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June 30–July 5, Anchorage, Alaska, USA

The Twenty-third (2013) International Offshore and Polar Engineering Conference

In addition ISOPE specialty symposia:

- 1st Manganese Steel
- 2nd Tsunami & Safety
- 2nd Asset Integrity
- 4th Arctic Science & Technology
- 3rd Arctic Materials
- 4th Renewable Energy & Environment
- 5th Sloshing Dynamics & Design
- 5th Frontier & Clean Energy Tech
- 11th High-Performance Materials
- 6th Strain-Based Design

ISOPE-2013

Anchorage, Alaska, USA, June 30–July 5

Technical Program

(Updated January 8)

Refereed papers from **52** countries in **150** technical general
Plenary and keynote presentations

General Information, Reservations, Publications and
Program Updates on www.isopec.org www.isopec2012.org

Forms for Advance Registration and Venue Hotel:

Inside this program and on www.isopec.org www.isopec2012.org

Organized by:

Technical Program Committee, ISOPE

Sponsored by:

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



ISOPE, P.O. Box 189
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meetings@isopec.org; www.isopec.org

ISOPE-2013 Anchorage Conference

June 30-July 5

The 23rd International Ocean (Offshore) and Polar Engineering Conference

GENERAL INFORMATION

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



PLACE AND DATE: Anchorage, Alaska
June 30 – July 5, 2013

All ISOPE-2013 Conference's technical events, reception, annual banquet, tea breaks and registration will take place at:

William A. Egan Civic & Convention Center
555 West Fifth Avenue
Anchorage, AK, 99501, USA
www.anchorageconventioncenters.com



Hilton Anchorage Hôtel
500 W. 3rd Ave, Anchorage, Alaska 99501, USA
www.hiltonanchorage.com

Sheraton Anchorage Hotel & Spa
401 East 6th Ave, Anchorage, Alaska 99501, USA
www.sheratonanchorage.com

HOTEL RESERVATIONS

To get **special ISOPE room rates**, download reservation form (PDF file) from www.iso-pe.org >meetings or from www.iso-pe2013.org .

Please make your reservation directly with the Hotel you choose.

Online reservation at ISOPE room rates is most convenient. For both Hilton and Sheraton, use the PDF file to make **online**, email or fax **reservation**:

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

AIR TRANSPORTATION

Domestic

Airlines serving Anchorage from the lower 48 states, Hawaii and Canada are:

Alaska Airlines, American Airlines, Frontier Airlines
Delta Airlines, Sun Country Airlines, Jet Blue, United Airlines and US Airways.

International

All international flights clear Immigration and Customs Control at Ted Stevens International Anchorage Airport, the North Terminal. Some International flights depart from the South Terminal.

Korean Air, Japan Airline, Condor Airlines and Iceland Air serve Ted Stevens Anchorage International Airport.

Service from Canada is via Air Canada.

Visitor Information Counters are located downstairs outside of the baggage claim area in both the North and South Terminals. For the most current flight service contact your travel professional.



GROUND TRANSPORTATION

Shared ride to Downtown Anchorage 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).

Ground transportation services from the Ted Stevens International Anchorage Airport to hotels are provided by:

Taxi: Service is available in the baggage claim area and **most convenient.**

Cost: Approximately \$20.

Shuttle service:

Anchorage Downtown Shuttle:

Once you have retrieved your luggage you may call 907-344-4446; they will come to pick you up within 20 minutes. Cost is \$15.00 p.p. Parties of 7 or more should call 907-344-4446 for group rate and prescheduled pick up.

Pre-arranged Limo

BAC Transportation. Approximately \$65 for one person - three people, \$105.00 for five people.

For inside the US (1-866-589-5466) or 1-907-222-2600 or go to: <http://www.bactrans.com>.

Rental Car: Avis, Hertz, Dollar and Budget rental desks are located in the Car Rental Terminal across the street from the main terminal. It is accessible from the baggage claim area via a tunnel walkway. These offices remain open until the last flight arrives.

Distance is 6 miles and driving time will be about 15 minutes to **Hilton Anchorage**.

- Head **east** on **International Airport Road** towards the **Chugach Mountain Range**.
- Take a **right** onto Minnesota Drive follow north.
- Minnesota Drive turns into I Street continue to **3rd Avenue**.
- Turn **left** onto 3rd Avenue, drive 5 blocks.
- **Hilton Anchorage** is on your **right** at the corner of **3rd Avenue and E Street**.

Distance to the **Sheraton Anchorage Hotel & Spa** is 6 miles and driving time will be about 15 minutes.

- Head **east** on **International Airport Road** towards the **Chugach Mountain Range**.
- Take a **right** onto Minnesota Drive follow north.
- Minnesota Drive turns into I Street continue to **6th Avenue**.
- Turn **right** onto 6th Avenue, drive 8 blocks.
- **Sheraton Anchorage Hotel & Spa** is on your **left** at the corner of **6th Avenue and Barrow Street**.

