohammad Gopar, Ismail Budiman and Wida Banar Kusumaningrum
Indonesian Institute of Sciences, Indonesia
The sound absorption and thermal properties of mortar as affected by aggregate types
### Session 4-2: Composite Materials and Adhesion 2

**March 16**

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<thead>
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<th>Session</th>
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<tr>
<td>11:15-11:45</td>
<td>4CA2-I01</td>
<td>Hiroyuki Yano, Kyoto University, Japan</td>
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**Lunch**

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<td>Lars A. Berglund, Royal Institute of Technology, Sweden</td>
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<td>Olli Ikkala, Aalto University, Finland</td>
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<td>Koon-Yang Lee, University College London, UK</td>
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**Poster (17:10-18:40)**

**March 17**

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<td>Antonio Norio Nakagaito, University of Tokushima, Japan</td>
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March 16

11:15-11:45  4CA2-I01  Invited Lecture
Lars Berglund
Royal Institute of Technology, Sweden
New materials from nanocellulose – towards nanostructural control

11:45-12:05  4CA2-O01
Antonio Norio Nakagaito, Hitoshi Takagi and Sohtaroh Kanzawa
The University of Tokushima, Japan
Hybrid nanocomposites made of polylactic acid reinforced with cellulose and chitin nanofibers

12:05-12:25  4CA2-O02
Shenyuan Fu and Qiang Wu
Zhejiang Agricultural and Forestry University
Rheological behavior of liquefied cellulose with phenol

Lunch Break

13:20-13:40  4CA2-O03
Marta Fortea-Verdejo, Koon Yang Lee and Alexander Bismarck
University of Vienna, Austria
Making the most of fibre off-cuts: Using nanocellulose as binder to create hierarchical composites

13:40-14:00  4CA2-O04
Tobias Keplinger, Etienne Cabane and Ingo Burgert
ETH Zurich, Switzerland
Versatile strategies for grafting polymers to wood cell walls

14:00-14:20  4CA2-O05
Evi Oktavia and Toshiharu Enomae
University of Tsukuba, Japan
Electric power generation from vibration of paper

14:20-14:40  4CA2-O06
Li Jiao, Yuan-yuan Li, Guan-lian Li and Hong-qi Dai
Nanjing Forestry University, China
Properties of cellulose nanofiber reinforced cement based composites

14:40-15:00  4CA2-O07
Minna Hakalahti, Arto Salminen, Jukka Seppälä, Tekla Tammelin and Tuomas Hänninen
VTT Technical Research Centre of Finland, Finland
Customizing the mechanical performance of water stable TEMPO oxidized cellulose nanofibril films
15:00-15:20  4CA2-O08
Hirotaka Koga and Masaya Nogi
Osaka University, Japan
Flexible paper electronics prepared by using a papermaking technique

15:20-15:40  4CA2-O09
Valentina Guccini, Bernd Wicklein, Christian Aulin and German Salazar-Alvarez
Stockholm University, Sweden
Cellulose nanofibrils and graphene oxide bionanocomposite: characterisation and improvement of the barrier and mechanical properties

15:40-16:00  4CA2-O10
Jinxia Ma, Yajun Tian and Li Jiao
Nanjing Forestry University, China
Preparation of ZnO/starch nanocomposite and its application on coating

16:00-16:20  4CA2-O11
Henriikki Mertaniemi and Olli Ikkala
Aalto University, Finland
Functionalization of nanofibrillated cellulose for increased wet strength and applications in biomedicine

16:20-16:40  4CA2-O12
Reina Tanaka, Hiromasa Hondo, Tsuguyuki Saito and Akira Isogai
The University of Tokyo, Japan
Influences of rigidity of cellulose nanofibrils on length evaluation using shear viscosity measurement

16:40-17:00  4CA2-O13
Takashi Nishino, Hiroaki Ito and Chizuru Hongo
Kobe University, Japan
Silver modification of TEMPO oxidized cellulose nanofibers

Poster session (17:10-18:40)
March 17

9:30-9:50        4CA2-O14
Olli Ikkala
*Aalto University, Finland*
Combining supramolecular functionalities with nanocelluloses

9:50-10:10        4CA2-O15
Tetsuji Inui, Hirotaka Koga, Masaya Nogi and Katsuaki Suganuma
*Osaka University, Japan*
Small and Flexible Nanopaper Antenna for Wearable Electronics

10:10-10:30        4CA2-O16
Vivian Merk, Munish Chanana, Sabyasachi Gaan and Ingo Burgert
*ETH Zurich, Switzerland*
Bioinspired mineralization of wood on nano- and submicron level for green fire retardancy

10:30-10:50        4CA2-O17
Chia-Yuan Chang and Feng-Cheng Chang
*National Taiwan University, Taiwan*
Developing lignin-based electrospun fibrous materials for filtration

10:50-11:10        4CA2-O18
Kei-Kei Chan and Feng-Cheng Chang
*National Taiwan University, Taiwan*
Effects of processing parameters on structure and diameters of electrospun lignin fibers

11:10-11:30        4CA2-O19
Thanit Montrikittiphant, Martin Hervy, Min Tang, Charlotte K Williams, Alexander Bismarck and Koon-Yang Lee
*University College London, United Kingdom*
Making the most out of bacterial cellulose: Renewable thermoplastic nano-papreg

11:30-11:50        4CA2-O20
Hongzhi Liu, Youming Yu and Fangli Sun
*Zhejiang Agriculture & Forestry University, China*
Studies of cellulose nanowhisker-reinforced thermosetting phenolic resin prepared via in situ curing

11:50-12:10        4CA2-O21
Hiroyuki Yano, Haruo Omura, Hiroaki Okumura, Yuka Kitano and Fumiaki Nakastubo
*Kyoto University, Japan*
Reinforcement of thermoplastic resins using chemically modified cellulose nanofibers
# Session 5: Cell Formation and Wood Structures

### March 16

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<td>Kazuhiko Fukushima</td>
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Lunch, Poster (13:00-14:30)

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<td>Egai Watanabe</td>
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<td>Fang Chen</td>
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<td>University of North Texas, USA</td>
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March 16

11:15-11:45  5FS-I01 Invited Lecture
Fang Chen, Xiaolan Rao and Richard A. Dixon
University of North Texas, USA
Exploring candidate genes for catechyl lignin biosynthesis via RNA-Seq data in two distinct plant species

11:45-12:05  5FS-O01
Soichiro Noda, Masatoshi Yamaguchi, Nobuyuki Nishikubo, Nozomu Sakurai, Masaomi Yamamura, Takefumi Hattori, Hideyuki Suzuki, Daisuke Shibata, Taku Demura, Shiro Suzuki and Toshiaki Umezawa
Kyoto University, Japan
An E3 ubiquitin ligase involved in secondary wall formation

12:05-12:25  5FS-O02
Ugai Watanabe, Hisashi Abe, Ryo Funada, Satoshi Nakaba and Yusuke Yamagishi
Chiba Institute of Technology, Japan
Local expression of genes encoding tubulin isotypes in the cambium of Cryptomeria japonica

Lunch Break

Poster session (13:00-14:30)

14:40-15:10  5FS-I02 Invited Lecture
Futoshi Ishiguri
Utsunomiya University, Japan
Relationship between growth characteristics and wood properties in tropical trees

15:10-15:30  5FS-O03
Kei’ichi Baba and Takahisa Hayashi
Kyoto University, Japan
Characterization of tension wood formed in poplar overexpressing polygalacturonase

15:30-15:50  5FS-O04
Rumi Kaida, Eiichi Obataya, Masato Yoshida, Futoshi Ishiguri, Jun Tanabe, Toru Taniguchi, Manabu Kurita, Kei’ichi Baba and Takahisa Hayashi
Tokyo University of Agriculture, Japan
Occurrence of xyloglucan in the xylem of poplar stems for wind and earthquake

15:50-16:10  5FS-O05
Shengcheng Zhai, Biao Pan, Zhaoyang Xu, Yoshiki Horikawa, Tomoya Imai and Junji Sugiyama
Nanjing Forestry University, China
Cell wall ultrastructure of palm leaf fibers
16:10-16:30  5FS-O06
Md Hasnat Rahman, Yusuke Yamagishi, Kayo Kudo, Yugo Matsuoka, Shahanara Begum, Yuichiro Oribe, Satoshi Nakaba and Ryo Funada
Tokyo University of Agriculture and Technology, Japan
Cambial reactivation and xylem differentiation induced by localized heating of stems in conifer sawara (Chamaecyparis pisifera) trees

16:30-16:50  5FS-O07
Takao Itoh, Biao Pan, Jiayan Luo, Yawen Zheng, Yaping Jiang and Zhiyin Wang
Nara National Research Institute for Cultural Properties, Japan
Hormonal induction of gum or resin in Chinese sweetgum and agarwood

16:50-17:10  5FS-O08
Widyanto Dwi Nugroho, Shofi Rukhama and Sri Rahayu
Universitas Gadjah Mada, Indonesia
Changes in wood anatomical characteristics of Falcataaria mollucana due to infection of Uromycladium tepperianum

17:10-17:30  5FS-O09
Yusuke Yamagishi, Suzuka Ide, Joto Yoshimoto, Ugai Watanabe, Satoshi Nakaba and Ryo Funada
Tokyo University of Agriculture and Technology, Japan
Effect of partial desiccation on induction of secondary xylem like tracheary element from cultured cells of hybrid poplar

17:30-17:50  5FS-O10
Satoshi Nakaba, Izumi Arakawa, Hikaru Morimoto, Naoki Takata, Makoto Yoshida, Yuzou Sano and Ryo Funada
Tokyo University of Agriculture and Technology, Japan
Cell biological analysis of the death of long-lived ray parenchyma cells

17:50-18:10  5FS-O11
Ridwan Yahya, Yoshiki Horikawa and Junji Sugiyama
University of Bengkulu, Indonesia
Observed microfibril angle of fiber adjacent and distant from vessel by polarised light microscopy

