

9th IBC / CIB

**INTERNATIONAL BRACHIOPOD CONGRESS
CONGRÈS INTERNATIONAL SUR LES BRACHIOPODES**

Niagara Falls - St.Catharines, Ontario, Canada

Brachiopods: Sentinels of the Phanerozoic



June 24-27, 2024

**Brock University
1812 Sir Isaac Brock Way, St.Catharines, Ontario, Canada**

**www. 9th-IBC/CIB 2024.ca; BRACHNET
email: ubrand@brocku.ca; 9Brachiopodcong@brocku.ca**

**9th International Brachiopod Congress – Congrès International sur les Brachiopodes
June 24-27, 2024, Brock University, St. Catharines Canada**

Brachiopods: Sentinels of the Phanerozoic

General Chair

Uwe Brand, Department of Earth Sciences, Brock University, St. Catharines, Canada

Co-chair: Lucia Angiolini, University of Milan, Milan, Italy

Co-chair: Erika Griesshaber, Ludwig-Maximillan University, Munich, Germany

Honourary Chair

Alan Logan, Centre for Coastal and Marine Studies, University of New Brunswick, Canada

Organizing Team

Audrey K. Morrison

Dan Morrison

Uwe Brand

Mike Lozon

Scientific Committee

Sandra J. Carlson, University of California-Davis, U.S.A.

Jisuo Jin, University of Western Ontario, Canada

Lucia Angiolini, University of Milan, Italy

Aleksandra Bitner, Polish Academy of Science, Poland

Erika Griesshaber, Ludwig-Maximillan University, Germany

Elizabeth Harper, University of Cambridge, U.K.

Carsten Lueter, Museum of Nature, Germany

Lars Holmer, Uppsala University, Sweden

Alycia Stigall, University of Tennessee, U.S.A.

Colin D. Sproat, University of Saskatchewan, Canada

Futures' Scientists Committee

Alessandro Carniti, University of Milan, Italy

Gaia Crippa, University of Milan, Italy

Hanah Jurikova, University of St. Andrews, U.K.

Audrey Kae Morrison, University of Western Ontario/Brock, Canada

Marco Viaretti, University of Milan, Italy

Plenary Speakers

Lars Holmer, Uppsala University, Sweden

Sandra Carlson, University of California-Davis, U.S.A.

Wolfgang Schmahl, Ludwig-Maximillan University, Germany

WELCOME DELEGATES BIENVENUE

9th International Brachiopod Congress – Congres International sur les Brachiopodes

