

www.isopec.org; www.isopec2011.org

June 19–24, Maui, Hawaii, USA

The Twenty-first (2011) International Offshore (Ocean) and Polar Engineering Conference

Including additional Symposium:

- 1st Arctic Science & Technology
 - 1st Arctic Materials
- 1st Renewable Energy & Environment
- 3rd Sloshing Dynamics & Design
- 3rd Nanomaterials for Clean Energy
- 3rd Frontier & Clean Energy Tech
- 9th High-Performance Materials
 - 5th Strain-Based Design
- 9th (Deep) Ocean Mining (& Gas Hydrates)

ISOPE-2011

Maui, Hawaii, USA, June 19–24

Technical Program

Refereed papers from **51** countries in **150** sessions and
General and keynote sessions
General Information, Reservations, Publication and Program
Updates on www.isopec.org www.isopec2011.org
Forms for Advance Registration and Venue Hotel:
Inside this program and on www.isopec.org

Organized by:

Technical Program Committee, ISOPE

Sponsored by:

International Society of Offshore and Polar Engineers (ISOPE)
with cooperating organizations (list inside)



ISOPE, P.O. Box 189
Cupertino, CA 95015-0189, USA
Fax: +1-650-254-2038

meetings@isopec.org; www.isopec.org

GENERAL INFORMATION

Further details are to be updated on www.isopec.org .



PLACE AND DATE: Maui, Hawaii, USA
June 19–24, 2011

All ISOPE-2011 Conference's technical events, reception, annual banquet, tea breaks and registration will take place at:

Hyatt Regency Maui Hotel
200 Nohea Kai Drive
Lahaina, Maui, Hawaii 96761-1985, USA
Phone +1-808-661-1234

HOTEL RESERVATIONS

Please make your reservation directly with the Hotel. Use the Hotel Reservation Form for online, email or fax reservation: ([Reservation Form in PDF](#))

You can also download this form from www.isopec.org or www.isopec2011.org .



LANGUAGE

The language for the conference is English. No translation services will be available.

AIR TRANSPORTATION

Domestic

Airlines serving **Maui from the U.S. mainland and Canada**

are:

Alaska Airlines, American Airlines, Continental Airlines, Delta Airlines, Hawaiian Airlines, United Airlines and US Airways. Service from Canada is via Air Canada and WestJet.

Interisland flight service is provided by Go!, Mokulele, Hawaiian Airlines, Island Air, and Pacific Wings. Connecting flights from Honolulu are also possible.

Convenient **interisland** charter services are offered by Island Air, Hawaiian Airlines, Marjet, Maui Air, Mokulele Air, Pacific Air Charters, George's Aviation, All Island Aviation, Sunshine Helicopters and Pacific Wings.

International

All international flights clear Immigration and Customs Control at Honolulu airport. If you are overnighiting in Honolulu, outside the baggage claim area you will find taxis, bus stops and rental car shuttles. If you are continuing on to Maui, follow the signs to the Interisland (Hawaiian) or commuter terminal (GO!, Mokolele, Island Air, and other) to catch a connecting flight to Maui.

Visitor Information Counters are located throughout Honolulu airport. For the most current flight service contact your travel professional.



GROUND TRANSPORTATION

Ground transportation services from the Kahului Airport to hotels are provided by:

Pre-arranged limo and shuttle service:

Shared ride to Hyatt Regency Maui can reduce individual fare. Be on a lookout in the baggage claim area for conference attendees by recognizing “**ISOPE**” luggage or carry-on tag (registrants will receive).

Speedy Airport Shuttle:

Reservations to our Maui airport hotel should be booked 48 hours in advance.

Call a reservation agent (1-808-242-7777) (toll free in the US: 1-877-242-5777) or

book online at <http://www.speedishuttle.com/>

Upon arrival, guest should check in at the speedishuttle counter located in baggage claim area.

Cost: Approximately \$45 for one person, with \$6 - \$10 increments for each additional family member.

Maui Executive Shuttle:

For booking, call toll free inside the US (1-800-833-2303) or 1-808-669-2300 or go to: <http://www.mauishuttle.com>.

Parties of 8 and more should call for rates. Group rates are available upon request.

Cost: Approximately \$45 for one person, \$52 for two people, \$55 for three people, \$57 for four people, \$60 for five people, \$66 for six people and \$84 for 7 people. An additional \$5.00 charge is assessed if guest will be paying

by credit card. Parties of 8 and more should call for rates.
Group rates are available upon request.

Taxi: Service is available in the baggage claim area.
Cost: Approximately \$88.00 (Share ride up to four people with luggages). Shared ride to Hyatt Regency Maui can reduce individual fare. Be on a lookout in the baggage claim area for conference attendees by recognizing “**ISOPE**” luggage or carry-on tag (registrants will receive).