18:10-18:30  5FS-O12
Katsuhiko Takata, Tomohiro Miyashita, Seishiro Taki, Yoichi Hasegawa, Satomi Akiyama and Miyako Sato
Akita Prefectural University, Japan
Wood and growth properties of the cultivars with resistance to snow-damage of Japanese cedar
vilma Bayramzadeh, Babak shahkaram and Alireza pajuhandeh
Islamic Azad University, Iran
Response of anatomical structures in *Carpinus orientalis* roots to soil Erosion in Hassanabad valley, Iran
March 17

9:20-9:50 5FS-I03 Arata Yoshinaga *Invited Lecture*
Kyoto University, Japan
Immunolocalization of lignin in wood cell walls using monoclonal antibodies

9:50-10:10 5FS-O14
Yuki Tobimatsu, Satoshi Aruga, Dorien Van de Wouwer, Allen Eric, Robert Kumpf, Hiroshi Kamitakahara, Toshiyuki Takano, Bartel Vanholme, Boerjan Wout and John Ralph
Kyoto University, Japan
Visualization of cell wall lignins by metabolic labeling and bioorthogonal click chemistry

10:10-10:30 5FS-O15
Yuto Hanaya, Dan Aoki, Yasuyuki Matsushita, Masato Yoshida, Katsushi Kuroda, Ruka Takama and Kazuhiko Fukushima
Nagoya University, Japan
Chemical mapping of organic/inorganic chemicals in freeze-fixed *Ginkgo biloba* by the cryo-TOF-SIMS/SEM system

10:30-10:50 5FS-O16
Paavo Aleks Penttilä, Junji Sugiyama and Tomoya Imai
Kyoto University, Japan
Effects of reaction conditions on cellulose structures synthesized *in vitro*

10:50-11:10 5FS-O17
Yasuyuki Miyagawa, Yuki Tobimatsu, Takahito Mizukami, John Ralph, Hiroshi Kamitakahara and Toshiyuki Takano
Kyoto University, Japan
NMR studies of phenyl glycoside-type lignin-carbohydrate complexes (LCCs) in wood cell walls

11:10-11:30 5FS-O18
Hiroshi Nishimura, Akihiro Kamiya, Masato Katahira and Takashi Watanabe
Kyoto University, Japan
Structural studies on the chemical linkage between lignin and polysaccharide

11:30-11:50 5FS-O19 Takahisa Hayashi, Chisato Yasukawa, Shoko Aoki, Miki Nonaka, Masateru Itakura, Rumi Kaida, Teruaki Taji, Yoichi Sakata, Hiroya Ohbayashi, Tomoko Seyama, Iwao Uehara, Kei’ichi Baba and Masaharu Tsubokura
Tokyo University of Agriculture, Japan
Incorporation of radioiodine into trees by binding to 1,4-linked glucans
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<th>Speaker</th>
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<td>Makoto Yoshida</td>
<td>Tokyo University of Agriculture and Technology, Japan</td>
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<td>6BP-001</td>
<td>Emma Master</td>
<td>University of Toronto, Canada</td>
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<td>15:10-15:30</td>
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<td>Fumio Eguchi</td>
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<td>Tomoko Wada</td>
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<td>9:20-9:50</td>
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<td>Tsuyoshi Yoshimura</td>
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<td>Ikuo Momohara</td>
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<td>Yoshiyuki Yanase</td>
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March 16

13:00-13:30  6BP-I01 Invited Lecture
Marie Couturier, Marie-Noëlle Rosso, Jean-Guy Berrin and Emma Master
University of Toronto, Canada
Elucidating the lignocellulolytic capability of Pycnoporus coccineus through combined proteomic and analytical characterization of enzyme activities

13:30-13:50  6BP-O01
Chiaki Hori
RIKEN, Japan
Analysis of the Phlebiopsis gigantea genome, transcriptome and secretome gives insight into its pioneer colonization strategies of wood

13:50-14:10  6BP-O02
Wenhui Geng, Yongcan Jin, Hasan Jameel and Sunkyu Park
Nanjing Forestry University, China
Approaches to achieve high-solid enzymatic hydrolysis using autohydrolysis pretreated hardwood and dilute-acid pretreated corn stover

14:10-14:30  6BP-O03
Taku Uchiyama, Masahiro Samejima and Kiyohiko Igarashi
The University of Tokyo, Japan
Processive movement observation of four cellulases from cellulolytic bacteria Cellulomonas fimi

14:30-14:50  6BP-O04
Krisna Septiningrum, Hiroshi Ohi and Akihiko Kosugi
University of Tsukuba, Japan
The GH67 α-glucuronidase of Paenibacillus curdlanolyticus B-6 removes hexenuronic acid groups from xylooligosaccharides and has potential application in bio-bleaching

14:50-15:10  6BP-O05
Kiwamu Umezawa, Kouta Takeda, Takuya Ishida, Kiyohiko Igarashi, Nobuhumi Nakamura, Masahiro Samejima, Hiroyuki Ohno and Makoto Yoshida
Tokyo University of Agriculture and Technology, Japan
Characterization of a ppyrroloquinoline quinone-dependent sugar dehydrogenase homologue from the basidiomycete Coprinopsis cinerea

Break

15:30-16:00  6BP-I02 Invited Lecture
Central Luzon State University, Philippines
From forestry wastes to rice straw and forest leaf litters for medicinal fungi: A paradigm shift in mushroom cultivation in the Philippines
16:00-16:20  6BP-O06
Tomoko Wada, Rie Endo, Coskun Kose, Dilek Dogu, Kamile Tirak, Nural Yilgor, Junji Sugiyama, Kiyohiko Igarashi and Nami Kartal
National Research Institute for Cultural Properties, Tokyo, Japan
A survey of microbial deterioration in archaeological wood excavated from Yenikapi, Istanbul, Turkey

16:20-16:40  6BP-O07
Alina Lozhechnikova and Monika Österberg
Aalto University, Finland
Sustainable surface modification of wood

16:40-17:00  6BP-O08
Rie Endo and Junji Sugiyama
Toyo Feather Industry Co., Japan
Improving the stability of archaeological waterlogged wood by adding multivalent-metal salt process in feather-keratin method

*Poster session (17:10-18:40)*
March 17

9:20-9:50 6BP-I03 **Invited Lecture**
Hou-Feng Li, Hsin-Ting Yeh, Chun-I Chiu, Chu-Yu Quo, Wei-Ren Liang and Ming-Jer Tsai
*National Chung Hsing University, Taiwan*
Termite infestation pattern in trees

9:50-10:10 6BP-O09
S. Nami Kartal, Evren Terzi and Lauri Rautkari
*Faculty of Forestry, Istanbul University, Turkey*
Role of nano particles in prevention of mold growth

10:10-10:30 6BP-O10
Syahidah, Takeshi Katayama, Toshisada Suzuki, Yasuhiko Asada, Yoshito Ohtani and Wakako Ohmura
*Kagawa University, Japan*
Antitermite and antifungal activities of gofasa (*Vitex cofassus* Reinw.) heartwood extract

10:30-10:50 6BP-O11
Hiroki Watanabe, Yoshiyuki Yanase and Yoshihisa Fujii
*Kyoto University, Japan*
Evaluation of larval feeding activity of the bamboo powder-post beetle *Dinoderus minutus* using acoustic emission monitoring

10:50-11:10 6BP-O12
Ruibo Li, Ryo Narita, Shinsuke Marumoto, Hiroshi Nishimura, Mitsuyoshi Yatagai, Takashi Fujita and Takashi Watanabe
*Kyoto University, Japan*
Characterization of antivirus activities of wood and bamboo vinegar

11:10-11:30 6BP-O13
John Allexander, Ferry Bongers, Julian Marcroft, Simon Aicher and Gerhard Dill-Langer
*Accsys Technologies, United Kingdom*
Structural performance of Accoya® wood under service class 3 (wet use) conditions

11:30-11:50 6BP-O14
Teruhisa Miyauchi and Ikuo Momohara
*Hokkaido Research Organization, Japan*
Quantitative determination of quaternary ammonium compounds in treated wood using ultra high performance liquid chromatography with evaporative light scattering detection.

11:50-12:10 6BP-O15
Fangli Sun, Binbin Liu, Lingfei Ma, Hongzhi Liu and Yuhui Zhang
*Zhejiang Agriculture and Forestry University, China*
Polyacrylic acid (PAA)/polyethylene glycol (PEG) hydrogel with interpenetrating network structure
### Session 7: Biorefinery

**March 16**

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<td>7BR-I01</td>
<td>Takashi Watanabe</td>
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Lunch, Poster (13:00-14:30)

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<td>Shiro Saka</td>
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**March 17**

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<td>Toshiaki Umezawa</td>
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<td>Tatsuhiko Yamada</td>
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<td>7BR-O22</td>
<td>Forestry and Forest Products Research Institute, Japan</td>
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March 16

11:15-11:45  7BR-I01 Invited Lecture
Tatsuhiko Yamada
Forestry and Forest Products Research Institute, Japan
Development of lignin based functional materials for the establishment of rural area biorefinery system

11:45-12:05  7BR-O01
Marc Borrega and Herbert Sixta
Aalto University, Finland
Post-hydrolysis of Kraft paper pulp for the production of dissolving pulp and xylo-oligosaccharides

12:05-12:25  7BR-O02
Kyoko S. Katsumata, Supachineekan Tanarugamorn, Xiumei Zhang and Yuji Matsumoto
The University of Tokyo, Japan
The effect of age on the alkaline pulping of Eucalyptus wood

Lunch Break

Poster session (13:00-14:30)

14:40-15:00  7BR-O03
Saara Hanhikoski, Klaus Niemelä and Tapani Vuorinen
VTT Technical Research Centre of Finland, Finland
The potential of neutral sulphite biorefinery

15:00-15:20  7BR-O04
Chuchu Chen, Dagang Li, Hiroyuki Yano and Kantaro Abe
Nanjing Forestry University, China
Preparation of high crystalline α-chitin hydrogel using a simple NaOH treatment at low temperatures

15:20-15:40  7BR-O05
Annariikka Roselli, Agnes Stepan, Michael Hummel and Herbert Sixta
Aalto University, Finland
IONCELL-P, an ionic liquid based hemicellulose extraction method.

