NEW DEADLINE FOR ABSTRACT SUBMISSION JULY 6, 2021

NEXT GENERATION AQUACULTURE
INNOVATION AND SUSTAINABILITY WILL FEED THE WORLD

December 5-8, 2021
Singapore EXPO Convention & Exhibition Centre
and MAX Atria

The Annual International Conference & Exposition of
World Aquaculture Society

Asian Pacific Aquaculture 2020
– Annual Meeting of Asian Pacific Chapter, WAS

Hosted by Singapore Food Agency

Conference Sponsors
Temasek Polytechnic, Nanyang Technological University
National University of Singapore, James Cook University
Republic Polytechnic

3rd International Symposium on Perch and Bass

WAS Premier Sponsors

W A2020 Partner

Associate Sponsors
Aquaculture Engineering Society
International Association of Aquaculture Economics & Management
WorldFish
WORLD AQUACULTURE VISITS SINGAPORE FOR THE FIRST TIME

WORLD AQUACULTURE 2020 will be held in Singapore with involvement from countries throughout the Asian-Pacific region and around the world. Aquaculture is rapidly growing in the Asian-Pacific region and increasingly being integrated into the Singapore food systems; therefore 2020 is the perfect time for the world aquaculture community to focus on Singapore.

A major international trade show at WORLD AQUACULTURE 2020 is the place to learn about the latest aquaculture technologies presented by exhibitors from around the world.

Stay in touch with the program developments for WORLD AQUACULTURE 2020 through our Web Page at: www.was.org

FANTASTIC TOURIST OPPORTUNITIES
Singapore is among the world’s top cities for tourism. A gateway to Asia and beyond, Singapore is a cosmopolitan city and a melting pot of different cultures. Singapore is home to a vibrant arts and entertainment scene, lively dining and drinking spots, various must-see attractions and the famed shopping district, Orchard Road. Singapore is also well known as a Garden City with world-class attractions and skyscrapers set amidst lush greenery. The 150-year-old Singapore Botanic Gardens – Singapore’s first UNESCO World Heritage Site - is located a mere five minutes away from the shopping district.

SPECIAL PRODUCER PROGRAM
World Aquaculture 2020 will have many special Producer Sessions to address Producer’s concerns from around the Asia-Pacific region.
Sessions and workshops at World Aquaculture 2020 will cover all aspects of aquaculture in the Asia-Pacific region as well as the rest of the world. Sample topics will include:

- Abalone
- Algae and macrophytes
- Amphibian and Reptile Aquaculture
- Animal health and Welfare
- Aquaponics and Integrated Aquaculture- Agriculture Systems
- Aquatic veterinary health capacity
- Arid land Aquaculture
- Barramundi, Seabass & Seabream
- Bio-floc Systems
- Biosecurity
- Biototechnology
- Breeding & Genetics
- Cage-culture
- Carpet Shells
- Carps
- Catfish
- Certification and legislation
- Clams (including Giant Clams)
- Climate change, adaptation, resilience
- Cobia
- Coldwater Species - General
- Country Specific Sessions (eg 2008 Norway)
- Crabs & Lobsters
- Crayfish & Freshwater Prawn
- Development, Welfare and Poverty Alleviation (AwF)
- Diseases
- Drugs and Chemotherapeutics
- Economics & Management
- Ecosystems approach
- Education, Extension, Technology Transfer & Workforce Development (AquaEd)
- Eels
- Embryology
- Emerging Issues
- Emerging Species
- Enhancement, Stocking & Ranching
- Environment and Biodiversity and Climate Change
- Energy-alternative sources and conservation
- Engineering
- Financing and investment
- Finfish Broodstock Maturation
- Fish Health
- Fish Meal and Oil (IFFO)
- Flattfish
- Food Safety, Inspections and Audits
- Food security
- Freshwater Species - General
- General Aquaculture
- Grouper & Snapper
- Hatchery & Larvae Management
- Hatchery and Nursery
- Immunology
- Information Technology in Aquaculture
- Innovation and High Techs
- Integrated Multi-trophic Aquaculture
- Investment in Aquaculture
- Korean Aquaculture Session
- Marketing & Trade
- Milkfish
- Mollusc Broodstock and Hatchery
- Mollusc Cultivation
- Mussels
- Nutrition & Feed
- Ocean acidification
- Octopus and Cuttlefish
- Offshore Aquaculture
- Omics tools for Aquaculture
- Organic Aquaculture
- Ornaments
- Other Marine Fish
- Oyster
- Pacific & Indigenous Aquaculture
- Pangasius, Clarias & Ictalurus
- Pearl and Queen Conch Culture
- 3rd International Symposium on Perch and Bass
- Physiology, Morphology & Histology
- Plankton Culture
- Policy & Regulations
- Polyculture
- Pond Culture
- Prebiotics and Probiotics
- Processing Technology
- Product Quality
- Production systems
- Raceway Systems
- Recirculating Systems
- Reservoir based and Lake Aquaculture
- Salmonids
- Scallops
- Sea cucumbers
- Sea urchins
- Seafood & Health (GILLS)
- Seaweeds and Algae
- Shrimp Farm Design and Management
- Shrimp Feeding and Nutrition
- Shrimp Genetics, Broodstock and Hatchery Management
- Shrimp pathology and biosecurity
- Snappers
- Socioeconomics
- Spatial Planning, Regulation and Zoning
- Standards & Certification
- Sturgeons
- Sustainable Development of Aquaculture
- Tilapia
- Trade
- Trout
- Tuna
- Urban aquaculture
- Value Chain Development
- Warm water Species – General
- Wastage Utilisation
- Water Quality and Usage
- Women in Aquaculture
- Yellowtails, Amberjacks, etc
- Zebrafish