Rental Car: Avis, Hertz, and Budget rental desks are adjacent to baggage claim. These offices remain open until the last flight arrives.

Lahaina Airport to Hotel by Rental Car

Distance is 26.4 miles and driving time will be about 45 minutes.

- Head **southwest** on **Kahului Airport Rd/Keolani Pl** toward **Palapala Dr.**
- Continue onto **Dairy Rd/State Hwy 380**. Continue to follow State Hwy 380.
- Turn **left** at **Honoapiilani Hwy/State Hwy 30**.
- Turn **left** at **Kaanapali Pkwy**.
- Turn **left** at **Nohea Kai Dr**. Hyatt Regency Maui Hotel will be on the **right**.

Hotel Parking

The Hyatt Regency Maui Hotel offers self-parking (275 spaces) and valet-parking (425 spaces) at no cost to registered guests.

MARINE TRANSPORTATION

Ferries

Maui to L- ana'I (www.go-lanai.com)

Maui to Moloka'I (www.TheLahainaCruiseCompany.com)

SHOPPING

Whaler's Village (within walking distance of the hotel).
Lahaina Front Street and Lahaina Cannery Malls (take the Maui Bus from Whaler's Village at 1-hour intervals). A bus schedule is available at www.mauicounty.gov/bus.

CURRENCY EXCHANGE

Cash dispensers (ATMs) that accept all major credit/debit cards can be found at several locations in the airport, and at banks and retail areas throughout the city. Currency

exchange services will charge either a flat fee for small denominations or a percentage of the amount exchanged: usually the exchange rate is more favorable at the banks. The Hyatt Regency Maui Hotel has ATM machines.

TAX

Purchases in are subject to a sales tax of 4.712% of the purchase price **included in sales price** with no tax rebate.

CITY TRANSPORTATION

Island Bus Service: The County of Maui also operates an island bus service in Maui. Visit www.mauicounty.gov/bus.

Inter-resort Shuttle Service: The resort communities of Kapalua, K- a‘anapali, Wailea and Makena provide inter-resort shuttle service for their guests.

ELECTRICITY AND ADAPTER

Appliances operate on **115/120 volts, 60 Hz** .

TIPPING

It is customary to tip for food service, portorage, and valet parking. Tips are typically 15% to 20% for food service, \$4.50 for portorage per person one way, and \$2.00 for valet parking each time drop off or pick up car.

HOURS OF OFFICE AND BUSINESS OPERATION

-Offices in Hawaii normally are open from 8:00 am to 5:00 pm.

-Shops open from 9:00-10:00 am and close between 9:30 pm to 10:00 pm.

-Banks are generally open 9:00 am to 4:00 pm Monday to Friday, with some banks open on Saturday mornings.

-Pharmacies are open between 9 am and 7 pm. At the Hyatt Regency, a Medical Doctor is on property between 8:00 am to 9:00 pm daily.

CONFERENCE LUNCH MENUS

Pre-order your lunch with [advance registration](#) to ensure that you don't go hungry during the conference! Conference attendees have a choice of two lunch packages for 4 days of the conference. [Click for the full menu: Lunch #1\(\\$120\) and Lunch #2 \(\\$80\).](#)



“DRUMS OF THE PACIFIC” LU’AU SHOW (at Hyatt Regency Hotel Guest at ISOPE Group Rate)
Conference participants and family are invited to participate in Maui’s most exciting Polynesian Lu’au. Be entertained by native performers while dining on a freshly roasted pig. Please refer to **“Drums of Pacific” [program](#)** for **group** rates and program of events. Tickets may also be available for purchase on site.

Advance Reservation: E-mail to Pamela Boyd pboyd@expedia.com to make reservations in advance for quick entry to the show. Write **“ISOPE-2011 Maui”** on email Subject line.



ACTIVITIES AND ATTRACTIONS

The island of Maui is the second-largest of the Hawaiian Islands at 727.2 sq. miles (1883.5 sq. km) and is the United States' 17th largest island. Maui is part of the state of Hawaii and is the largest of Maui County's four islands. In 2000, Maui had a population of 117,644, third-most populous of the Hawaiian islands.

Maui offers a full range of activities and attractions to enjoy such as swimming, surfing, snorkeling, hiking, kayaking, helicopter tours, submarine tours, sport fishing, and numerous sightseeing opportunities. The following websites provide useful information you should find helpful in planning your Maui visit.

Hawaii is the newest of the 50 U.S. states (August 21, 1959), and is the only U.S. state made up entirely of islands. Hawaii's natural beauty, warm tropical climate, inviting waters and waves, and active volcanoes make it a popular destination for tourists, surfers, biologists, and volcanologists alike.

Related web links: <http://www.visitmaui.com/>, <http://www.hvcb.org/>, www.hawaiiifun.org, and www.hawaiiifun.org/Guidebooks.shtml.