15:40-16:00  7BR-O06
Yukiko Enomoto-Rogers, Noreen G.V. Fundador and Tadahisa Iwata
The University of Tokyo, Japan
Synthesis of xylan derivatives and their applications
16:00-16:20  7BR-O07
Anne Michud, Shirin Asaadi, Michael Hummel and Herbert Sixta
Aalto University, Finland
IONCELL-F: Production of high tenacity man-made cellulose fibers by dry-jet wet spinning from cellulose-ionic liquid solution

16:20-16:40  7BR-O08
Jie Jiang, Liang Liu, Wenbo Ye, Mu Chen and Yimin Fan
Nanjing Forestry University, China
Preparation and characterization of cellulose nanofibers by laccase-TEMPO oxidation

16:40-17:00  7BR-O09
Houssine Sehaqui, Uxua Perez de Larraya, Michael Sander, Philippe Tingaut and Tanja Zimmermann
EMPA, Switzerland
Contaminants adsorption onto nanofibrillated cellulose for water purification

17:00-17:20  7BR-O10
Haiying Wang, Dagang Li, Hiroyuki Yano and Kentaro Abe
Nanjing Forestry University, China
Obtaining tough cellulose II nanofibers with high thermal stability from wood

17:20-17:40  7BR-O11
Shukichi Tanaka, Tadahisa Iwata and Masatoshi Iji
NEC Corp., Japan
Development of cardanol-bonded cellulose thermoplastic: Influence of solvents in its heterogeneous synthesis process

17:40-18:00  7BR-O12
Shiro Saka, Eiji Minami, Harifara Rabemanolontsoa and Haruo Kawamoto
Kyoto University, Japan
The 3rd generation bioethanol production process with acetic acid fermentation from lignocellulosics

18:00-18:20  7BR-O13
Fabio Minoru Yamaji, Hiroyuki Yamamoto, Gabriela Tami Nakashima, Carlos Roberto Sette Jr, Alessandra Luzia Da Róz and Joao Lucio Barros
UFSCar, Brazil
Biomass for solid biofuel production in Brazil

18:20-18:40  7BR-O14
Denny Irawati, Higeta Satoru, Soekmana Wedatama, Johannes Pramana Gentur Sutapa, Ishiguri Futoshi and Yokota Shinso
Faculty of Forestry Gadjah Mada University, Indonesia
Bioenergy properties of tree branch from several species planted in Indonesia
March 17

9:30-9:50  7BR-O15
Daisuke Ishii and Tadahisa Iwata
_The University of Tokyo, Japan_
Thermal and rheological properties of poly(caffeic acid) as biomass-derived heat-resistant polyester

9:50-10:10  7BR-O16
Jaehyuk Jang
_Kangwon National University, Republic of Korea_
Effect of enzymatic hydrolysis on the morphological characteristics of lignocellulose nanofibers with different lignin contents

10:10-10:30  7BR-O17
Dou-yong Min, Hou-min Chang, Hasan Jameel, Lucian Lucia and Yong-can Jin
_Nanjing Forestry University, China_
Structural changes of corn stem lignin induced by pretreatments

10:30-10:50  7BR-O18
Rie Takada and Takashi Watanabe
_Kyoto University, Japan_
Analysis of unproductive adsorption of cellulase on lignin

10:50-11:10  7BR-O19
Toshiaki Umezawa, Masahiro Sakamoto, Taichi Koshiba, Takefumi Hattori, Shiro Suzuki and Masaomi Yamamura
_Kyoto University, Japan_
Lignin metabolic engineering in _Oryza sativa_ for biomass refinering

11:10-11:30  7BR-O20
Chenhuan Lai, Maobing Tu, Qiang Yong and Shiyuan Yu
_Nanjing Forestry University, China_
Contrasting effects of extractable lignin and bulk lignin on enzymatic hydrolysis of pretreated sweetgum

11:30-11:50  7BR-O21
Yuxiang Huang and Guangjie Zhao
_Beijing Forestry University, China_
Comparisons of pore properties and surface functional groups of activated carbon fibers from liquefied wood by KOH and steam activation

11:50-12:10  7BR-O22
Tsutomu Suzuki and Kyoko Suzuki
_Kitami Institute of Technology, Japan_
Wood refinery by two-steps iron-catalyzed carbonization
Poster Presentations
Session 1: Wood Physics (17:10-18:40, March 16)

1WP-P01
Haruka Maejima, Kaoru Endo and Eiichi Obataya
*University of Tsukuba, Japan*
Effects of moistening treatment on the hygroscopicity and the vibrational properties of aged wood

1WP-P02
Masakazu Nishida, Tomoko Tanaka, Wataru Kanematsu, Tsunehisa Miki and Kozo Kanayama
*Advanced Science and Technology, Japan*
Solid state NMR study on thermal expansion characters of wood impregnated with polyethylene glycols

1WP-P03
Eiko NAKAYAMA
*Showa Women's University, Japan*
Degradation of wood by light

1WP-P04
Hikaru Akahoshi and Eiichi Obataya
*University of Tsukuba, Japan*
Investigation of the Deterioration of Woodwind Reed

1WP-P05
Kaoru Endo, Haruka Maejima and Eiichi Obataya
*University of Tsukuba, Japan*
Hygroscopicity and vibrational properties of hydrothermally-treated wood

1WP-P06
Yoon-Seong Chang, Sang-Yun Yang, Han-Seob Jeong, Kyu-Young Kang, Joon-Weon Choi, In-Gyu Choi and Hwanmyeong Yeo
*Seoul National University, Republic of Korea*
Analysis of moisture-sorption characteristics of sawdust by NIR spectroscopy

1WP-P07
Merlin SIMO TAGNE
*Douala Institute of Technology, Cameroon*
Modeling and simulation of the drying of temperate hardwood using oscillating regimes

1WP-P08
Noboru Sekino
*Iwate University, Japan*
Effect of carbonization temperature and density on the thermal conductivity of charcoal
1WP-P09
Gang Tao, Takashi Takeda, Yoshihiro Hosoo and Takahisa Yoshida
*Shinshu University, Japan*
Relationship between fractal dimensions of fracture surface and mechanical properties on small specimens of Japanese larch timber dried by the high-temperature setting method

1WP-P10
Ryo Nakanishi and Eiichi Obataya
*University of Tsukuba, Japan*
Investigation of Material Properties of Reed for Hichiriki.

1WP-P11
Nozomi Takemura, Eiichi Obataya and Koji Adachi
*University of Tsukuba, Japan*
Compressive elasticity of piled beam structure and compressed wood

1WP-P12
Takaaki Fujimoto and Junji Kimura
*Tottori University, Japan*
Application of Bayesian approach for estimating the parameters of the radial variation model of basic density in hinoki cypress (*Chamaecyparis obtusa*)

1WP-P13
Sang-Yun Yang, Yonggun Park, Hyun Woo Chung, Chang-Deuk Eom, Kug-Bo Shim and Hwanmyeong Yeo
*Seoul National University, Republic of Korea*
Moisture Content Prediction Model Development using Complex Dielectric Permittivity of wood in Radio Frequency

1WP-P14
Anna Carolina Andrade, José Reinaldo Silva, Roberto Braga Júnior, José Tarcisio Lima and Paulo Ricardo Hein
*Department of Forest Science, Brazil*
Analysis of the surface quality of solid wood using solid-state laser

1WP-P15
Franciane Andrade de Pádua, Paulo Fernando Trugilho, Sebastião Carlos Silva Rosado, Fabio Minoru Yamaji and Larissa Benassi Valentim
*Federal University of Sao Carlos, Brazil*
Effect of diameter and height of trees in the growth stresses measures by residual strain in Eucalyptus clones

1WP-P16
Yuma Tohjima, Masamitsu Ohta and Satoshi Shida
*University of Tokyo, Japan*
The reflection of ultraviolet rays from wood in the view of the human health
Aoi Hirano, Eiichi Obataya and Koji Adachi  
*University of Tsukuba, Japan*  
Bending properties of the composite beam using compressed wood

Katsuhisa Hirano and Satoshi Shida  
*University of Tokyo, Japan*  
Measuring moisture distribution by non-destructive method using x-ray digital microscope when surface checks occur in a first stage of drying boxed-heart Japanese cedar

Miyuki Matsuo, Masato Yoshida, Hiroyuki Yamamoto, Kenji Umemura and Shuichi Kawai  
*Nagoya University, Japan*  
Natural aging of keyaki (*Zelkova serrata* Makino) wood

Mariana Ramírez-Pérez and Javier-Ramón Sotomayor-Castellanos  
*Universidad Michoacana, Mexico*  
Hygro-Thermo-Mechanical Densified of Mexican Wood.