Hotel Parking

The **Hilton** Anchorage Hotel offers self-parking kitty corner to the hotel. Cost is \$1.00 per hour, hotel valet-parking is offered at a cost of \$24.00 per night.

The **Sheraton** Anchorage Hotel & Spa offers self-parking (100 spaces) at a cost of \$10.00 per night and valet parking at a cost of \$15.00 per night.

SHOPPING

Fifth Avenue Mall with over 100 stores is located a short distance from both the Hilton Anchorage and the Sheraton Anchorage Hotel & Spa: Nordstrom's, Eddie Bauer, Banana Republic, GAP, Coach, JC Penney, Apple, and many unique boutiques.

Numerous art galleries, specialty stores, and gift shops line 4th Avenue, 5th Avenue, 6th Avenue and G Street.

CURRENCY EXCHANGE

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

Currency exchange service is available at the front desk of the Hotel Captain Cook located at 939 W. 5th Avenue. They only exchange foreign currency to US dollars with a fee of 5% and a maximum of \$100.00 per transaction.

Monies accepted: Mexico, Korea, Japan, UK, Canada, China, Hong Kong, Taiwan, Australia, Denmark, European Union Countries, Czech Republic, and Switzerland.

TAX

Anchorage has **no sales tax**.

CITY TRANSPORTATION

People Mover

<http://www.muni.org/departments/transit/peoplemover/Pages/default.aspx>

Service: The City of Anchorage

ELECTRICITY AND ADAPTER

Appliances operate on **115/120 volts, 60 Hz**. Those from most Asia and Europe may need voltage converter and/or electric adaptor to the American outlet

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 you drop off or pick up car.

HOURS OF OFFICE AND BUSINESS OPERATION

- Offices in Anchorage 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 10:00 am to 6:00 pm Monday to Friday, with most banks open on Saturday mornings.
- Pharmacies are open between 9 am and 7 pm and are located in Fred Meyer and Carr's grocery stores.



ACTIVITIES AND ATTRACTIONS

Anchorage is the largest city in Alaska with a population of more than 320,000. Our community covers nearly 2,000 square miles from Portage Glacier on Turnagain Arm of Cook Inlet to the historic Native village of Eklutna on the Knik Arm. This includes 30 other neighborhoods including the downtown high-rises, Chugach State Park and a portion of Chugach National Forest. In fact, the Municipality contains more than 500,000 acres of preserved parkland and miles of Alaska's most spectacular wilderness. In addition, we are framed on the north by Mt. McKinley and the agriculturally-rich Matanuska-Susitna Valley; on the south by the Kenai Peninsula; the east by Prince William Sound and the west by Cook Inlet and the great Alaska Range.

Protected by the Chugach Mountains and warmed by Japanese currents of the Pacific Ocean, Anchorage has a temperate, maritime climate.

Summer is a delightful time of year. Days are long and at the time of the summer solstice, June 21, sunshine in Anchorage amounts to almost 20 hours.





Cool Kid Stuff

Anchorage is home to over 120 miles of paved trails. Take a walk or rent bicycles, visit Kincaid Park and spot wildlife such as eagles and moose!

Alaska Aviation Heritage Museum

Learn about the state's unique aviation history. See vintage aircraft, view a short film in the theater, and watch takeoffs and landings from the observation deck at Lake Hood Air Harbor.



Anchorage Museum Science Galleries

The museum's 80 exhibits and programs such as the Imaginarium Science Discovery Center, the Thomas

Planetarium and BP Kinetic Space let kids discover science thru fun activities. Many exhibits address scientific topics of particular interest in Alaska: Volcanoes, aurora borealis, marine life and more.



Alaska Zoo

You're guaranteed to spot Alaska wildlife such as bear, moose, musk ox, seals and fox here!

H₂Oasis Waterpark

Make a splash at Anchorage's only indoor waterpark. The park features a wave pool, children's lagoon, and the only indoor 505 foot long Master Blaster® Water Coaster in the country.

Alaska Wildlife Conservation Center

Visit some of Alaska's more famous animals nose-to-nose! Alaska's only drive-through and walk-through tour of buffalo, elk and moose viewing exhibits.



Local Sites of Interest

Anchorage Museum, Anchorage Botanical Garden, Chugach National Park, Alaska Native Heritage Center, Eklutna Village, Thunderbird Falls, Matanuska Glacier, Independence Mine State Park, Hatcher Pass, Alyeska Resort, Crow Creek Mine, Portage Glacier, Alaska Conservation Center, Begich Boggs Visitor Center, Kenai Fjords National Park and Denali National Park.



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.