Interisland

For a list of activities and attractions available to you while on Maui and the other islands, check www.hawaiiifun.org.

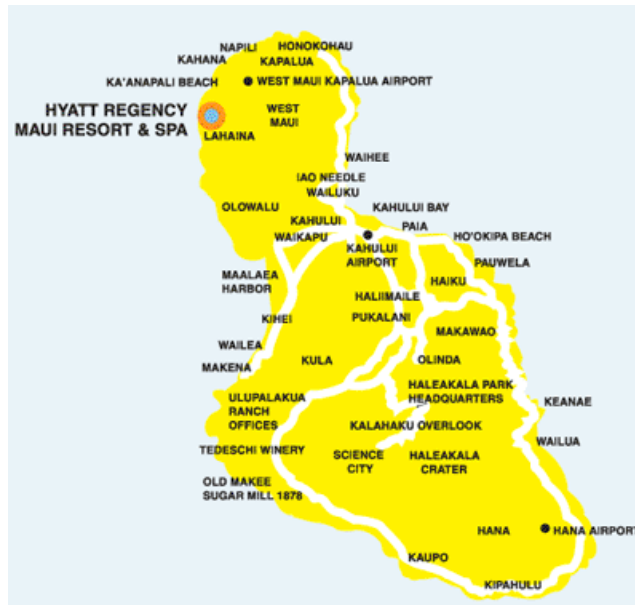
Guide Book

A guide book describing the many fun activities and attractions available on Maui and the other islands can be found at www.hawaiiifun.org/Guidebooks.shtml.

You can make your own arrangements to tour Maui or any of the other Hawaiian islands. The Maui Visitors Bureau is available to provide you with tourist information about each of the islands (Kauai, Oahu, Molokai, Lanai, Maui and Hawaii). They can be reached at www.visitmaui.com.

Maui Loves Kids

From "Water" (catamarans, kayaks, submarines), to "Wonder" Tropical Plantation, Whale Museum, Nature Center), to "Wow!" (Sugar Cane Train, Haleakala Crater, horseback rides, downhill biking), Maui has it all. But just as important, no matter *when* you visit the Magic Isles of Maui, Moloka'i and Lana'i, there's always a kaleidoscope of celebrations, sports spectaculars, parades and festivals to make the fun even more fantastic for families.



Local Sites of Interest

Ali'i Kula Lavender Farm, Maui Arts & Cultural Center, Maui Ocean Center, Maui Tropical Plantation, Molokini Lookout, Sugar House, Tedeschi Winery, Warren & Annabelle's, Pioneer Inn, The Olowalu Plantation Oceanfront Lawn, L- ahaina K- a'anapali Pacific Railroad, Sugarman Estate Oceanfront Lawn, The King Kamehameha Golf Club, and The Kahili Golf Course and Restaurant.

SIGHT SEEING AND TOUR PROGRAM

There is no ISOPE-sponsored tour this year since there are too many choices available. The hotel concierge can assist you in arranging tours or you can contact your travel agent and check with other tour agents on the internet for tour packages.

Visit Tour Desk near Conference Registration area.



ADVANCE CONFERENCE REGISTRATION

Registration fee starts at **\$650**. Click [here](#) for advance registration form.

Mail your registration form together with your payment to:

ISOPE Accounting (ISOPE-2011)
495 North Whisman Road, Suite 300
Mountain View, California 94043-5711
USA

Email: isope-2@isope.org

Fax: +1-650-254-2038; Phone: +1-650-254-1871

Advance Registration Deadline:

Presenting Authors: March 24, 2011.

Non-authors and non-presenting authors: May 20, 2011

REGISTRATION BADGE

Conference registration badges are required for admittance to all the conference activities, including the reception and banquet.



Grand Promenade and Session Rooms

ON-SITE CONFERENCE REGISTRATION:

Grand Promenade

Participants who miss the advance registration (before **May 20**) may register on site at the Conference Registration Desk, but there is US\$100 surcharge. The registration desk will be open during the following hours:

Sunday, June 19	15:00-18:00	Wednesday, June 22	08:00-15:00
Monday, June 20	07:30 -16:00	Thursday, June 23	08:00-

13:00

Tuesday, June 21 08:00-16:00

ISOPE-2011 CONFERENCE PROCEEDINGS

A 4-volume ISOPE-2011 conference proceedings on CD-ROM (**ISBN 978-1-880653-96-8; ISSN 1098-6189**) is included in all conference registration fees. For additional or separate orders, download the **publications order form** from www.isopec.org for post-conference order:

A **4-volume Conference Proceedings** in CD-ROM (4,200 pp. est.)
Mail, E-mail or Fax order \$290 (ISOPE Member \$240)

Mail or Fax Order from ISOPE, 495 North Whisman Road, Suite 300, Mountain View, California 94043-5711, USA: Fax **1-650-254-2038**.