Javier-Ramón Sotomayor-Castellanos and Mariana Ramírez-Pérez  
*Universidad Michoacana, Mexico*  

Feng-Rong Chang, Feng-Cheng Chang, Te-Hsin Yang and Cheng-Jung Lin  
*National Taiwan University, Taiwan*  
Effect of heat treatment on the physical, surface and mechanical properties of Japanese cedar (*Cryptomeria japonica*)

Jingpeng Li, Bitao Fan, Huanhuan Zheng, Chenye Yan, Chunde Jin and Qingfeng Sun  
*Zhejiang Agricultural and Forestry University, China*  
Design, Fabrication, and Photocatalytic Utility of Nanostructured semiconductors on the Bamboo Surface: Focus on ZnO-based Nanostructures

Jingpeng Li, Qiufang Yao, Huanhuan Zheng, Chenye Yan, Qingfeng Sun and Chunde Jin  
*Zhejiang Agricultural and Forestry University, China*  
Fabrication, Characterization, and Properties of Superhydrophobic Bamboo Surface Based on ZnO Nanostructures

YUE QI, Jaehyuk Jang, Sehwi Park and Namhun Kim  
*Kangwon National University, Republic of Korea*  
Wood quality of Paulownia coreana grown in Korea
Misao Yokoyama  
*Kyoto University, Japan*  
Aging Effect on Wood Mechanics

Ryunosuke Kitamura, Tetsuya Inagaki, Keiji Konagaya, Hikaru Kobori and Satoru Tsuchikawa  
*Nagoya University, Japan*  
An investigation of light propagation in wood by time-of-flight near-infrared spectroscopy

Shinichi Tai, Tomoaki Kiryu, Yuka Miyoshi, Yuzo Furuta and Ohkoshi Makoto  
*Kyoto Prefectual University, Japan*  
Compressive deformation behavior of wood cells in radial direction: Effect of the variation of cell shapes within an annual ring

Ken Watanabe, Yasuhiro Matsushita and Isao Kobayashi  
*Forestry and Forest Products Research Institute, Japan*  
Self-organizing map as a potential method for optimizing lumber sorting before kiln-drying

Youki Suzuki, Kiyohiko Ikeda, Nobuo Sobue, Takahisa Yoshida, Motoyoshi Ikeda and Isao Kobayashi  
*Forestry and Forest Products Research Institute, Japan*  
Monitoring the moisture content of piled timbers using impedance models

Se-hwi Park, Jae-hyuk Jang, Sa-ra Jang and Nam-hun Kim  
*Kangwon National University, Republic of Korea*  
Wood quality and preservation properties of major wood species planted in Indonesia

Ae-Hee Lee, Nam-Hun Kim and Jae-Hyuk Jang  
*Kangwon National University, Republic of Korea*  
Structure and properties of yellow hearted pine in Korea

So Seon Lee, Jin Hyuk Kong and Gi Young Jeong  
*Chonnam National University, Republic of Korea*  
Effects of sample size and drying condition on the shrinkage of different species in South Korea

Chul-Ki Kim, Jung-Kwon Oh and Jun-Jae Lee  
*Seoul National University, Republic of Korea*  
Field application with portable X-ray CT for investigating inner state of wood
Andi Hermawan and Noboru Fujimoto

Kyushu University  Japan

Viscoelastic creep behavior of Sugi and Hinoki under various temperatures
Session 2: Timber Engineering (17:10-18:40, March 16)

2TE-P01
Yasushi Nakashima and Takashi Takeda
Iwate Prefectural Forestry Technology Center, Japan
Evaluation of bending strength of Japanese red pine two-surface sawn timber used for beams and girders

2TE-P02
Takashi Takeda, Yoshihiro Hosoo and Futo Shinozaki
Shinshu University, Japan
Actual performances of concrete-form plywood composed of domestic wood on site of constructing a small check dam

2TE-P03
Toshiro Harada, Daisuke Kamikawa, Atsushi Miyatake, Ikuo Momohara, Masayuki Miyabayashi and Yuji Imamura
Forestry and Forest Products Research Institute, Japan
Effects of preservative treatment on fire safety performance of glued laminated timber.

2TE-P04
Satomi Sonoda
Toyama Prefectural Agricultural, Forestry and Fisheries Research Center, Japan
Analysis of asymmetric loading layered beams with incomplete interaction

2TE-P05
Shuetsu Saito
Forestry and Forest Products Research Institute, Japan
Development of a weight monitoring equipment to apply an optical stress sensor during lumber drying in a kiln dryer

2TE-P06
Yoshiaki Wakashima, Hidemaru Shimizu, Koichiro Ishikawa and Yasushi Fujisawa
Toyama Prefectural Agricultural, Forestry and Fisheries Research Center, Japan
Development of high damping shear walls using wood friction

2TE-P07
Yuhei Mouri, Takumi Nakahata, Takuro Mori, Yoshiyuki Yanase, Kei Tanaka and Masafumi Inoue
Oita University, Japan
Effect of Termite Attack on Single Shear Strength of Wood Screwed Joint

2TE-P08
Mami Wada, Hiroshi Isoda, Takuro Mori and Akihisa Kitamori
Kyoto University, Japan
A Study on Strength Properties of L and T Shape Panel with CLT Construction
2TE-P09
Yui Kikuchi, Masashi Nakamura, Yoshiko Yagi, Akitaka Kimura and Takato Nakano
Kyoto University, Japan
Effects of wooden wall designs on perceived wood ratio

2TE-P10
Masashi Nakamura, Akitaka Kimura and Yui Kikuchi
Kyoto University, Japan
Evaluation of visual impression of full-size wooden wall decorated by Sugi timber

2TE-P11
Takumi Nakahata, Takuro Mori, Kei Tanaka, Yuhei Mouri and Masafumi Inoue
Oita University, Japan
Effect of Moisture Contents of Wood on Strength Properties of Nailed wooden Joint

2TE-P12
Risa Hisadome, Andi Hermawan, Takeshi Ohuchi and Noboru Fujimoto
Kyushu University, Japan
Effect of Humidity Control Automatically Associated with Acoustic Emission on the Kiln Drying of Hardwood Board

2TE-P13
Germán Suárez-Béjar and Javier-Ramón Sotomayor-Castellanos
Universidad Michoacana, Mexico
Mechanical Characteristics and Material Indices as Design Criteria for Tropical Mexican Woods.

2TE-P14
Yuta Kano and Masamitsu Ohta
University of Tokyo, Japan
Similarities of the vibration properties between the two different scaled wooden house models

2TE-P15
Chih-Hsien Lin, Chih-Lung Cho and Te-Hsin Yang
National Chung Hsing University, Taiwan
Determination of poisson’s ratio in relation to transverse layer thickness of 3-layers CLT

2TE-P16
Kouchi Kato, Mariya Ito, Tetsuya Inagaki, Hikaru Kobori, Takaaki Fuzimoto and Satoru Tsuchikawa
Nagoya University, Japan
Fast on-line NIR technique to predict modulus of elasticit of the lamina for Cross Laminated Timber

2TE-P17
Jin Hyuk Kong, Moon Jae Park and Gi Young Jeong
Chonnam National University, Republic of Korea
Effects of peg diameters and orientations on the bearing properties of wood peg connection
2TE-P18
Norihiko Yamada, Tomoyuki Ishizaka, Kijuro Fukuju and Yoshihisa Fujii
Hyogo Pref. Tech. Center for Agriculture, Forestry and Fisheries, Japan
Drying of konara lumber in log-house type lumber dryer using solar energy

2TE-P19
Olusola Samuel Areo, Olajide Razaq Adejoba and Ayodeji.O Omole
Forestry Research Institute of Nigeria, Ibadan, Nigeria
Influence of mechanical properties on utilization potential of Mangifera indica L. wood for furniture industry

2TE-P20
Zhe-ru Li, Ze-li Que and Tong-yu Hou
Nanjing Forestry University, China
Experimental Study on Shaking Table Tests of Dougong in Tianwang Hall, Luzhi, Ming dynasty

2TE-P21
Chih-Lung Cho and Yang-He Huang
National ILan University, Taiwan
The Mechanical Properties of Shuttle Columns Used for Post and Lintel Constructions

2TE-P22
Yasuo Okazaki
Akita Prefectural University, Japan
Wood-decay diagnosis by modal analysis

2TE-P23
Jung-Kwon Oh, Jung-Pyo Hong and Jun-Jae Lee
Seoul National University, Republic of Korea
Prediction of Compressive Strength of Cross Laminated Timber
Session 3: Wood Chemistry (13:00-14:30, March 16)

3WC-P01
Frantisek Kacik, Danica Kacikova, Veronika Velkova and Vladimir Vacek
Technical University in Zvolen, Slovakia
Chemical alterations at the wood thermal modification and its influence on mechanical properties

3WC-P02
Zhulan Liu, Yunfeng Cao, Zhiguo Wang and Hao Ren
Nanjing Forestry University, China
Water Solubility Comparisons of Carboxymethylated Celluloses and Lignins

3WC-P03
Toshinari Hamaoka, Keisuke Ando and Nobuaki Hattori
Tokyo University of Agriculture and Technology, Japan
Removal of toner from printed PPC paper by repeated laser ablation

3WC-P04
Frantisek Kacik, Stepan Podzimek, Danica Kacikova and Katarina Vizarova
Technical University in Zvolen, Slovakia
Characterisation of cellulose degradation by SEC-MALS, SEC-MALS-DAD and A4F-MALS methods

3WC-P05
Kazuto Seki and Ken Orihashi
Hokkaido Research Organization, Japan
Characterization of secondary metabolites, nutritional substances, and internal secretory structures in the branch bark tissues among two larch species and their hybrid F1

3WC-P06
Naoyuki Matsui and Tatsuro Ohira
Forestry and Forest Products Research Institute, Japan
Observation of deposition process of lignin in young tree leaves by DFRC method

3WC-P07
Toru Inamochi, Tsuguyuki Saito and Akira Isogai
University of Tokyo, Japan
Effect of the co-catalyst salt on TEMPO-mediated oxidation of cellulose

3WC-P08
Chaonan Wang, Yoshito Ohtani, Masaki Kawakatu and Hideaki Ichiura
Kochi University, Japan
Addition of tree essential oils into diesel engine fuel improves exhaust gas pollution
Toshisada Suzuki, Takeshi Katayama and Tanachai Pankasemsuk
Kagawa University, Japan
Catechol-type lignan/neolignans isolated as antioxidants from the defatted seed residue of Jatropha curcas

Masahiro Matsunaga, Yutaka Kataoka, Atsuko Ishikawa, Hiroshi Matsunaga, Masahiko Kobayashi and Makoto Kiguchi
Forestry and Forest Products Research Institute, Japan
Evaluation of heat-treated wood using supercritical carbon dioxide

Toshinao Shioya, Tomoya Yokoyama and Yuji Matsumoto
University of Tokyo, Japan
Formation behavior of benzyl cation of lignin model compounds under acidic conditions