VENUE

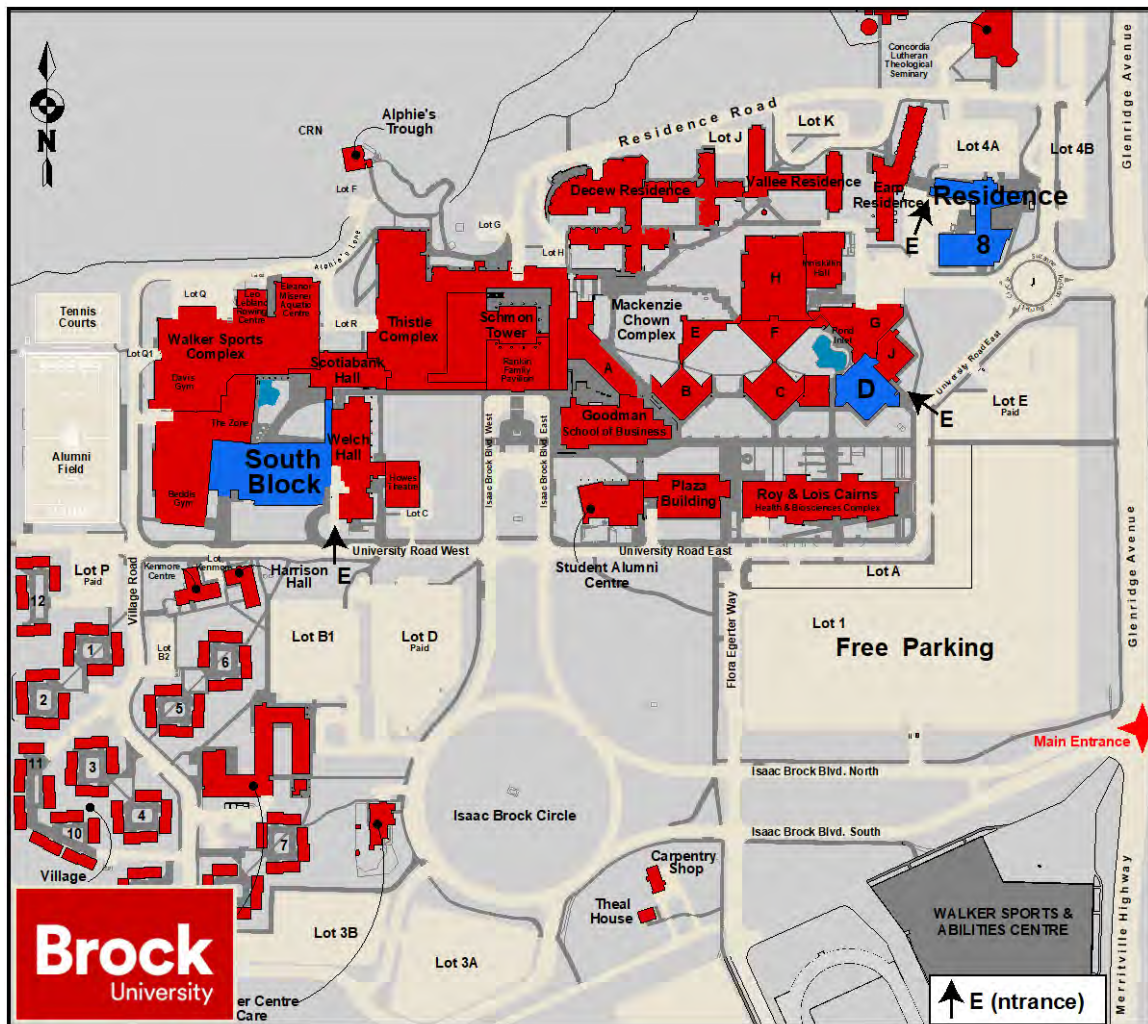


Figure 1. Main Campus of Brock University. Registration and Workshops will take place in MC 'D' (D Block marked in blue with entrance 'E' from the south east). Scientific Presentations will take place in South Block (Academic South) with entrance sandwiched in between Welch Hall. Icebreaker Party will be in the Dining Hall of Residence 8. Busses and cars will depart for the Gala Dinner from the parking lot adjacent to Residence 8, and return to same location. Those of you driving a car, Parking is FREE in Lots 1 and 2, unless you are assigned another location while you are staying in Residence 8 for the Congress. Lunch will be served in the 'Market Place' of the Tower for the duration of the Congress.

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

Most activities of the 9th IBC-CIB will take place on the Main Campus of Brock University in St. Catharines, Ontario (Figure 1). The Gala Dinner will be held in Niagara Falls, Ontario.

REGISTRATION

Registration will take place on June 24, 2024 from 10:00 – 12:00 am in room MC D 308 (marked in 'blue' on the site map). We will accommodate late comers with continuing and on-site registration in the same room.

SLIDE PREVIEW

You will be able to set-up your computer in room MC D 308 and preview your oral presentation(s). Assistants will be available to answer basic questions. Recommendation for slides – set PowerPoint to 'normal' view when constructing presentation. Please make sure that slide text is readable at a 'fair' distance, and the same holds true for the posters (~1.2 m x 1.2 m).

JUNE 24

WORKSHOPS

We have two workshops scheduled right after lunch and they are held in room MC D 309 (adjacent to the Slide Preview and Registration room). They are preceded by a brief welcome and introduction of the 9th IBC-CIB. Presenters will be Dr. Erika Griesshaber of Ludwig-Maximilian Universität, Munich (Workshop 1) and Prof. Uwe Brand of Brock University (Workshop 2).

ICEBREAKER PARTY

Our Icebreaker Party will be held in the Dining Room of Residence 8 on June 24 starting at about 6:30 pm. Drinks and Food will be available for this party. For non-coffee, tea and water, you will be given drink tickets at Registration that are good for beer, wine and soft drinks. Extra tickets may be purchased upon requirement/request at the 'Bar'.

BREAKS

We will have breaks during the first and subsequent days of the Congress when coffee, tea and water will be available to attendees outside the Workshops and the Presentation Hall.