Advance payment is required. MasterCard, VISA, or AMEX; international money order or U.S. bank checks in US Dollars *payable to ISOPE* will be accepted. Shipping and handling charges will be added (Download the Publication Order Information from www.isopec.org).

CONFERENCE RECEPTION

Sunday Napili Gardens

ANNUAL CONFERENCE BANQUET

Wednesday Grand Ballroom

AUTHOR USB TEST Individual session rooms
Power-point or LCD projector and screen are available during 08:00-17:00 (Monday - Thursday).

CHAIR/CO-CHAIR BRIEFING

The **session chairs and co-chairs** will be briefed at 07:30 each morning near the registration desk Grand Promenade and will pick up session jacket for author briefings on the day of presentation.

Chairs and co-chairs will also be emailed brief instructions in advance, including the manner of each session conduct and information on authors and presentation.

PRESENTING AUTHORS should go directly to their session room 30 minutes before the session and check out the USB presentation file.

INFORMATION - MESSAGE CENTER.

The information and message center is located in the registration area. One may contact ISOPE Conference Registration Desk on Grand Promenade.

TAX DEDUCTIBILITY

Expenses of attending professional meetings such as the registration fee and cost of technical publications may be tax-deductible as ordinary expenses for U.S. citizens and some countries.

CLIMATE

The climate in Hawaii in the month of June will be sunny and warm, with the North-East trade winds to keep you cool and comfortable. Swimming and other water activities will be very pleasant.



PUBLICATION ORDER INFORMATION

To order, download the publication order form from www.isopec.org > orders, www.isopec.org > publications, or e-mail to orders@isopec.org asking for the order form, and enclose the correct amount of payment or purchase order, and mail to:

ISOPE Order Department
495 North Whisman Road, Suite 300
Mountain View, California 94043-5711 USA
Fax 1-650-254-2038: orders@isopec.org

AUTHOR INDEX AND SUBJECT INDEX

With the advancement of Find or Search function in PDF file, one can use Find or Search in the PDF file of the conference programs posted on www.isopec.org. For ISOPE CD-ROM, Click **Ctrl F** will display **FIND**.

ISOPE conference and symposium proceedings are indexed by Engineering Index and EI Compendex and others.

International Journal of Offshore and Polar Engineers

- Quarterly (March, June, September, December) (ISSN 1053-5381): *Indexed by SCI-E and Engineering Index and EI Compendex and others.*

Editors: Jin S. Chung, R.M.W. Frederking, W. Koterayama, I. Langen. **Topics:** *ocean and marine engineering, offshore engineering, environment, offshore mechanics, Arctic and Antarctic engineering, structures and materials, energy/Resources, and emerging topics:*

Yearly subscription rates: US\$150. (Member; complimentary) and US\$100 per a set of annual back issues. US\$60 per issue.

Proceedings of the 1st (1990) Pacific/Asia Offshore Mechanics Symposium (PACOMS '90), Seoul, Korea, 24-28 June 1990. For a set of 3 volumes, (ISBN 0-9626104-0-2; LCCN 90-082039): approx. 1260 pp., US\$150 per set.

Proceedings of Special Offshore Symposium China (SOSC-94) /the 3rd (1994) Pacific/Asia Offshore Mechanics Symposium (PACOMS-94), Beijing, China, 16-18 April 1994. A single volume (ISBN 1-880653-15-X); 797 pp., US\$100.

Proceedings of the 4th (1996) ISOPE Pacific/Asia Offshore Mechanics Symposium (PACOMS-96), Pusan, Korea, October 31-November 2, 1996. A single volume (ISBN 978-1-880653-27-2; ISSN 1946-0031);325 pp., US\$80 (ISOPE Member; \$60).

Proceedings of the 5th (2002) ISOPE Pacific/Asia Offshore Mechanics Symposium (PACOMS-2002), Daejeon, Korea, November 17–20, 2002. A single volume (hard copy and CD-Rom) (ISBN 978-1-880653-59-3; ISSN 1946-0031);252 pp., US\$120 (ISOPE Member; \$80).

Proceedings of the 6th (2004) ISOPE Pacific/Asia Offshore Mechanics Symposium (PACOMS-2004), Vladivostok, Russia, September 12–16, 2004. A single volume (hard copy and CD-Rom) (ISBN 978-1-880653-63-0; ISSN 1946-004X); 299 pp., US\$100 (ISOPE Member; \$80).

Proceedings of the 7th (2006) Pacific/Asia Offshore Mechanics Symposium (ISOPE PACOMS-2006), Dalian, China, September 17–21, 2006. A single volume (CD-ROM) (ISBN 978-1-880653-67-8; ISSN 1946-004X); 357 pp., US\$100 (ISOPE Member; \$80).