Fumio Kawamura, Tatsuro Ohira, Shojiro Hishiyama, Kazunori Sasaki, Junkyu Han and Hiroko Isoda
Forestry and Forest Products Research Institute, Japan
Protective effects of major norlignans from the heartwood of Cryptomeria japonica against corticosterone-induced neurotoxicity in PC12 cells

Yanding Li, Takuya Akiyama and Yuji Matsumoto
University of Tokyo, Japan
Nitrobenzene oxidation of 5-O-4 lignin model compounds and the characteristics of NMR chemical shifts of the models

Satoko Shimizu, Pattaraporn Posoknistakul, Tomoya Yokoyama and Yuji Matsumoto
University of Tokyo, Japan
Effect of the presence of γ-hydroxymethyl group on the β-O-4 bond cleavage during alkaline cooking processes

Masatsugu Takada, Eiji Minami, Haruo Kawamoto and Shiro Saka
Kyoto University, Japan
Comparative study on hydrothermal decomposition behavior of lignin from Japanese cedar and Japanese beech

Dimas Andrianto, Waras Nurcholis, Takeshi Katayama and Toshisada Suzuki
Kagawa University, Japan
Antioxidant, antidiabetic and antihyperlipidemic activity of Graptophyllum pictum leaf extract
3WC-P17
Masaomi Yamamura, Shiro Suzuki, Takefumi Hattori and Toshiaki Umezawa
*Kyoto University, Japan*
High-throughput protocols of lignin analysis

3WC-P18
Li-Yuan Liu and Ting-Feng Yeh
*National Taiwan University, Taiwan*
Characterization of lignin and caffeic acid O-methyltransferase of *Dendrocalamus latiflorus* Munro

3WC-P19
Hsin-Tzu Wang, Li-Yuan Liu and Ting-Feng Yeh
*National Taiwan University, Taiwan*
Polysaccharide distributions and restricted mannan recognitions in poplar stems of different developmental stages

3WC-P20
Dezhi Chen, Wuping Chen and Guolin Tong
*Nanjing Forestry University, China*
Oxygen delignification of Acacia Lo-solids kraft pulp and Massoniana conventional kraft pulp

3WC-P21
Jin Er-suo, Zhu Yang-yang, Yang Fang and Song Jun-long
*Nanjing Forestry University, China*
Polymorph conversion of nanocellulose crystal in alkaline media

3WC-P22
Pattaraporn Posoknistakul, Tomoya Yokoyama and Yuji Matsumoto
*University of Tokyo, Japan*
Effect of the structural difference of β-O-4 type lignin model compounds on the reaction with active oxygen species under oxygen bleaching conditions

3WC-P23
Sheau-Horng Lin
*National Pingtung University of Science and Technology, Taiwan*
Manufacturing of Charcoal Adsorptive Paper and Its Application on Maintaining the Freshness of Fruits

3WC-P24
Deded Sarip Nawawi, Wasrin Syafii, Takuya Akiyama, Tomoya Yokoyama and Yuji Matsumoto
*Bogor Agricultural University, Indonesia*
Syringyl-guaiacyl Lignin in Reaction Wood of the Vesseled-Gymnosperm *Gnetum gnemon*
3WC-P25
Ho Chen-Lung, Wang Eugene I-Chen and Su Yu-Chang
Taiwan Forestry Research Institute, Taiwan
Derivation of Empirical Equations for the Dissolution of Lignin, Cellulose and Hemicelluloses in THFA/HCl Organosolv Pulping of Rice Straw

3WC-P26
Tomoko Shimokawa, Eiji Togawa, Koichi Kakegawa, Atsushi Kato, Noriko Hayashi, Shigeki Yoshida, Tsutomu Ikeda and Kengo Magara
Forestry and Forest Products Research Institute, Japan
Film formation and some structural features of hetero polysaccharide fractions from Prunus speciosa leaves

3WC-P27
Zhenfu Jin and Kenji Iiyama
Zhejiang Agricultural and Forestry University, China
Chemical characteristics of binderless board from bamboo residue and mechanism of self bonding

3WC-P28
Philip Kunio Naito, Satoshi Kimura, Masahisa Wada and Tadahisa Iwata
University of Tokyo, Japan
Crystal transition from hydrated chitosan to anhydrous chitosan

3WC-P29
Toshinori Nakagawa, Hiroki Horiba, Yuiko Yamabe, Yuri Yoshimura, Atsushi Nagaike, Makoto Inagami, Qinchang Zhu, Koichiro Ohnuki, Hiroya Ishikawa, Tsuyoshi Okamoto, Noboru Fujimoto and Kuniyoshi Shimizu
Kyushu University, Japan
Multiple-utilization of Sugi (Cryptomeria japonica) based on its variety of functions

3WC-P30
Yu-Tang Tung, Tung-Chou Tsai, Hsiao-Ling Chen and Chuan-Mu Chen
National Chung Hsing University, Taiwan
Anti-inflammatory Effect of Antrodia camphorata on Hyperoxia-induced Systemic Inflammatory Responses using NF-κB/luciferase Transgenic Mice

3WC-P31
Jiaqing Lu, Yiqin Yang, Yanjin Bi and Yongcan Jin
Nanjing Forestry University, China
Comparison of dilute acid and ammonium sulfite pretreatments on the enzymatic saccharification of wheat straw handling residues

3WC-P32
Wenjuan WU and Huamin Zhai
Nanjing Forestry University, China
Effects of DMSO/LiCl Dissolution on the Structural Characteristics of Bamboo Lignin
3WC-P33
Nathanael Guigo, Amandine Codou, Karim Mazeau, Jean-Luc Putaux and Laurent Heux
Université Grenoble Alpes, France
Periodate oxidation and cellulose: a versatile tool for surface modification and biomaterial elaboration

3WC-P34
Qiang Liu and Hiroshi Ohi
University of Tsukuba, Japan
Behavior of residual lignin during peroxymonosulfuric acid treatment of kraft pulp (Part 2)
Session 4: Composite Materials and Adhesion (17:10-18:40, March 16)

4CA-P01
Shuang QIAN, Xin Dai and Hao Ren
Nanjing Forestry University, China
Properties of Polyhydroxybutyrate-Bamboo(*Sinocalamus affinis*) Lignophenol Biocomposite Films

4CA-P02
Xin Dai, Shuang Qian and Hao Ren
Nanjing Forestry University, China
Characterization and Application of Bamboo (*Sinocalamus affinis*) Lignophenols in Lignophenols-Pulp Sheet Composites

4CA-P03
Byung-Dae Park, Jiung Yang, Sang-Min Lee and Sang-Bum Park
Kyungpook National University, Republic of Korea
Modification of Urea-Formaldehyde Resin Adhesives with Blocked Polymeric MDI Resin for Wood-Based Composites

4CA-P04
Quanling Yang, Zhuqun Shi, Zidong Qi, Tsuguyuki Saito and Akira Isogai
University of Tokyo, Japan
Strongly luminescent nanocomposites prepared from TEMPO-oxidized cellulose nanofibrils and quantum dots

4CA-P05
Michiko Shimizu, Tsuguyuki Saito, Hayaka Fukuzumi and Akira Isogai
University of Tokyo, Japan
Material properties of surface-charged nanocellulose films with various counterions

4CA-P06
Shunsuke Fukui, Tsuguyuki Saito, Toru Noguchi and Akira Isogai
University of Tokyo, Japan
Nanostructural controls and properties of elastomer composites reinforced with TOCNs.

4CA-P07
Xin Guan
Fujian Agriculture and Forestry University, China
A Study on the Correlativity of Carbon Reservation and Properties of Medium Density Fiberboard during the Preparation of Wood Fiber with Laccase-mediator System
4CA-P08
Hiroto Soeta, Shuji Fujisawa, Tsuguyuki Saito and Akira Isogai
*University of Tokyo, Japan*
Transparent and Strong Nanocellulose-Reinforced Cellulose Triacetate Composites

4CA-P09
Yasuji Kurimoto and Sakae Shibutani
*Akita Prefectural University, Japan*
Introduction of carboxyl groups onto rice husk by mechano-chemical method for ammonia sorbent

4CA-P10
Shuoye Chen and Eiichi Obataya
*University of Tsukuba, Japan*
Potential of compressed wood as a material for erhu soundbox

4CA-P11
Norihisa Kusumoto and Yasuji Kurimoto
*Akita Prefectural University, Japan*
Mechanochemical acetylation of wood meal and mechanical properties of the composites

4CA-P12
Saji Kaoru, Togawa Eiji, Hashida Koh, Kubo Satoshi, Tanaka Ryohei and Sato Masatoshi
*University of Tokyo, Japan*
Preparation and characterization of lignocellulose films prepared by alkaline glycerol pulps of oil palm trunk

4CA-P13
Motoi Yokokawa, Hisashi Miyafuji, Yusaku Murakami, Shinichi Shouho and Akio Yamaguchi
*Kyoto Prefectural University, Japan*
Enhanced fire-resistance of wood treated with various ionic liquids

4CA-P14
Hao Ren, Xin Dai, Shuang Qian, Yongcan Jin and Shigetoshi Omori
*Nanjing Forestry University, China*
Production and Evaluation of Pulp Fibers Reinforced Composites

4CA-P15
Masahiko Kobayashi, Satoshi Kubo, Yutaka Kataoka Kataoka, Atsuko Ishikawa Ishikawa, Masahiro Matsunaga Matsunaga, Makoto Kiguchi Kiguchi and Yushin Ohtomo Ohtomo
*Forestry and Forest Products Research Institute, Japan*
Quantification of wood and plastics in WPCs containing a mixture of PP and PE as plastic raw material
4CA-P16
Ryosuke Kobe and Yoshikuni Teramoto
Gifu University, Japan
Fabrication of nanocomposite hydrogels using surface-modified cellulose nanofiber as an effective cross-linker