CLIMATE

In Anchorage July is the warmest month, 64-65°F (18°C). The precipitation is 1.5 in (38 mm) on average in June-July. For Alaska weather and what to wear on, click www.rsswaether.com , www.anchorage.net and other sites. There are **22 hours of functional daylight** on Summer Solstice. The further north you travel, the more sun you get in the summer; **in Barrow the sun does not set for 84 days!** The weather is perfect for casual wear for people taking advantage of the area's many outdoor activities.

Visit Tour Desk near Conference Registration area.



ADVANCE CONFERENCE REGISTRATION

Registration fee starts at **\$680**. *E-mail or Fax* your registration form together with your payment to:

ISOPE Accounting (ISOPE-2013)
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, 2013 and earlier.
Non-authors and non-presenting authors: May 31, 2013

REGISTRATION BADGE

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

ON-SITE CONFERENCE REGISTRATION:

Participants who miss the advance registration (before **May 31 or earlier for those required**) 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 30	15:00-18:00	Wednesday, July 3	08:00-15:00
Monday, July 1	07:30 -16:00	Thursday, July 4	08:00-13:00
Tuesday, July 2	08:00 -16:00		

ISOPE-2013 CONFERENCE PROCEEDINGS

A 4-volume conference proceedings on CD-ROM (**ISBN 978-1-880653-99-9; ISSN 1098-6189**) is included in all conference registration fees. For additional or separate orders, download the **publications order form** from www.isope.org for post-conference order:

A **4-volume Conference Proceedings** in CD-ROM (4,000 pp. est.)
E-mail or Fax order \$290 (ISOPE Member \$240)

Order from ISOPE, 495 North Whisman Road, Suite 300, Mountain View, California 94043-5711, USA: isope-2@isope.org 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.isope.org).

CONFERENCE RECEPTION

Sunday TBA

ANNUAL CONFERENCE BANQUET

Wednesday TBA

AUTHOR USB TEST At 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 and will pick up session jacket for briefing the authors 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 start of their 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 at the Egan Convention Center, the venue.

Registration Desk at BEXCO.

INTERNATIONAL PARTICIPANTS AND VISA APPLICATION

International authors, participants or attendees who need help (except financial) can contact: **ISOPE-2013**

Secretariat, 495 North Whisman Road, Suite 300, Mountain View, California 94043-5711 USA. Fax: +1-650-254-2038; email: meetings@isope.org.

Entry Visa. Some authors, spouses and participants may be required to apply for an entry visa.

Visa application form. Get it from the Consulate of the United States of America in your country, or download the visa application form from: On **Google**, search for **Visa Application for US > VISAS**.

If the Consulate requires you to submit an official letter of invitation, please contact **ISOPE, USA (email: meetings@isope.org; Fax: +1-650-254-2038)**.

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.



PUBLICATION ORDER INFORMATION

To order, download the publication order form from www.isope.org > orders, www.isope.org > publications, or e-mail to orders@isope.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@isope.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 (to be posted in February) on www.isope.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\$160. (Member; complimentary) and US\$100 per a set of annual back issues. US\$60 per issue.

ISOPE's new Renewable Energy will be launched in 2013.

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 10th (2012) Pacific/Asia Offshore Mechanics Symposium (PACOMS-2012), Vladivostok, Russia, October 3-5, 2012. A single volume (CD-ROM, ISBN 1-880653-93-7, 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): 231 pp., US\$100 (Member; US\$80.)

Reprints of the 1st (1996) International Deep-Ocean Technology Symposium and Workshop, Los Angeles, May 31–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 (2003) ISOPE Symposium on High-Performance Materials in Offshore Industry (HMOI), ISOPE HPM-2003, Honolulu, Hawaii, US, May 25-30, 2003: Published in 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, ISOPE HPM-2004, HPM-2005, HPM-2006, HPM-2007, HPM-2008, HPM-2009, UPM-2010, HPM-2011, HPM-2012, HPM-2013 are published in the

Proceedings of the International Offshore and Polar Engineering Conference held in the corresponding year.

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. *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 SBD-2008, SBD-2009, SBD-2010, SBD-20011, SBD-2012, SBD-2013 are published in the Proceedings of the International Offshore and Polar Engineering Conference held in the corresponding year.

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 SDD-2010, SDD-2011, SDD-2012, SDD-2013 are published in the Proceedings of the International Offshore and Polar Engineering Conference held in the corresponding year.

First (2010) ISOPE Renewable Energy and Environment Symposium, ISOPE REES-2010, Beijing, China, June 20–25, 2010: published in the Proceedings of the International Offshore and Polar Engineering Conference held in the corresponding year.

Second (2011) ISOPE Renewable Energy and Environment Symposium, REES-2011, REES-2012, REES-2013 are published in the Proceedings of the International Offshore and Polar Engineering Conference held in the corresponding year.

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).

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