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

JUNE 25

Plenary 1, Sessions 1-3 will be held in Lecture Hall (Academic South) STH 204 from 9:00 am until about 4:25 pm. We have Breaks scheduled throughout the day and in the vicinity of the Posters in Academic South. Lunch will be offered in the Market Place of the Tower (see Scientific Program as to time).

The GALA Dinner is scheduled from 6:00 until 9:00 pm in Niagara Falls, Ontario. We will have UBERs and cars leaving from Brock University – from the Parking Lot adjacent to Residence 8 at 5:15 pm. We advise you to use UBERs for your return travel (Brock, Hotel, etc.) it gives you the greatest flexibility and more time for ‘playing’ tourist in Niagara Falls.

JUNE 26

Plenary 2, Sessions 4-6 will be held in Lecture Hall (Academic South) STH 204 from 9:00 am until about 4:50 pm. We have Coffee & Tea Breaks scheduled throughout the day and in the vicinity of the Posters in Academic South. Lunch will be offered in the Market Place of the Tower (see Scientific Program as to time).

JUNE 27

Plenary 3, Sessions 7-9 will be held in Lecture Hall (Academic South) STH 204 from 9:00 am until about 4:25 pm. We have Coffee & Tea Breaks scheduled throughout the day and in the vicinity of the Posters in Academic South. Lunch will be offered in the Market Place of the Tower (see Scientific Program as to time). Sessions 7-9 are scheduled by and for our ECR (Early Career Researchers) to present their studies and results.

POSTERS

Posters will be on display in the hallway adjacent to the lecture hall from Monday until Thursday afternoon.

9th International Brachiopod Congress – Congrès International sur les Brachiopodes
Scientific Program

Monday June 24, 2024

- 10:00 – 12:00 pm Registration
- 12:00 – 1:45 pm LUNCH**
- 1:45 – 2:00 pm Welcome
- 2:00 – 4:00 pm Workshop 1
Erika Griesshaber, W.W. Schmahl
Microstructure and textural analysis of biological and geological materials
- 4:00 – 4:15 pm BREAK**
- 4:15 – 5:15 pm Workshop 2
Uwe Brand
A Call to Action: Chemical Evolution of Paleozoic seawater: an update
- 6:30 Icebreaker Party**

Tuesday June 25, 2024

- Sessions 1,2,3* Conveners: C. Ullmann, M.A. Bitner, C. Lüter
- S1 9:00-9:25 Carsten Lüter, Anke Sanger, Fabia Wagner
FIRST RECORD OF THE SMALLEST EXTANT BRACHIOPOD *GWYNIA CAPSULA* (JEFFREYS, 1859) FROM THE GERMAN BIGHT
- S1 9:25-9:50 Daniele Gaspard
ANTARCTIC BRACHIOPODS SAMPLED DURING THE CEAMARC EXPEDITION OFFSHORE TERRE ADELIE TO MERTZ GLACIER
- S1 9:50-10:15 Maria Aleksandra Bitner
RECENT BRACHIOPODS FROM NORTH-WESTERN AUSTRALIA
- 10:15-10:30 BREAK**
- S2 10:30-10:55 Steven J. Hageman, Delaney R. Ryan, and Lucas Gascard
BRACHIOPOD SHELL-SHAPE: A MORPHO-ECOSPACE CHARACTERIZED BY CATEGORICAL, INDEXED VARIABLES
- S2 10:55-11:20 Elizabeth M. Harper, Jeffrey Robinson, Daphne E. Lee & Miles D. Lamare
THE BIOLOGY OF *NOTOSARIA NIGRICANS* REVISITED: A WORK IN PROGRESS