4CA-P17
Takeshi Ohuchi and Yoshiyasu Fujimoto
Fukuoka University of Education, Japan
Evaluation of adhesive layer of glulam by Acoustic Emission

4CA-P18
Shingo Yokota, Shiro Sakoda and Tetsuo Kondo
Kyushu University, Japan
Interfacial molecular design of nematic ordered cellulose templates for epitaxial nanodeposition

4CA-P19
Makoto Matsumoto and Takuya Kitaoka
Kyushu University, Japan
Wood Cellulose Nanofiber Films Containing Metal-Organic Frameworks for Selective Gas Separation

4CA-P20
Nathalie Lavoine, Julien Bras, Tsuguyuki Saito and Akira Isogai
University of Tokyo, Japan
TOCN/PNIPAm, a new composite material for controlled drug delivery

4CA-P21
Zhao Mengchen, Takeuchi Miyuki, Shimizu Michiko, Saito Tsuguyuki and Isogai Akira
University of Tokyo, Japan
Influences of the fibril arrangement on material properties of nanocellulose structures

4CA-P22
Zhigang Ling, Narohito Hori, Tadahisa Iwata and Aki Takemura
University of Tokyo, Japan
In-situ Analysis of Chemical Structure of API Adhesive using FT-NIR Spectroscopy

4CA-P23
Ya-Wen Cheng, Chih-Hsuan Lee and Te-Hsin Yang
National Chung Hsing University, Taiwan
Effects of heat treatment on the physical and mechanical performance of bamboo composites

4CA-P24
Ju Zhou, Hongtuo Tong, Congcong Wang, Yanwen Huang, Xinglai Mao, Yan Wu and Jun Qian
Zhejiang Agricultural and Forestry University, China
Study on process scheme of flat-pressuring of hollow particleboard
4CA-P25
Shuji Fujisawa, Tsuguyuki Saito, Tadahisa Iwata and Akira Isogai
Forestry and Forest Products Research Institute, Japan
Nucleating ability of poly (ethylene glycol)-grafted nanocellulose for poly(L-lactide)

4CA-P26
Lilik Astari and Sasa Sofyan Munawar
Research Centre for Biomaterials, Indonesia
Production of Wood Plastic Composites from Oil Palm Empty Fruit Bunches Fiber and Recycled Polypropelene

4CA-P27
Min Lee, Sang-Bum Park and Sung-Phil Mun
Korea Forest Research Institute, Republic of Korea
One-step preparation of TiO2 embedded carbonized medium density fiberboard

4CA-P28
Lingfei MA, Jialu HUA, Jia MEI and Lingyan WANG
Zhejiang Agricultural and Forestry University, China
Effect of additives on the hydration and flexural and compressive strength of Poplar powder and Magnesium Oxychloride Cement mixture

4CA-P29
Weibing Wu and Zhiliang Zhuang
Nanjing Forestry University, China
Temperature-Sensitive and Fluorescent Poly(N-Isopropylacrylamide) Grafted Cellulose Nanocrystals For Drug Loading and Releasing

4CA-P30
Chul Choi, Chang-goo Lee and Seog-goo Kang
Republic of Korea
A Study on Mechanical Properties of Hybrid Wooden-core Laminated Timber (HWLT) with Plywood core made of Domestic-Wood Veneer

4CA-P31
Atsushi Akahori, Kenjiro Fujinami, Masayuki Watanabe and Satoshi Sakuragawa
Industrial Research Institute of Shizuoka Prefecture, Japan
An evaluation of the incombustible performance with infusion to the wood of the Phosphorus and Boric Types solution using the sap flow method.

4CA-P32
Teng-Chun Yang, Tung-Lin Wu, Ke-Chang Hung and Jyh-Horng Wu
National Chung Hsing University, Taiwan
Dynamic viscoelastic and extended creep behavior of bamboo fiber-recycled poly(lactic acid) composites using time-temperature superposition principle (TTSP)
4CA-P33
Angelo Rita and Luigi Todaro
University of Basilicata, Italy
Bonding performance of Thermo-treated wood: comparisons Among Norway Spruce, Common Ash, and Turkey Oak
Session 5: Cell Formation and Wood Structures
(13:00-14:30, March 16)

5FS-P01
Yoshihiro Hosoo, Masashi Hirano and Hirokazu Nishiwaki
Shinshu University, Japan
Molecular cloning and analysis of genes encoding potassium uptake transporters from Liriodendron tulipifera

5FS-P02
Ryunosuke Funahashi, Yusuke Okita, Hiromasa Hondo, Tsuguyuki Saito and Akira Isogai
University of Tokyo, Japan
Structural Analysis of Cellulose Microfibrils via Layer-by-Layer Peeling of the Surface Molecules

5FS-P03
Takuro Ichikawa, Futoshi Ishiguri, Kazuya Iizuka and Shinso Yokota
Utsunomiya University, Japan
Identification of specific proteins produced in each organ of Japanese birch plantlet treated with azelaic acid

5FS-P04
Jose Tarcisio Lima, Paulo Ricardo Gherardi Hein, Selma Lopes Goulart, Lidiane Costa Lima and Natalino Calegario
Federal University of Lavras, Brazil
Modelling microfibril angle of Eucalyptus wood by NIRS

5FS-P05
Yukiko Ishikura
Local Independent Administrative Agency Hokkaido Research Organization Forest Research Department Forest Products Research Institute, Japan
Cell wall structures and mechanical properties of juvenile and mature wood in softwood

5FS-P06
Daichi Yamashita, Masahisa Wada and Keiji Takabe
Kyoto University, Japan
Improvement of Mäule color reaction provides more detailed information on syringyl lignin distribution within cell wall in hardwoods

5FS-P07
Shijing Sun, Yoshiki Horikawa, Junji Sugiyama and Tomoya Imai
Kyoto University, Japan
Function analysis of cellulose synthase by site-directed mutagenesis
5FS-P08
Hisaya Miyashita and James Ndufa
Forestry and Forest Products Research Institute, Japan
Variation of wood density in the plus tree clones of *Melia volkensii* selected from drylands of Kenya

5FS-P09
Nellie Oduuor and Hisaya Miyashita
Forestry and Forest Products Research Institute, Japan
Basic density in *Melia volkensii*

5FS-P10
Dagula Nuoen, Yukiko Tsuji, Shinya Kajita, Naofumi Kamimura and Eiji Masai
Tokyo University of Agriculture and Technology, Japan
Functional characterization of a gene for phenylcoumaran benzylic ether reductase in *Arabidopsis thaliana*

5FS-P11 Kentaro Abe
Kyoto University, Japan
Cellulose microfibril-based scaffold for artificial lignification

5FS-P12
Haruna Aiso, Futoshi Ishiguri, Kazuya Iizuka, Junko Shimizu, Jyunichi Ohshima and Shinso Yokota
Tokyo University of Agriculture and Technology, Japan
Reaction wood anatomy and lignin distribution in a vessel-less angiosperm *Tetracentron sinense*

5FS-P13
Kayo Kudo, Eri Nabeshima, Shahanara Begum, Yusuke Yamagishi, Satoshi Nakaba, Koh Yasue, Yuichiro Oribe and Ryo Funada
Tokyo University of Agriculture and Technology, Japan
The effects of localized heating to dormant stems on formation of the earlywood vessels in deciduous ring-porous hardwood, *Quercus serrata*

5FS-P14
Manami Takeuchi and Yuji Tsutsumi
Kyushu University, Japan
Screening of monolignol transport protein in *Arabidopsis thaliana*

5FS-P15
Izumi Arakawa, Hikaru Morimoto, Ryogo Nakada, Ryo Funada and Satoshi Nakaba
Tokyo University of Agriculture and Technology, Japan
Morphological changes and disappearance of nuclei in ray parenchyma cells during heartwood formation in *Cryptomeria japonica*
5FS-P16
Bei Luo, Monlin Kuo and Rui He
Southwest Forestry University, China
Cell Wall Formation in Developing Tracheids of China Fir (Cunninghamia lanceolata) Seedlings

5FS-P17
Shinya Koga, Yuta Imamura, Yasuhiro Utsumi, Takuo Hishi, Tsutomu Enoki and Naoaki Tashiro
Kyushu University, Japan
Growth and wood properties of Japanese larch planted in two different regions of Japan

5FS-P18
Suguru Wada, Koki Fujita and Yuji Tsutsumi
Kyushu University, Japan
Analysis of lignin structural changes within a growth ring of Populus alba xylem using Laser micro dissection and Py-GC-M

5FS-P19
Hiromi SHIBUI and Yuzou SANO
Hokkaido University, Japan
The structure and formation of outer bark of Betula species

5FS-P20
Yudong Shen, Tomoaki Ichie, Muraoka Hiroyuki, Saitoh Taku and Koh Yasue
Shinshu University, Japan
Climate responses of tree-ring width and densities of Japanese beech (Fagus crenata) growing in various growth conditions in Japan

5FS-P21
Yu Hirano, Taku M. Saitoh, Hiroyuki Muraoka and Koh Yasue
Shinshu University, Japan
Influence of climatic factors on an annual tree ring structures of Cryptomeria japonica.