**YOUR FULL CONFERENCE REGISTRATION INCLUDES:**

- Admission to all sessions, seminars and the trade show.
- Admission to the Receptions.
- Conference bag and Show Directory (except for spouse)
- Refreshment Breaks and Cash Bar Happy Hour
- Students receive the full registration package plus the Student Reception.
- To qualify for the student rate, a copy of your student I.D. is required.
- Only pre-registered attendees are guaranteed materials
CALL FOR PAPERS – DEADLINE: July 6, 2021

WORLD AQUACULTURE 2020 encourages the submission of high quality oral and poster presentations. We strongly encourage authors to consider poster presentations because poster sessions will be an integral part of the program. Papers submitted for “oral presentation only” may not be accepted as oral presentations due to the limited number of available time slots. All abstracts must be in English – the official language of the conference.

Each oral presenter shall be entitled to no more than 15 minutes for a presentation, plus 5 minutes for questions. Authors of studies involving proprietary products or formulations should present this information in workshops or the trade show. Oral presentations should use Power Point. Slides, overhead projectors and video players will not be available or allowed.

All presenters are required to pay their own registration accommodation and travel expenses. WORLD AQUACULTURE 2020 cannot subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed – an Abstract Book will be available online.

INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

Expanded Abstract Format - Please refer to the sample.

1. TITLE OF PAPER: The abstract title is printed in CAPITAL LETTERS, with the exception of scientific names which should be Upper/lower case and italicized (see example). Scientific names should not be preceded or followed by commas or parentheses or other markings.

2. AUTHOR(S): The first name should be the presenting author. Use * after the presenting author. Type in upper/lower case.

3. ADDRESS AND EMAIL: Type only the presenting author’s institution, address and email. Type in upper/lower case.

4. MAXIMUM LENGTH: One Page

5. PAGE SIZE: Standard 8.5 x 11 inch paper (portrait)

6. MARGINS: 1-inch margin throughout (left/right/top/bottom)

7. SPACING: Single spaced

8. PARAGRAPHS: Paragraphs should be separated by a blank line and should not be indented.

9. FONTS: Character fonts should be 12 point type.

10. FIGURES & TABLES: Figures and tables are highly recommended. They should be reduced to the appropriate size for a one page abstract and should be clearly readable at the reduced size. The reduced figures and tables should be included in the abstract in camera-ready form.