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

- S2 11:20-11:45 A. Sedlmeir, C. Stephan C., E. Griesshaber, J. Robinson, W. W. Schmahl, W.W.
**HOW DO THE MODERN BRACHIOPODS *CALLORIA INCONSPICUA* AND
LIOTHYRELLA NEOZELANICA REPAIR THEIR SHELL?**
- S2 11:45-12:10 Uwe Brand, Claire Rollion-Bard, Karem Azmy, Erika Griesshaber, Aleksandra Bitner,
Josh Larochele, Audrey Morrison
**LI/CA A NEW PALEOTHERMOMETER: UNLOCKING ANCIENT SEAWATER
TEMPERATURES**
- 12:10-1:45 LUNCH**
- Plenary 1 Convener: L. Angiolini
- P1 1:45-2:45 Wolfgang W. Schmahl
**BRACHIOPOD SHELLS – WHAT THEY TEACH US ABOUT BIOLOGIC
CONTROL OF MINERAL GROWTH AND MORPHOLOGY THE INTERPLAY OF
ONTOGENY AND PHYLOGENY**
- Sessions 1,2,3*
- S3 2:45-3:10 Alfréd Dulai
**NEW RESULTS ON THE NEOGENE BRACHIOPODS OF THE
MEDITERRANEAN AREA (ITALY AND SPAIN)**
- S3 3:10-3:35 Garbelli C., Lamare M.D., Harper E.M
**BRACHIOPOD SHELLS AS ARCHIVES OF SEASONALITY: A TRIAL IN
CALLORIA INCONSPICUA (SOWERBY, 1846)**
- S3 3:35-4:00 Zoë Hughes
SHIFTING THE LOPHOPHORE
- S3 4:00-4:25 Clemens V. Ullmann
**'CHEMICAL PALAEOONTOLOGY' – THE USE OF GEOCHEMISTRY TO INFORM
BRACHIOPOD PALAEOECOLOGY AND TAXONOMY**
- 4:25 BREAK**

GALA DINNER 6:00-9:00 pm

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

Wednesday June 26, 2024

- Sessions 4, 5, 6* *Conveners: J. Jin, R. Zhan, A. Stigall*
- S4 9:00-9:25 Zhifei Zhang, Lars E. Holmer, Zhiliang Zhang, Feiyang Chen, and Yue Liang
BRACHIOPODS WITH SOFT PARTS FROM THE EARLY CAMBRIAN WULONGQING FORMATION (SERIES 2, STAGE 4), YUNNAN, SOUTH CHINA
- S4 9:25-9:50 Yazhou Hu, Timothy P. Topper, Yue Liang, Fan Liu, Caibin Zhang, Zhifei Zhang
BIOMINERALIZATION PROCESS IN CAMBRIAN ACTROTRETIDS AND THE FORMATION OF CONICAL SHELLS
- S4 9:50-10:15 Zhan Renbin, Rong Jiayu, David A.T. Harper and Zhang Yuchen
STUDY OF THE GOBE IN CHINA: EXAMPLES FROM BRACHIOPODS
- 10:15-10:30** **BREAK**
- S5 10:30-10:55 Bing HUANG* and Jiayu RONG
HETEROGENEOUS PALAEO-ECOGEOGRAPHY OF BRACHIOPOD FAUNA DURING THE LATE ORDOVICIAN MASS EXTINCTION IN SOUTH CHINA
- S5 10:55-11:20 Jisuo Jin, Christian M. Ø. Rasmussen, David A. T. Harper, Robert B. Blodgett, and Peter M. Sheehan
LATE ORDOVICIAN TCHERSKIDIUM FAUNA IN THE NORTHERN TROPICS A TALE OF TWO HEMISPHERES
- S5 11:20-11:45 Colin D. Sproat and Jessica A.S McLeod
SILICIFIED LATE ORDOVICIAN BRACHIOPODS FROM THE MACKENZIE MOUNTAINS, CANADA AND THEIR RELATION TO OTHER LAURENTIAN BRACHIOPOD FAUNAS
- S5 11:45-12:10 Yuchen Zhang, Peng Tang, Renbin Zhan
THE ORDOVICIAN-SILURIAN BOUNDARY DEPOSITS AND THE CATHAYSIORTHIS FAUNA IN NORTHWESTERN TARIM, XINJIANG
- 12:10-1:45** **LUNCH**
- Plenary 2 Convener: Q. Li
- P2 1:45-2:45 Lars E. Holmer, Leonid Popov, Mansoureh Ghobadipour, Zhifei Zhang
PHYLOGENY OF CAMBRIAN BRACHIOPODS
- Sessions 4, 5, 6*
- S6 2:45-3:10 Li QIAO*, Rong-yu LI*
DEVONIAN BRACHIOPOD FAUNA FROM MANITOBA, CANADA