5FS-P22
Satoshi Kimura, Tatsuki Kaneko and Masahisa Wada
University of Tokyo, Japan
Molecular directionality in crystalline polysaccharides

5FS-P23
Shinjiro Ogita, Taiji Nomura and Yasuo Kato
Toyama Prefectural University, Japan
Morphological and histochemical characteristics of thick-walled solid culms in Bambusa bamboo
5FS-P24
Kazuya Iizuka, Jyunichi Ohshima, Futoshi Isiguri, Minaaki Aizawa, Tatsuhiro Ohkubo and Shinso Yokota

_Utsunomiya University, Japan_

Relationship between radioactive cesium concentration and color of heartwood in sugi (Cryptomeria japonica D. Don) affected by fallout due to the Fukushima Dai-ichi nuclear power plant accident

5FS-P25
Jyunichi Ohshima, Kazuya Iizuka, Futoshi Ishiguri, Shinso Yokota and Toshihiro Ona

_Utsunomiya University, Japan_

Relationship between various extracted basic densities and cell morphology in Eucalyptus

5FS-P26
Mingzhu Pan, Hailan Lian and Xiaoyan Zhou

_Nanjing Forestry University, China_

The ultrastructure of rice straw in the process of ionic liquid treatment

5FS-P27
Miyuki Takeuchi, Mariko Norisada and Akira Isogai

_University of Tokyo, Japan_

Isotopic imaging of carbon accumulation during xylem cell wall formation using 13CO2 pulse labeling

5FS-P28
Yoko Watanabe and Yasuyuki Ohno

_Hokkaido University, Japan_

The effect of insect defoliation on wood structure of deciduous tree species in cool-temperate forests

5FS-P29
Kang Han Wang, Mohd Zaki Hamzah, Mohd Nazre Saleh@Japri, Rasmina Halis and Amir Affan Abdul Azim

_Universiti Putra Malaysia, Malaysia_

Cambial activity of Shorea acuminata in relation to different stem diameters growing in tropical rainforest of west peninsular Malaysia

5FS-P30
Nguyen Viet Hoa Hoang and Keiji TAKABE

_Kyoto University, Japan_

The differences in anatomical structure between Japanese and Vietnamese Moso bamboo (Phyllostachys heterocycla f. pubecens (Mazel) Muroi) and Vietnamese Dendrocalamus barbatus Hsueh et D. Z. Li

5FS-P31
Youming Yu, Wen Cao and Zhiqiang Dong

_Zhejiang Agricultural and Forestry University, China_

The studies of Anatomical structure and fiber morphology of Betula luminifera tension wood
5FS-P32
Naoki Sunagawa, Kenji Tajima, Masahiro Samejima and Kiyohiko Igarashi
University of Tokyo, Japan
Functional expression of bacterial cellulose synthase in yeast

5FS-P33
Yuko Yasuda, Yasuhiro Utsumi, Shinya Koga and Naoaki Tashiro
Kyushu University, Japan
Effects of relative light intensity to the secondary xylem formation in *Abies sachalinensis*

5FS-P34
Tuula Jyske, Katsushi Kuroda, Dan Aoki, Andrey Pranovich, Bjarne Holmbom, Jussi-Petteri Suuronen, Hisashi Abe, Ugai Watanabe and Kazuhiko Fukushima
Finnish Forest Research Institute, Finland
Phloem structure and stilbene chemistry in *Picea abies* as revealed by novel microtechniques
Session 6: Biodegradation and Preservation of Wood  
(17:10-18:40, March 16) 

6BP-P01  
Hiroshi Kurisaki, Yoshihisa Fujii, Yosiyuki Yanase, Hidemaru Shimidzu, Satoko Nishikawa, Hitomi Nakano and Mami Segawa  
*Toyama Prefectural Agricultural, Forestry and Fisheries Research Center, Japan*  
Analysis of copper contents at the surface of wood post with copper metal fitting in Kyoto Sanjo-ohashi  

6BP-P02  
Ryuta Kido, Midori Takeeda, Mitsuhiro Manabe, Yutaka Miyagawa, Tatsuhiro Katashiba, Mitsuyasu Yamauchi, Shuji Itakura and Hiromi Tanaka  
*Kinki University, Japan*  
Extracellular NAD+ and NADH by white-rot, brown-rot, and soft-rot fungi  

6BP-P03  
Mariko Takano, Masaya Nakamura and Muneyoshi Yamaguchi  
*Forestry and Forest products Research Institute, Japan*  
Distribution of manganese peroxidase in liquid culture of *P. crassa* WD1694  

6BP-P04  
Mariko Takano, Masaya Nakamura and Muneyoshi Yamaguchi  
*Forestry and Forest Products Research Institute, Japan*  
Effect of pH and concentration on glyoxal oxidase activity of *P. crassa* WD1694  

6BP-P05  
Naotake Konno, Ayumi Obara and Yuichi Sakamoto  
*Utsunomiya University, Japan*  
β-N-acetylhexosaminidases involved in morphological changes of the *Lentinula edodes* fruiting body (shiitake mushroom)  

6BP-P06  
Yutaka Kataoka, Hiroshi Matsunaga, Atsuko Ishikawa, Sumire Kawamoto, Masahiro Matsunaga, Masahiko Kobayashi and Makoto Kiguchi  
*Forestry and Forest Products Research Institute, Japan*  
Measurement of penetration of wood preservative semi-transparent coatings into wood  

6BP-P07  
Atsuko Ishikawa, Yutaka Kataoka, Sumire Kawamoto, Masahiro Matsunaga, Masahiko Kobayashi and Makoto Kiguchi  
*Forestry and Forest Products Research Institute, Japan*  
Natural and accelerated weathering characteristics of wood finished with wood preservative semi-transparent coatings
6BP-P08
Juan Tao, Takao Kishimoto, Masahiro Hamada and Noriyuki Nakajima
Toyama Prefectural University, Japan
Enzymatic hydrolysis of cellulose in amino acid ionic liquid with co-solvent

6BP-P09
Shinichi Isaji
Hokkaido Research Organization Forest Products Research Institute, Japan
Weathering resistance of a semitransparent stain on copper monoethanolamine treated wood.

6BP-P10
Kenichi Ebe, Yoshiyuki Takahashi, Rumi Konuma and Noboru Sekino
Yamagata Research Institute of Technology, Japan
Surface deterioration and microbial contamination of wood plastic composites under outdoor exposure

6BP-P11
Takeshi Nishimura, Nobuaki Shirai and Takashi Watanabe
Forestry and Forest Products Research Institute, Japan
Chemiluminescence from decayed wood blocks by Japanese representative wood-rotting fungi

6BP-P12
Wakako Ohmura, Masaru Hojo, Yutaka Kataoka and Makoto Kiguchi
Forestry and Forest Products Research Institute, Japan
Morphological change in compound eyes and opsin gene expression from nymphs to alates in the termite, Zootermopsis nevadensis (Hagen)

6BP-P13
Kazuhiro Shiba, Masuo Hasegawa, Hiroshi Kurisaki and Makoto Nakata
Toyama Prefectural Forest Products Research Laboratory, Japan
Study on relationships between durability of wooden structures and growth of planted trees in afforestation

6BP-P14
Kohei Kambara, Genki Mihara and Yoko Takematsu
Forestry and forest products research institute, Japan
Differences of feeding and foraging activities of Japanese Reticulitermes termites

6BP-P15
Tereza Tribulova, Frantisek Kacik, Vladimir Vacek, Dmitry Evtuguin and Iveta Cabalova
Technical University in Zvolen, Slovakia
Depolymerization of modified cellulose by inorganic salts evaluated by size exclusion chromatography
6BP-P16
Tereza Tribulova, Frantisek Kacik, Dmitry Evtuguin and Iveta Cabalova
Technical University in Zvolen, Slovakia
Effect of fire retardant treatment on wood chemical components

6BP-P17
Sen-Sung Cheng, Chun-Ya Lin and Shang-Tzen Chang
National Taiwan University, Taiwan
Antitermitic Activity of Chemical Constituents from Zelkova serrata Essential Oils against Coptotermes formosanus

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Xinjie Cui and Jian Qiu
Southwest Forestry University, China
Identification of wooden piles from the site of Hai Menkou

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Wei-Cheng Chao, Te-Hsin Yang and Chia-Ju Lee
National Chung-Hsing University, Taiwan
Evaluation of decay and termite resistance of thermosetting resin impregnated southern pine (Pinus spp.) wood

6BP-P20
Toshikazu Irie, Chihana Toyokawa, Misaki Shobu, Rie Tsukamoto, Saki Okamura, Yoichi Honda, Hisatoshi Kamitsuji, Kousuke Izumitsu and Kazumi Suzuki
University of Shiga Prefecture, Japan
Overexpression of PKAc genes enhanced lignin degradation in the white-rot fungus Pleurotus ostreatus

6BP-P21
Yun-chih Chen and Te-Hsin Yang
National Chung-Hsing University, Taiwan
Weathering durability of ACQ preservatives treated Japanese cedar wood

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Chia-Wei Chang and Kun-Tsung Lu
National Chung Hsing University, Taiwan
Ultraviolet curable waterborne wood coatings from derivative of castor oil

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Yoshiaki Tamaru, Kiwamu Umezawa and Makoto Yoshida
Tokyo University of Agriculture and Technology, Japan
Cloning and Characterization of Auxiliary Activities Family 3 Enzymes from the Basidiomycete Coprinopsis cinerea
6BP-P24
Mikako Tachioka, Naohisa Sugimoto, Akihiko Nakamura, Takuya Ishida, Taku Uchiyama, Kiyohiko Igarashi and Masahiro Samejima
University of Tokyo, Japan
Effects of manganese ions and plasmid concentration in Phi29 polymerase-based random mutagenesis

6BP-P25
Yuka Kojima, Takuya Ishida, Naoki Sunagawa, Kiyohiko Igarashi, Masahiro Samejima, Kiwamu Umezawa, Jody Jellison, Barry Goodell and Makoto Yoshida
Tokyo University of Agriculture and Technology, Japan
Characterization of the Auxiliary Activities Family 9 from the Brown Rot Fungus
Gloeophyllum trabeum
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7BR-P01
Zhigao Liu, Qiuhui Zhang and Guangjie Zhao
Beijing Forestry University, China
XPS analysis of carbon fiber precursor from liquefied wood under different curing conditions

7BR-P02
Toru Kanbayashi and Hisashi Miyafuji
Kyoto Prefectural University, Japan
Effect of wood liquefaction on cell wall structure and chemical component during ionic liquid treatment

7BR-P03
Teruaki Yokoo and Hisashi Miyafuji
Kyoto Prefectural University, Japan
Liquefaction behavior of wood in an ionic liquid, 1-ethylpyridinium bromide