Red claw crayfish (Cherax quadricarinatus) are one of more than a hundred species of freshwater crayfish. However, because of its rapid growth rate, ease of spawning, wide range of dissolved oxygen tolerance, and lack of a larval stage, red claw may be the best candidate for a United States. Red claw are only being investigated as an aquaculture species in this country and extensive information exists on their nutritional requirements and practical diet formulations. Many crustaceans require lecithin and cholestrol to be added to their diet, these two nutrients are extremely expensive. Since diet costs can be as much as 50% of the total expenses for an aquaculture enterprise, it is imperative that the least expensive diet formulation for the species. The present study was conducted to determine the least expensive diet formulation for red claw crayfish.

An 8-week feeding trial was conducted in a recirculating system with newly-hatched juvenile red claw (mean individual weight of 0.2 g) red claw, each stock to a plastic mesh culture units. Individual units were kept in fiberglass tanks, each containing 100 liters of water line. Water was recirculated through biological and mechanical filters. Water temperature and alkalinity were measured three times per week. The effects of growth performance of newly-hatched juvenile red claw when fed practical diets with or without cholestrol and lecithin. Other practical diets included menhaden fish meal, soybean meal, shrimp meal, wheat flour, vitamin and mineral mix, pellet binder, corn oil, and corn oil (Table 1).

After 8 weeks, red claw crayfish fed a practical diet without cholesterol (Diet 3) had significantly (P < 0.05) lower final weight, percentage weight gain, and specific growth rate (SGR) compared to crayfish fed all other diets (Table 2). These results indicate that a practical diet containing 2% cod liver oil and 1% corn oil and having no lecithin appears to be sufficient and that lecithin may not be necessary for juvenile red claw diets.

TABLE 1. Formulation of experimental diets fed to red claw crayfish.

<table>
<thead>
<tr>
<th>Diet</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methionine</td>
<td>25.0</td>
<td>25.0</td>
<td>25.0</td>
<td>25.0</td>
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<tr>
<td>Soybean Meal</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Lecithin</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Other</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
<td>35.0</td>
</tr>
</tbody>
</table>

TABLE 2. Final weight, percentage weight gain, specific growth rate (SGR), and percentage survival of red claw crayfish fed four practical diets. Means in a column with different letters were significantly different (P < 0.05).

<table>
<thead>
<tr>
<th>Diet</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final weight (g)</td>
<td>6.35a</td>
<td>6.90a</td>
<td>5.64b</td>
<td>8.49b</td>
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<tr>
<td>Weight gain (%)</td>
<td>3.97a</td>
<td>4.07a</td>
<td>3.24a</td>
<td>3.31a</td>
</tr>
<tr>
<td>SGR (weekly)</td>
<td>17.7b</td>
<td>17.7b</td>
<td>17.7b</td>
<td>17.7b</td>
</tr>
<tr>
<td>Survival (%)</td>
<td>86.0</td>
<td>86.0</td>
<td>86.0</td>
<td>86.0</td>
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</tbody>
</table>

Please submit your abstract online at: www.was.org
### REGISTRATION FEES:
In order to receive the discount rates as listed below, this form and payment must be received by the date listed. See brochure for what is included in registration fees.

<table>
<thead>
<tr>
<th>TYPE OF REGISTRATION</th>
<th>Register by</th>
<th>Register by</th>
<th>Register after</th>
</tr>
</thead>
<tbody>
<tr>
<td>FULL CONFERENCE &amp; TRADE SHOW</td>
<td>October 15, 2021</td>
<td>Nov. 14, 2021</td>
<td>Nov. 14, 2021</td>
</tr>
<tr>
<td>WAS/CHAPTER MEMBER RATE*</td>
<td>US$ 495</td>
<td>US$ 595</td>
<td>US$ 695</td>
</tr>
<tr>
<td>WAS/CHAPTER STUDENT MEMBER RATE*</td>
<td>US$ 295</td>
<td>US$ 295</td>
<td>US$ 350</td>
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<tr>
<td>Non-Member Rate</td>
<td>US$ 590</td>
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<tr>
<td>Student Non-Member Rate</td>
<td>US$ 395</td>
<td>US$ 395</td>
<td>US$ 445</td>
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<tr>
<td>Spouse Rate – must accompany a full registration</td>
<td>US$ 385</td>
<td>US$ 485</td>
<td>US$ 585</td>
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</table>

**TRADE SHOW PASS** (Trade show pass is included with the Full Conference Registration)
Good for 3 days admission to exhibits only – December 6, 7, 8
- **US$ 50** TOTAL TRADE SHOW PASS **US$**

**MEMBERSHIP DUES** – Enter amount from Membership Application on other side if applicable.

<table>
<thead>
<tr>
<th>TOTAL MEMBERSHIP DUES US$</th>
</tr>
</thead>
</table>

Do not mail registration after Nov. 14, 2021 or fax after Nov. 14. After Nov. 14, bring this form with you to register at the show.