Proceedings of the 8th (2008) Pacific/Asia Offshore Mechanics Symposium (PACOMS-2008), Bangkok, Thailand, November 17–21, 2006. A single volume (CD-ROM) (ISBN 978-1-880653-52-4; ISSN 1946-004X);334 pp., US\$100 (ISOPE Member; \$80).

Proceedings of the 9th (2010) Pacific/Asia Offshore Mechanics Symposium (PACOMS-2010), Busan, Korea, November 14–17, 2010. A single volume (CD-ROM,

ISBN 1-880653-79-1, ISSN 1946-004X; 362 pp., US\$100 (ISOPE Member; \$80).

Proceedings of the 1st (1990) European Offshore Mechanics Symposium (EUROMS-90), Trondheim, Norway, 20-22 August 1990. A single volume: (ISBN 0-9626104-4-5; LCCN 90-084691); approx. 590 pp., US\$80. (Member; US\$60.)

Proceedings of the 2nd (1999) ISOPE European Offshore Mechanics Symposium (EUROMS-99): (of Synopsis in Russian and English), Moscow, Russia, 7-9 June 1999. A single volume: (ISBN 1-880653-44-3); approx. 126 pp., US\$50. (Member; US\$40.)

Proceedings of the 1st (1995) ISOPE Ocean Mining Symposium, Tsukuba, Japan, November 21-22, 1995. A single volume (ISBN 1-880653-21-4, LCCN 95-77708): 238 pp., US\$100 (Member; US\$80.)

Proceedings of the 2nd (1997) ISOPE Ocean Mining Symposium, Seoul, Korea, November 24-26, 1997. A single volume (ISBN 1-880653-33-8, LCCN 97-74490): 201 pp., US\$100 (Member; US\$80.)

Proceedings of the 3rd (1999) ISOPE Ocean Mining Symposium, Goa, India, November 8-10, 1999. A single volume (ISBN 978-1-880653-45-6; ISSN 1946-0074):298 pp., US\$100 (Member; US\$80.)

Proceedings of the 4th (2001) ISOPE Ocean Mining Symposium, Szczecin, Poland, September 23-27, 2002. A single volume (ISBN 978-1-880653-56-2; ISSN 1946-0074): 208 pp., US\$100 (Member; US\$80.)

Proceedings of the 5th (2003) ISOPE Ocean Mining Symposium, Tsukuba, Japan, September 15–19, 2003. A single volume (hard copy and CD-Rom) (ISBN 978-1-880653-61-6; ISSN 1946-0074):256 pp., US\$120 (Member; US\$80.)

Proceedings of the 6th (2005) ISOPE Ocean Mining Symposium, Changsha, Hunan, China, October 9–13, 2005. A single volume (CD-Rom) (ISBN 978-1-880653-65-4; ISSN 1946-0066):276 pp., US\$100 (Member; US\$80.)

Proceedings of the 7th (2007) ISOPE Ocean Mining Symposium, Lisbon, Portugal, July 1–6, 2007. A single volume (CD-Rom) (ISBN 978-1-880653-69-2; ISSN 1946-0066):219 pp., US\$100 (Member; US\$80.)

Proceedings of the 8th (2009) ISOPE Ocean Mining Symposium (OMS-2009), Chennai, India, September 20–24, 2009. A single volume (CD-Rom) (ISBN 978-1-880653-75-3; ISSN 1946-0066): 308 pp., US\$100 (Member; US\$80.)

Proceedings of the 9th (2011) ISOPE Ocean Mining Symposium (OMS-2011), Maui, Hawaii, USA, June 19-24, 2011. A single volume (CD-Rom) (ISBN 978-1-880653-95-1; ISSN 1946-0066): 300 pp. est., US\$100 (Member; US\$80.)

First (2003) ISOPE Symposium on High-Performance Materials in Offshore Industry (HMOI), ISOPE HPM-2003, Honolulu, Hawaii, US, May 25-30, 2003: Published in Proceedings of the 13th (2003) International Offshore and Polar Engineering Conference (ISOPE 2003), Honolulu, Hawaii, USA, May 25-30, 2003. For 4-volumes set CD-Rom (ISBN 978-1-880653-60-9; ISSN 1098-6189 (Set):2,912 pp., \$220 (ISOPE Member; \$180).

Second (2004) ISOPE High-Performance Materials Symposium: Friction Stir Welding, ISOPE HPM-2004, Toulon, France, May 23-28, 2004: Published in Proceedings of the 14th (2004) International Offshore and Polar Engineering Conference (ISOPE 2004), Toulon, France, May 23-28, 2004. For 4-volumes set CD-Rom (ISBN 978-1-880653-62-3; ISSN 1098-6189 (Set): 3,160 pp., \$220 (ISOPE Member; \$180).