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

- S6 3:10-3:35 Lucia Angiolini*, Gaia Crippa, Eamon Doyle, John Murray, Mick O'Connell, Karem Azmy, David Harper
REVISITING BRACHIOPOD GIANTS: A CASE STUDY FROM THE MISSISSIPPIAN OF WESTERN IRELAND
- S6 3:35-4:00 Li QIAO
PALAEOBIOGEOGRAPHICAL CORRELATIONS OF TIBETAN TERRANES IN RELATION TO MISSISSIPPIAN (CARBONIFEROUS) BRACHIOPOD FAUNAS
- S6 4:00-4:25 Guo Wen
THE EVOLUTIONARY HISTORY OF THE MICROMORPHIC BRACHIOPOD LAMBDARINIDS
- S6 4:25-4:50 Alycia L. Stigall
BRACHIOPODS AS RECORDERS OF INVASION EVENTS IN DEEP TIME: INSIGHTS INTO EVOLUTIONARY AND ECOLOGICAL IMPACTS OF ANCIENT INVASIONS
- Thursday June 27, 2024**
- Sessions 7, 8, 9* Conveners: M. Viaretti, G. Crippa, A. Morrison
- S7 9:00-9:25 Baopeng Song, Zhifei Zhang, Lars E. Holmer
FIRST REPORT OF *DIANDONGIA* SP. (FAMILY BOTSFORDIIDAE) AND ITS MICROSTRUCTURE FROM THE SHULJINGTUO FORMATION OF SOUTHERN SHAANXI, CHINA
- S7 9:25-9:50 Mei Luo, Zhifei Zhang* and Lars E. Holmer
THE ROLE OF BRACHIOPODS WITH ASSOCIATED FOSSILS IN INTERCONTINENTAL STRATIGRAPHIC CORRELATION DURING THE EARLY CAMBRIAN
- S7 9:50-10:15 Bilal Gul, Leho Ainsaar and Tõnu Meidla
PALEOTEMPERATURE RECONSTRUCTION BASED ON OXYGEN STABLE ISOTOPIC TRENDS FROM THE ORDOVICIAN-SILURIAN BRACHIOPODS OF BALTOSCANDIA
- 10:15-10:30 BREAK**
- S8 10:30-10:55 Jessica S.A. McLeod and Colin D. Sproat
ORTHIDE BRACHIOPODS FROM THE KATIAN WHITTAKER FORMATION IN THE MACKENZIE MOUNTAINS, NORTHWEST TERRITORIES, CANADA

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

- S8 10:55-11:20 Rao Fu, Yue Liang*, Yazhou Hu, Fan Liu, Baopeng Song, Mei Luo, Xinyi Ren, Ruisen Fang, Jiayue Wang, Lars E. Holme, and Zhifei Zhang
MORPHO-ANATOMICAL FEATURES OF THE LATE ORDOVICIAN LINGULOID BRACHIOPODS AND THEIR ECOLOGICAL IMPLICATIONS
- S8 11:20-11:45 Audrey K. Morrison, Claire Rollion-Bard, Maria Aleksandra Bitner, Uwe Brand
TUNNELING OR PITTING LA-ICP-MS: THAT IS THE QUESTION?
- S8 11:45-12:10 Marco Viaretti, Gaia Crippa, Renato Posenato, Hana Jurikova, Valentina Brombin, Erika Griesshaber, Lucia Angiolini
EVIDENCE OF WUCHIAPINGIAN (LATE PERMIAN) CLIMATE COOLING: SEASONAL CHANGES REVEALED BY BRACHIOPOD SHELL SCLEROCHEMISTRY
- 12:1-1:45 LUNCH**
- Plenary 3 Convener: A. Dulai
- P3 1:45-2:45 Sandra J. Carlson, Glenn S. Jaecks, Rylan K. V. Dievert, Steven E. Mendonca, Judith A. Sclafani, Erik A. Sperling
BRACHIOPOD EVOLUTION: THE INTERPLAY OF ONTOGENY AND PHYLOGENY
- Sessions 7, 8, 9*
- S9 2:45-3:10 Hana Jurikova, Claudio Garbelli, Ross Whiteford, Molly Trudgill, Tamás Müller, Theodore Reeves, Marco Viaretti, Volker Liebetrau, Marcus Gutjahr, Anton Eisenhauer, Dawid Adam Iurino, Adam Tomašových, Yuchen Zhang, Wenqian Wang, Guang Rong Shi, Shuzhong Shen, James W.B. Rae, Lucia Angiolini
PUSHING THE FRONTIER IN BORON-BASED CO₂ RECONSTRUCTIONS INTO DEEP GEOLOGIC TIME WITH BORON ISOTOPES IN BRACHIOPODS
- S9 3:10-3:35 Fengyu Wang
BIOECONOMY IN EXTINCTION EVENTS: REDUCING CALCIFICATION COSTS THROUGH SIMPLIFICATION UNDER OCEAN ACIDIFICATION
- S9 3:35-4:00 Zhen Guo, Zhong-Qiang Chen
MORPHOLOGICAL INNOVATION DID NOT DRIVE BIODIVERSIFICATION IN MESO-CENOZOIC BRACHIOPODS
- S9 4:00-4:25 Gaia Crippa, Hana Jurikova, Melanie J. Leng, Marco Zanchi, Elizabeth M. Harper, James W.B. Rae, Kotryna Savickaite, Marco Viaretti, Lucia Angiolini
BRACHIOPOD SHELLS AS ARCHIVES OF SEASONAL AND INTERANNUAL CHANGES
- 4:25 CLOSING REMARKS