**TOTAL AMOUNT US$**

Registration Confirmation and Receipt will be emailed after processing.

CANCELLATION POLICY: Cancellation of registration must be received - in writing - no later than Nov. 1, 2021. Refunds for registration fees will be subject to a 20% handling fee. Refunds are processed after the conference. No refund will be made for cancellations received after Nov. 1, 2021 or for “no shows”. After Nov. 1, 2021, no refunds will be made for professional or personal emergencies, flight cancellations, denied visa, weather related cancellation or other travel emergencies. Fees for memberships are non-refundable.

**PAYMENT METHOD:** All fees must be paid to the order of WORLD AQUACULTURE 2020.

For bank transfer details, contact us.

- [ ] Check #_________________________ [ ] Visa [ ] Mastercard [ ] American Express [ ] Discover [ ] Diners Club
- [ ] Card # ________________________ Expiration Date ________________________________
- [ ] Name on Card ___________________________________________ Date _____________ Signature ________________________________

Credit Card Billing Address ________________________________
ASSOCIATION MEMBERSHIPS: Please check all boxes for associations for which you are a current member. Membership in any of those associations qualifies you for the Member Rate* on the Registration Fees. You can join an association at any time before registering to qualify for the Member Rate.

MEMBERSHIPS:  ❑ WAS  ❑ USAS  ❑ APC  ❑ Korean  ❑ LACC  ❑ African Chapter

AFFILIATE MEMBERSHIPS:
❑ Aquabio
❑ Aquaculture Association of Canada
❑ Aquaculture Association of South Africa
❑ Aquaculture Without Frontiers
❑ Asian Fisheries Society
❑ China Society of Fisheries
❑ Egyptian Aquaculture Society
❑ European Aquaculture Society
❑ Global Aquaculture Alliance
❑ IAFI The International Association of Seafood Professionals
❑ Indonesian Aquaculture Society
❑ Korean Aquaculture Society
❑ Korean Society of Fisheries and Sciences (KOSFAS)
❑ Malaysian Fisheries Society
❑ Sociedad Brasileira de Acuicultura
❑ Society of Aquaculture Professionals (India)
❑ South African Aquaculture Society
❑ Spanish Aquaculture Association (SEA)

MEMBERSHIP APPLICATIONS  ❑ NEW APPLICATION  ❑ RENEWAL

WORLD AQUACULTURE SOCIETY (WAS) APPLICATION  www.was.org
For details on the different types of memberships and options, please contact the WAS home office at
Tel: +1-225-578-3137  Fax: +1-225-578-3493  Email: judya@was.org

MEMBERSHIP CATEGORY: (Indicate only one)
❑ Individual (Electronic JWAS) (USD 65/yr) Applies to an individual only
❑ Individual (Printed JWAS) (USD 110/yr) Applies to an individual only
❑ Individual (E Access) (USD 45/yr) Applies to an individual only
❑ Student (Electronic JWAS) (USD 45/yr) (Copy of Student ID or Signature of Professor required)
❑ Student (Printed JWAS) (USD 90/yr) (Copy of Student ID or Signature of Professor required)
❑ Sustaining (Electronic JWAS) (USD 105/yr) Applies to any one individual from a company
❑ Sustaining (Printed JWAS) (USD 150/yr) Applies to any one individual from a company
❑ Corporate (Electronic JWAS) (USD 255/yr) Allows all employees of one company to attend meeting at Member Rate
❑ Corporate (Printed JWAS) (USD 300/yr) Allows all employees of one company to attend meeting at Member Rate
❑ Lifetime (Electronic JWAS only) (USD 1000 with no chapter) Applies to an individual only

CHAPTER OPTIONS:
One chapter included in membership. Mark the chapter you choose.
❑ Africa
❑ Asian Pacific
❑ Korea
❑ Latin American/Carribean
❑ United States (USAS)
❑ None (deduct USD 5)
You can add extra Chapters for USD 5

Total Amount for WAS Membership  USD__________

Fees for memberships are non-refundable.