Third (2005) ISOPE High-Performance Materials Symposium: Advanced Welding, ISOPE HPM-2005, Seoul, Korea, June 19-24, 2005: Published in Proceedings of the 15th (2005) International Offshore and Polar Engineering Conference (ISOPE 2005), Seoul, Korea, June 19-24, 2005. For 4-volume set CD-Rom, (ISBN 978-1-880653-64-7; ISSN 1098-6189: 3,110 pp., \$220 (ISOPE Member; \$180).

Fourth (2006) ISOPE High-Performance Materials Symposium, ISOPE HPM-2006, San Francisco, California, USA, May 28–June 2, 2006: Published in Proceedings of the 16th (2006) International Offshore and Polar Engineering Conference (ISOPE-2006), San Francisco, California, USA, May 28–June 2, 2006. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-66-1; ISSN 1098-6189: 2,704 pp.,\$220 (ISOPE Member; \$180).

Fifth (2007) ISOPE High-Performance Materials Symposium, ISOPE HPM-2007, , Lisbon, Portugal, July 1–6, 2007: Published in Proceedings of the 17th (2007)

International Offshore and Polar Engineering Conference (ISOPE-2007), Lisbon, Portugal, July 1–6, 2007. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-68-5; ISSN 1098-6189: 3,904 pp., \$270 (ISOPE Member; \$230).

First (2007) ISOPE HPM Nanomaterials for Structural Applications Symposium, ISOPE NANOS-2007, Lisbon, Portugal, July 1–6, 2007: Published in Proceedings of the 17th (2007) International Offshore and Polar Engineering Conference (ISOPE-2007), Lisbon, Portugal, July 1–6, 2007. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-68-5; ISSN 1098-6189: 3,904 pp., \$270 (ISOPE Member; \$230).

First (2005) ISOPE Advanced Natural Gas Transport (ANGT) Symposium, ISOPE ANGT-2005, held during the 15th International Offshore and Polar Engineering Conference & Exhibition, ISOPE-2005, Seoul, Korea, June 19-24, 2005; Published in Proceedings of the 15th (2005) International Offshore and Polar Engineering Conference (ISOPE 2005), Seoul, Korea, June 19-24, 2005. For 4-volume set *CD-Rom*, (ISBN 1 880653 64-8; ISSN 1098-6189: 3,110 pp., \$220 (ISOPE Member; \$180).

Reprints of the 1st (1996) International Deep-Ocean Technology Symposium and Workshop, Los Angeles, May 22 - June 1, 1996: December 1996 issue, Vol. 6, No. 4, *International Journal of Offshore and Polar Engineering* (ISSN 1053-5381). Reprint volume (\$60) is available from ISOPE.

Reprints of the 1st (1996) International Deep-Ocean Technology Symposium and Workshop, Los Angeles, May 22 - June 1, 1996: December 1996 issue, Vol. 6, No. 4, *International Journal of Offshore and Polar Engineering* (ISSN 1053-5381). Reprint volume (\$60) is available from ISOPE.

Proceedings of the 3rd (2009) International Deep-Ocean Technology Symposium, Beijing, China, June 28–July 1, 2009. A single volume (CD-ROM) (ISBN 978-1-880653-73-9.) 110 pp. est., US\$100 (Member; US\$80.)

First (2007) ISOPE Strain-Based Design Symposium, ISOPE SBD-2007, Lisbon, Portugal, July 1–6, 2007: Published in Proceedings of the 17th (2007) International Offshore and Polar Engineering Conference (ISOPE-2007), Lisbon, Portugal, July 1–6, 2007. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-68-5; ISBN 1-880653-68-5; ISSN 1098-6189: 3,904 pp., \$270 (ISOPE Member; \$230).

Second (2008) ISOPE Strain-Based Design Symposium, ISOPE SBD-2008, Vancouver, Canada, July 6–11, 2008: Published in Proceedings of the 18th (2008) International Offshore and Polar Engineering Conference (ISOPE-2008), Vancouver, Canada, July 6–11, 2008. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-70-8; ISSN 1098-6189: 3,904 pp., \$270 (ISOPE Member; \$230).

Third (2009) ISOPE Strain-Based Design Symposium, ISOPE SBD-2009, Osaka, Japan, June 20–25, 2009: Published in **Proceedings of the 19th (2009) International Offshore and Polar Engineering Conference (ISOPE-2009)**, Osaka, Japan, June 21–26, 2009. For 4-volume set *CD-Rom* (ISBN 978-1-880653-53-1; ISSN 1098-6189: 3,690 pp., \$270 (ISOPE Member; \$230).

Fourth (2010) ISOPE Strain-Based Design Symposium, ISOPE SBD-2010, Beijing, China, June 20–26, 2010: Published in **Proceedings of the 20th (2010) International Offshore and Polar Engineering Conference (ISOPE-2010)**, Beijing, China, June 20–26, 2010. For 4-volume set *CD-Rom* (ISBN 978-1-880653-77-7; ISSN 1098-6189): 4,176 pp., \$290 (ISOPE Member; \$240).