7BR-P04
Ayako Miyata and Hisashi Miyafuji
Kyoto Prefectural University, Japan
Reaction of cellulose as treated with pyridinium-based ionic liquids

7BR-P05
Shintaro Ogawa and Hisashi Miyafuji
Kyoto Prefectural University, Japan
Reaction behavior of milled wood lignin in an ionic liquid under different heating method

7BR-P06
Masanobu Nojiri, Tomoko Shimokawa and Hajime Shibuya
Forestry and Forest Products Research Institute, Japan
Production of cellobiase from Aspergillus niger using saccharified residue of pulp

7BR-P07
Ryoya Ito and Hisashi Miyafuji
Kyoto Prefectural University, Japan
Production of 5-hydroxymethylfurfural (5-HMF) from glucose, cellulose and wood by ionic liquid treatment

7BR-P08
Yu Nakahara, Eiji Minami, Haruo Kawamoto and Shiro Saka
Kyoto University, Japan
MALDI-TOF/MS analysis of decomposition behaviors of hemicelluloses in Japanese beech and Japanese cedar as treated by hot-compressed water
7BR-P09
Asuka Fukutome, Haruo Kawamoto and Shiro Saka
*Kyoto University, Japan*
Gas- and liquid-phase reactions of levoglucosan as a key intermediate of cellulose gasification

7BR-P10
Yoshiki Horikawa, Tomoya Imai and Junji Sugiyama
*Kyoto University, Japan*
Longitudinal suprastructure of cellulose microfibril in green algae

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Harifara Rabemanolontsoa and Shiro Saka
*Kyoto University, Japan*
Chemical characteristics of biomass species to determine their potential for biorefinery

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Caoxing Huang, Juan He, Douyong Min, Yongcan Jin and Qiang Yong
*Nanjing Forestry University, China*
Effects of kraft pulping with cooking additives on the enzymatic hydrolysis of Moso bamboo residues

7BR-P13
Thi Thi Nge, Eri Takata, Shiho Takahashi and Tatsuhiko Yamada
*Forestry and Forest Products Research Institute, Japan*
Preparation of polyethylene glycol modified softwood lignin derivatives and their thermal characterization

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Shou Hiasa, Shinichiro Iwamoto, Takashi Endo and Yusuke Edashige
*Ehime University, Japan*
Reinforcement of polypropylene by nanofibers obtained from mandarin peel waste

7BR-P15
Gabriela Tami Nakashima, Mariana Provedel Martins, Hiroyuki Yamamoto, Caio Salmeron Boschi and Fabio Minoru Yamaji
*Universidade Federal de São Carlos, Brazil*
Use of sugarcane straw for energy purposes

7BR-P16
Walbert Chrisostomo, Fabio Yamaji, Hiroyuki Yamamoto and Antonio Carvalho
*Federal University of São Carlos, Brazil*
Effect temperature of densification on the binding mechanisms of wood sawdust

7BR-P17
Luís Ricardo Oliveira Santos, Gabriela Tami Nakashima, Walbert Chrisostomo and Fabio Minoru Yamaji
*UFSCAR, Brazil*
Analysis of Energy Efficiency of Biomass used in Ceramic Ovens Region Tatui-SP.
Eri Takata, Tatsushi Tsuruoka, Ken Tsutsumi, Yuji Tsutsumi and Kenji Tabata
*Kyushu University, Japan*
Conversion of lignocellulosic xylan into tetrahydrofurfuryl alcohol and xylitol by two step treatments: a hydrothermal process with phosphorus oxoacids followed by aqueous phase hydrogenation

Wenyuan Zhu, Bo Jiang and Yongcan Jin
*Nanjing Forestry University, China*
Sulfite pretreatment to overcome recalcitrance of lignocellulose (SPORL) for robust enzymatic saccharification of cotton stalk

Zhu Yang-yang, Jin Er-suo, Yang Fang and Song Jun-long
*Nanjing Forestry University, China*
Effects of reaction conditions on the molecular weight of amphoteric polyacrylamide studied by orthogonal test

Lingling Zhang, Shufang Wu, Houmin Chang and Roberta Farrell
*Nanjing Forestry University, China*
Characterization of *P. kloeckeri* mannanse and its impact on sugar conversion in enzymatic hydrolysis of *Pinus massoniana*

Tatsuya Goto, Daisuke Ishii, Akio Takemura and Tadahisa Iwata
*University of Tokyo, Japan*
Preparation and characterization of poly(ester-amide)s of ferulic acid and aliphatic amino acids

Saki Okumura, Taizo Kabe, Daisuke Ishii, Takaaki Hikima, Masaki Takata, Akio Takemura and Tadahisa Iwata
*University of Tokyo, Japan*
Synthesis, Thermal Properties and Structure Analysis of Curdlan Acetate Propionate

Nobuko Takeda, Yukiko Enomoto-Rogers, Akio Takemura and Tadahisa Iwata
*University of Tokyo, Japan*
Synthesis and Enzymatic Degradation of Regioselectively Substituted Cellulose Acетates

Takahiro Danjo, Yukiko Enomoto-Rogers, Akio Takemura and Tadahisa Iwata
*University of Tokyo, Japan*
Syntheses of chitosan acylates and their properties
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Yuxin Wu, Yukiko Enomoto-Rogers, Hisaharu Masaki and Tadahisa Iwata
University of Tokyo, Japan
Synthesis of polyamides and polyesters from glucaric acid

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Hiroyuki Kagawa, Yoshiaki Okabe, Chizuru Sasaki and Yoshitoshi Nakamura
Hitachi, Ltd., Japan
Epoxy resin and its hardener obtained from woody lignin obtained by steam explosion

7BR-P28
Atsushi Kaiho, Makiko Kogo, Ryo Sakai, Kaori Saito and Takashi Watanabe
Nippon Kayaku Co., Ltd, Japan
Acid-catalyzed depolymerization of lignin controlled by in situ trapping of enol intermediates with alcohol in water-immiscible solvent

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Ana Larissa Hansted, Mariana P. Martins, Leandro C. Morais, Hiroyuki Yamamoto and Fabio M. Yamaji
UFSCar, Brazil
Piptadenia gonoachanta biomass characterization for bioenergy

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Takashi Nogita, Hirofumi Ichinose and Takuya Kitaoka
Kyushu University, Japan
Cooperative enzymatic reaction by cellulosome-mimetic complex on cellulose paper

7BR-P31
Noriko Hayashi, Tomoko Shimokawa, Tsutomu Ikeda and Kengo Magara
Forestry and Forest Products Research Institute, Japan
Effect of hemicelluloses in bamboo nano-fiber produced by mechanical processing in the presence of endoglucanase

7BR-P32
Marina Alekhina, Andreas Ebert, Sami Heikkinen and Sixta Herbert
Aalto University, Finland
Effect of hydrothermolysis process conditions on the structural features of pine lignin

7BR-P33
Sakarin Puanglek, Satoshi Kimura, Yukiko Enomoto-Rogers, Taizo Kabe, Makoto Yoshida, Masahisa Wada and Tadahisa Iwata
University of Tokyo, Japan
Preparation of α-1,3-glucan by in vitro enzyme-catalyzed polymerization and chemical modification to its ester derivatives
Primary and secondary reactions of lignin pyrolysis

3-nm-thick Lignocellulose Nanofibers Obtained from Esterified Wood with Maleic Anhydride

The production of carbon fibers from lignosulfonate without chemical process

Willow inner bark characterization: towards a new biorefinery concept

Heterologous expression of cytochrome P450 from wood-rotting basidiomycetes in Escherichia coli

Proline-mediated Organocatalysis on Wood Cellulose Nanofibers

Preparation of butyl levulinate by a single solvolysis process of cellulosic biomass

Preparation of Carbon Nano-Particles from Biomass Carbons Using Aqueous Counter Collision Treatments

Properties of Japanese cedar bio-oil produced at various pyrolysis temperatures
7BR-P43
Ryota Kose, Kouki Yamaguchi and Takayuki Okayama
Tokyo University of Agriculture and Technology, Japan
Physical properties and structure of paper with fine cellulose fibers including nanofibers

7BR-P44
Hajime Shibuya, Kengo Magara and Masanobu Nojiri
Forestry and Forest Products Research Institute, Japan
Cellulase production by Trichoderma reesei in fed-batch cultivation on pulp

7BR-P45
Olga Ershova, Nicole Wilde, Roger Gläser and Herbert Sixta
Aalto University, Finland
Furfural formation from xylose in solid catalyzed microwave-assisted reactions

7BR-P46
Yasuyo Fujii, Keiji Okada and Risa Minakuchi
Kyotogakuen University, Japan
Properties of biochar of bamboo for carbon fixation

7BR-P47
Su-Ling Liu, Yun-Ting Chen, Jin-Cherng Huang, Ya-Nan Wang, Tsang-Chyi Shiah, Che-Wei Chang and Sun-Wen Juan
National Chiayi University, Taiwan
The Properties of Copper ion Adsorption on Three kinds of Activated Carbon

7BR-P48
Sun-Wen Juan, Jin-Cherng Huang, Ya-Nan Wang, Che-Wei Chang and Su-Ling Liu
National Taiwan University, Taiwan
Adsorption of Chromium Ion on Thorny Bamboo and Cattle Manure Activated Carbon at Different pH

7BR-P49
Wangxia Wang, Michael Mozuch, Ronald Sabo, Phil Kersten, Junyong Zhu and Yongcan Jin
Nanjing Forestry University; USDA, United States
Production of cellulose nanofibril films from bleached eucalyptus fibers by endoglucanase treatment and microfluidization

7BR-P50
Roni Maryana and Hiroshi Ohi
University of Tsukuba, Japan
Effect of S/V lignin ratio on saccharification rate of oil palm trunk pulps obtained by using soda-AQ and AS-AQ delignification
7BR-P51
Khoiria Oktaviani and Hiroshi Ohi
*University of Tsukuba, Japan*
Effect of delignification on enzymatic saccharification of oil palm empty fruit bunch and bioethanol productivity
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