For membership in other associations, please contact them directly.
If you need a phone number, contact the Conference Manager (+1-760-751-5005).
MANY OPPORTUNITIES FOR FARM TOURS

Some very special tours will be arranged. Details to be provided later – check our website for updates.

HOTELS

We have arranged a wide range of quality accommodations at special rates. Please check the website for hotel details.

<table>
<thead>
<tr>
<th>TRADE SHOW SCHEDULE</th>
<th>DEC. 6</th>
<th>DEC. 7</th>
<th>DEC. 8</th>
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<tr>
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<td>10:00 - 19:00</td>
<td>10:00 - 19:00</td>
<td>10:00 - 17:40</td>
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<tr>
<td>Day</td>
<td>Time</td>
<td>Activity</td>
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<tr>
<td><strong>Sunday, Dec. 5</strong></td>
<td>Noon – 18:00</td>
<td>Registration Open</td>
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<td></td>
<td>Noon – 18:00</td>
<td>Exhibitor Move-in</td>
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<td></td>
<td>13:00 – 17:30</td>
<td>Poster Set-up</td>
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<td></td>
<td>17:00 – 19:00</td>
<td>Welcome drink</td>
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<td><strong>Monday, Dec. 6</strong></td>
<td>7:30 – 17:00</td>
<td>Registration Open</td>
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<td>9:00 – 9:15</td>
<td>Welcome and award</td>
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<td>9:15 – 9:45</td>
<td>Keynote Speech by GOH</td>
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<td>9:45 – 10:15</td>
<td>Plenary</td>
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<td>10:15 – 10:45</td>
<td>Opening ceremony</td>
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<td>8:00 – 10:00</td>
<td>Exhibitor Move-in</td>
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<td>8:00 – 10:00</td>
<td>Poster Set-up</td>
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<td>10:45 – 10:50</td>
<td>Official opening exhibition</td>
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<td>10:45 – 11:15</td>
<td>Refreshment Break</td>
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<td></td>
<td>10:00 – 19:00</td>
<td>Trade Show &amp; Posters Open</td>
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<td>11:15 – 12:55</td>
<td>Sessions</td>
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<td>12:55 – 14:00</td>
<td>Lunch (On your own)</td>
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<td>14:00 – 15:40</td>
<td>Sessions</td>
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<td>15:40 – 16:00</td>
<td>Refreshment Break</td>
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<td>16:00 – 17:40</td>
<td>Sessions</td>
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<td>17:40 – 19:00</td>
<td>Happy Hour &amp; Poster Session</td>
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<td></td>
<td>19:00 – 21:00</td>
<td>Student Reception</td>
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<td><strong>Tuesday, Dec. 7</strong></td>
<td>7:30 – 17:00</td>
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<td>9:00 – 10:40</td>
<td>Sessions</td>
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<td>10:40 – 11:00</td>
<td>Refreshment Break</td>
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<td>Trade Show &amp; Posters Open</td>
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<td>Refreshment Break</td>
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<td>16:00 – 17:40</td>
<td>Sessions</td>
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<td>17:40 – 19:00</td>
<td>Happy Hour &amp; Poster Session</td>
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<td>17:40 – 18:40</td>
<td>WAS-APC Members meeting</td>
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<td>19:00 – 21:00</td>
<td>President’s Reception</td>
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<tr>
<td><strong>Wednesday, Dec. 8</strong></td>
<td>7:30 – 17:00</td>
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<td>9:00 – 10:40</td>
<td>Sessions</td>
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<td>10:40 – 11:00</td>
<td>Refreshment Break</td>
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<td>10:00 – 17:40</td>
<td>Trade Show &amp; Posters Open</td>
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<td>Lunch (On your own)</td>
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<td>Refreshment Break</td>
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<td>16:00 – 17:40</td>
<td>Sessions</td>
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<td></td>
<td>17:40 – 18:00</td>
<td>Poster Out take down</td>
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<td></td>
<td>17:40 – 22:00</td>
<td>Exhibit Move-out</td>
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