First (2009) ISOPE Sloshing Dynamics and Design Symposium, ISOPE SDD-2009, Osaka, Japan, June 20–25, 2009: Published in **Proceedings of the 19th (2009) International Offshore and Polar Engineering Conference (ISOPE-2009)**, Osaka, Japan, June 21–26, 2009. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-53-1; ISSN 1098-6189: 3,690 pp., \$270 (ISOPE Member; \$230).

Second (2010) ISOPE Sloshing Dynamics and Design Symposium, ISOPE SDD-2010, Beijing, China, June 20–26, 2010: Published in **Proceedings of the 19th (2009) International Offshore and Polar Engineering Conference (ISOPE-2009)**, Osaka, Japan, June 21–26, 2009. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-77-7; ISSN 1098-6189): 4,176 pp., \$290 (ISOPE Member; \$240).

Proceedings of the 1st (1991) International Offshore and Polar Engineering Conference (ISOPE-91), Edinburgh, U.K., 11–16 August 1991. For a set of 4 volumes, (ISBN 0-9626104-5-3; LCCN 91-071635): approx. 2190 pp., \$320 (US\$240; member).

Proceedings of the 2nd (1992) International Offshore and Polar Engineering Conference (ISOPE-92), San Francisco, USA, June 14–19, 1992. For a set of 4 volumes,

(ISBN 1-880653-00-1; LCCN 91-78280): 2,899 pp., \$340 (Member; \$260).

The Proceedings of the 3rd (1993) International Offshore and Polar Engineering Conference (ISOPE-93), Singapore, 6-11 June 1993. For a set of 4 volumes, (ISBN 1-880653-05-2; LCCN 92-76219): 2,965 pp., \$340 (ISOPE Member; \$260).

Proceedings of the 4th (1994) International Offshore and Polar Engineering Conference (ISOPE-94), Osaka, Japan, April 10-15, 1994. For a set of 4 volumes, (ISBN 1-880653-10-9; LCCN 93-80555): 2,589 pp., \$340 (ISOPE Member; \$260).

Proceedings of the 5th (1995) International Offshore and Polar Engineering Conference (ISOPE-95), The Hague, June 11-16, 1995. For a set of 4 volumes, (ISBN 1-880653-16-8; LCCN 94-73796): 2,543 pp., \$340 (ISOPE Member; \$260). 2,543 pp., \$340 (ISOPE Member; \$260).

Proceedings of the 6th (1996) International Offshore and Polar Engineering Conference (ISOPE-96), Los Angeles, May 26-31, 1996. For a set of 4 volumes, (ISBN 1-880653-22-2): 2,326 pp., \$360 (ISOPE Member; \$280).

Proceedings of the 7th (1997) International Offshore and Polar Engineering Conference (ISOPE-97), Honolulu, May 25-30, 1997. For a set of 4 volumes, (ISBN 1-880653-28-1): 3,556 pp., CD-ROM only at \$300 (ISOPE Member; \$240).

Proceedings of the 8th (1998) International Offshore and Polar Engineering Conference (ISOPE-98), Montréal, May 24-29, 1998. For a set of 4 volumes, (ISBN 978-1-880653-34-0; ISSN 1098-6189): 2,577 pp., \$380 (ISOPE Member; \$300).

Proceedings of the 9th (1999) International Offshore and Polar Engineering Conference (ISOPE-99), Brest, May 30–June 4, 1999. For a set of 4 volumes, (ISBN 978-1-880653-39-5; ISSN 1098-6189): 3,061 pp., CD-ROM only at \$300 (ISOPE Member; \$240).

Proceedings of the 10th (2000) International Offshore and Polar Engineering Conference (ISOPE-2000), Seattle, WA, USA, May 28–June 2, 2000. For a set of 4 volumes (*hard copy and CD*), (ISBN 978-1-880653-46-3; ISSN 1098-6189): 2,689 pp., \$420 (ISOPE Member; \$340). (*CD-ROM only available at \$200 (ISOPE Member; \$160); hard copy out of stock.*)

Proceedings of the 11th (2001) International Offshore and Polar Engineering Conference (ISOPE-2001), Stavanger, Norway, June 17–22, 2001. For a set of 4 volumes (*hard copy and CD-Rom*), (ISBN 978-1-880653-51-7; ISSN 1098-6189): 3,039 pp., \$430 (ISOPE Member; \$350).

Proceedings of the 12th (2002) International Offshore and Polar Engineering Conference (ISOPE-2002), Kitakyushu, Japan, May 26-31, 2002. For 4-volumes set *CD-Rom*, (ISBN 978-1-880653-58-6; ISSN 1098-6189 (Set): 3,304 pp., \$220 (ISOPE Member; \$180).