9th International Brachiopod Congress – Congrès International sur les Brachiopodes

POSTERS

Maria Aleksandra Bitner, Šárka Hladilová, Jaroslav Šamánek & Tomáš Turek

NEW DATA ON THE MIDDLE MIOCENE BRACHIOPODS OF MORAVIA, CZECH REPUBLIC

Alessandro P. Carniti, Giovanna Della Porta, Vanessa J. Banks, Michael H. Stephenson, Lucia Angiolini
FACTORS CONTROLLING BRACHIOPOD DISTRIBUTION AND DIVERSITY IN UPPER VISEAN (MISSISSIPPIAN) MUD MOUNDS IN DERBYSHIRE, UK

Sophia Caton and Hana Jurikova

NEW PALEOENVIRONMENTAL AND PALEOCLIMATIC RECONSTRUCTION OF THE KAČÁK EVENT USING BRACHIOPODS FROM THE HAMILTON GROUP LIMESTONE

Attila Vörös and Alfréd Dulai

THE MORPHOLOGY AND FUNCTION OF THE PERFORATION (KEYHOLE) IN PYGOPIDAE (TEREBRATULIDA, BRACHIOPODA)

Zoë Hughes

NHM UNLOCKED: PREPARING COLLECTIONS TO MOVE

Yoshino Ishizaki and Yuta Shiino

MORPHOLOGICAL EVOLUTION OF POST-PALAEOZOIC DISCINID BRACHIOPODS: INSIGHTS INTO AUTECOLOGICAL INNOVATION

Yoshino Ishizaki, Taro Yoshimura, Yuta Shiino and Takenori Sasaki

SHELL MICROSTRUCTURE OF *LINGULA* AND *DISCRADISCA*

Kazuma Oikawa, Hideko Takayanagi, Ryuichi Shinjo, Kazuyoshi Endo, Masa-aki Yoshida, Yasufumi Iryu

HIGH-RESOLUTION MINOR ELEMENT CONCENTRATION RECORDS IN MODERN BRACHIOPOD *PISCTOTHYRIS PICTA* AND IMPLICATIONS FOR THE Mg/Ca RATIO IN SHELLS

Ane Elise Schrøder, Finn Surlyk, Eckart Håkansson

FIRST RECORD OF THE COSMOPOLITAN BRACHIOPOD *PRAELACAZELLA WETHERELLI* FROM THE LOWER MAASTRICHTIAN OF WESTERN AUSTRALIA

Yuta Shiino, Mari Nitta

COMPUTATIONAL FLUID DYNAMICS SIMULATIONS ON ZIGZAG COMMISSURE OF PLATYSTROPHIID BRACHIOPODS

Yuta Shiino, Kota Sato, Chinatsu Sasaki, Takuya Shiratsuka, Yoshino Ishizaki, Souma Kaneko, Takami Nobuhara, Ken Ikehara

BENTHIC ADAPTATION OF EXTANT BRACHIOPODS OFF TOKAI REGION, CENTRAL JAPAN

Marco Viaretti, Alan Heward, Lucia Angiolini

NEW OCCURRENCES OF BRACHIOPOD GENERA FROM THE QARARI UNIT (UPPER KUNGURIAN, NE OMAN)