Proceedings of the 13th (2003) International Offshore and Polar Engineering Conference (ISOPE-2003), Honolulu, Hawaii, USA, May 25-30, 2003. For 4-volumes set *CD-Rom*, (ISBN 978-1-880653-60-9; ISSN 1098-6189 (Set): 2,912 pp., \$220 (ISOPE Member; \$180).

Proceedings of the 14th (2004) International Offshore and Polar Engineering Conference (ISOPE-2004), Toulon, France, May 23–28, 2004. For 4-volumes set *CD-Rom*, (ISBN 978-1-880653-62-3; ISSN 1098-6189 (Set): 3,167 pp., \$220 (ISOPE Member; \$180).

Proceedings of the 15th (2005) International Offshore and Polar Engineering Conference (ISOPE-2005), Seoul, Korea, June 19–24, 2005. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-64-7; ISSN 1098-6189: 3,116 pp., \$220 (ISOPE Member; \$180).

Proceedings of the 16th (2006) International Offshore and Polar Engineering Conference (ISOPE-2006), San Francisco, California, USA, May 28–June 2, 2006. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-66-1; ISSN 1098-6189): 2,704 pp., \$220 (ISOPE Member; \$180).

Proceedings of the 17th (2007) International Offshore and Polar Engineering Conference (ISOPE-2007), Lisbon, Portugal, July 1–6, 2007. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-68-5; ISSN 1098-6189): 3,904 pp., \$270 (ISOPE Member; \$230).

Proceedings of the 18th (2008) International Offshore and Polar Engineering Conference (ISOPE-2008), Vancouver, BC, Canada, July 6–11, 2008. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-70-8; ISSN 1098-6189): 3,036 pp., \$270 (ISOPE Member; \$230).

Proceedings of the 19th (2009) International Offshore and Polar Engineering Conference (ISOPE-2009), Osaka, Japan, June 21-26, 2009. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-53-1; ISSN 1098-6189: 3,690 pp.), \$270 (ISOPE Member; \$230).

Proceedings of the 20th (2010) International Offshore and Polar Engineering Conference (ISOPE-2010), Beijing, China, June 20-25. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-77-7; ISSN 1098-6189): 4,176 pp., \$290 (ISOPE Member; \$240).

Proceedings of the 20th (2010) International Offshore and Polar Engineering Conference (ISOPE-2010), Beijing, China, June 20-25. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-77-7; ISSN 1098-6189): 4,176 pp., \$290 (ISOPE Member; \$240).

Proceedings of the 21st (2011) International Offshore and Polar Engineering Conference (ISOPE-2011), Maui, Hawaii, USA, June 19-24. For 4-volume set *CD-Rom*, (ISBN 978-1-880653-96-8; ISSN 1098-6189): approx. 4,200 pp. est., \$290 (ISOPE Member; \$240).



Membership Application

Download the application form from www.isopec.org > *membership*.
Please email to: ISOPE Membership;
meetings@isopec.org

Subscribe Now

International Journal of Offshore and Polar Engineering

Published by:
International Society of Offshore and Polar Engineers

Quarterly: March, June, September, December

Indexed by **Science Citation Index-Expanded**, Engineering Index, EI Compendex and others.

Engineering, Ocean, Offshore, Arctic, Antarctic, Marine and Environment, Mechanics, Materials, Energy/Resources, Emerging Topics

Editors: Jin S Chung (ISOPE); R M W Frederking (Nat. Research Council, Canada); W. Koterayama (Kyushu Univ., Japan); I Langen (Stavanger Univ, Norway). **Associate Editors:** H.W. Jin (ExxonMobil R & E, USA); J. Pierre Ferrant (Ecole Centrale de Nantes, France); M. Fujikubo (Osaka Univ., Japan); R E Hobbs (Imperial College of Science and Technology, UK); M Kashiwagi (Osaka Univ, Japan); T. Matsui (Fukui Univ. of Tech., Japan); AJNA Sarmiento (Instituto Superior Technico, Portugal); V. Squire (Univ of Otago, New Zealand); M S Triantafyllou (M.I.T., USA).

1. Sample copies to libraries for examination are available from ISOPE.
2. Back issues (March 1991-) are available at \$100 (Members, \$50) per annual set of 4 issues.
3. Annual subscription rate: \$150.
4. Individual ISOPE members are entitled to complimentary copies.
5. E-mail attachment in Word or Pdf file if smaller than 4 MB for peer review (Attention: Editor, International Journal of Offshore and Polar Engineering.).
6. Download the Journal template from www.isopec.org.

Write or fax for sample copies or order to:

ISOPE  **ISOPE**
P.O. Box 189
Cupertino, California 95015-0189, USA
E-mail: editor@isopec.org; www.isopec.org
Tel: +1-650-254-1871; Fax: +1-650-254-2038)

