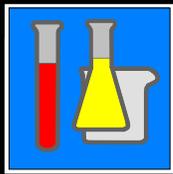




THE SOCIETY FOR ORGANIC PETROLOGY



NEWSLETTER

Vol. 35, No. 2

June, 2018

ISSN 0743-3816

35th TSOP Annual Meeting

August 17 – 22, 2018
Beijing, China



Qianmen Street, Beijing, China.

TSOP Meeting Website (<http://tsop2018.org/>)

TSOP Annual Meeting

August 17 – 22, 2018
Beijing, China

<http://tsop2018.org/>

CALL FOR PAPERS
Abstracts Due: June 15, 2018

Early Bird Registration ends July 15th, 2018

Organizing Committee:

Shifeng Dai, Yuegang Tang, Xibo Wang, Lei Zhao, Shaoqing Wang, Qiang Wei

Host Organizations:

China University of Mining and Technology, Beijing.
China University of Mining and Technology, Jiangsu.

Conference Venue:

Xijiao Hotel, Haidan District, Beijing (<http://www.xijiao-hotel.com.cn/>)

Field Trip:

August 20th & 21st, 2018. Wulantuga Coal-hosted Ge ore deposit, Xilinhot City, Inner Mongolia Autonomous Region.

Coal Courses:

August 15-17th, 2018. Coal Characterization, Utilization and Impact. See <http://tsop2018.org/Public/Uploads/files/2017-12-11/5a2dea4109001.pdf> for details.

The Society for Organic Petrology

TSOP is a society for scientists and engineers involved with coal petrology, kerogen petrology, organic geochemistry and related disciplines. The Society organizes an annual technical meeting and field trips; sponsors research projects; provides funding for graduate students; and publishes a web site, a quarterly Newsletter, membership directory, annual meeting program and abstracts, and special publications. Members are eligible for discounted subscriptions to the Elsevier journals *International Journal of Coal Geology* and *Review of Palaeobotany and Palynology*. Subscribe by checking the box on your dues form, or using the form at www.tsop.org. For the best prices on subscriptions to AGI's *Earth*, see their web site at www.geotimes.org/current.

TSOP is a Member Society of AGI and an AAPG Associated Society.

The Society for Organic Petrology Newsletter

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GUIDELINES:

The TSOP Newsletter welcomes contributions from members and non-members alike. Readers are invited to submit items pertinent to TSOP members' fields of study. These might include meeting reports and reviews, book reviews, short technical contributions including those on geologic localities or laboratory methods, as well as creative works such as poems, cartoons and works of fiction. Photos, graphs and other illustrations are welcomed. Low-resolution images are discouraged, as they cannot be reproduced well in print. Articles are preferred in Microsoft Word, RTF or plain text formats.

Contact the Editor:

Rachel Walker
e-mail: drachelwalker@gmail.com

Address Changes

Please report any changes in address or contact information to: Paul Hackley, TSOP Membership Chair,
phackley@usgs.gov

Members can update their own information by logging into the secure TSOP website:
www.tsop.org/mbrsonly/

The TSOP Newsletter is published quarterly by The Society for Organic Petrology and is distributed to all Society members as a benefit of membership.

Membership in the Society is open to all individuals involved in the fields of organic petrology and organic geochemistry. For more information on membership and Society activities, please see:
www.tsop.org

For purposes of registration of the TSOP Newsletter, a permanent address is:
The Society for Organic Petrology,
c/o American Geological Institute,
4220 King St., Alexandria,
VA 22302-1520 USA

Newsletter Submission Deadlines

September Issue: Sept. 5th, 2018

December Issue: Dec. 5th, 2018

March Issue: March 5th, 2019

June Issue: June 5th, 2019

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member society of



TSOP Membership Dues



TSOP dues payments are due on or before **January 1st each year** and we encourage you to check your dues status and make your payment so that you can continue your TSOP membership and support the society and its work.

Our Dues Prepayment Incentive can save you time and the hassle of arranging your yearly payment. When you prepay your dues four years in advance at the regular rate of \$25/yr we will give you the fifth year free!

We encourage members to use our convenient online dues payment system. You can use it to pay by credit card, check (US Members), money order or credit card.

You can login at www.tsop.org/mbrsonly and select 'Online dues payment' or go to www.tsop.org/dues and access the online form without logging in.

Please note that credit card payment processing is via PayPal and you don't need a PayPal account to use it. If you want to use a dues form, a copy of this year's form can be downloaded from the website by following the 'Members only->Dues' links from the main page (www.tsop.org).

Thank you for your interest and support of TSOP and we look forward to a renewal of your TSOP membership.

Institutional/Corporate Memberships



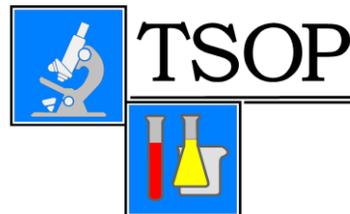
We'd like to make members aware that membership in TSOP is also open to any organization having an active scientific interest in organic petrology or related fields. TSOP especially encourages institutions to join at the special **institutional rate of \$75/yr** and help support the goals of the Society.

See the website for details!

www.tsop.org/join_TSOP.html



www.facebook.com/OrganicPetrology



**The Society for
Organic Petrology**

New Members

W · E · L · C · O · M · E



Dr. Subhashree Mishra

Dr. Subhashree Mishra obtained a Ph.D. in Applied Geology focusing on “Gas Reservoir Characteristics of Shale Beds in Northern Part of Raniganj Coal Basin, West Bengal, India” from IIT (ISM), Dhanbad. She has 5 years of experience as a Researcher in field geology and in laboratory work and has gained understanding in basics of coal, shale and organic petrology. Dr. Mishra has done extensive work on Indian coal, reservoir characterization of shale deposits, reservoir simulation/modelling, and produced water characterization and management options for CBM and underground coal mining operations.

Subhashree is the recipient of Wadia Memorial Award from ISCA 2014 and P.G Merit scholarship from Institute of Mathematics and Applications.



Natalia Maciejończyk

Natalia Maciejończyk is a first year PhD student from AGH University of Science and Technology in Kraków, Poland. Her current studies are connected to various applications of coal petrology – in coal facies studies and in the analysis of coal gasification and combustion residues.





Dr. Zhanjie Xu

Dr. Zhanjie Xu is a Research Fellow at the Institute of Surface-Earth System Science, Tianjin University, Tianjin, China working on research regarding organic petrology and geochemistry of coal and coal seam gases. He received a PhD degree in Mineral Resource Prospecting and Exploration from China University of Mining and Technology-Beijing in 2017 and has one-year experience in organic matter analysis in the University of Queensland, Australia (2015-2016).

Currently, Zhanjie is working on stable isotopic geochemistry of coal macerals, coal seam gases and carbonaceous aerosols.



Bangjun Liu

Bangjun Liu received his bachelor and master degrees in 2013 and 2016, respectively, from Hebei University of Engineering, and is currently pursuing a Ph.D. degree from J. W. Goethe-University Frankfurt am Main. During his bachelor and master degrees, his research focused on the harmful/valuable trace elements and occurrence of minerals in coal.

Now, Bangjun's doctoral project is trying to clarify the origin of widespread pale and dark lignites in Yunnan Province, Southwest China, and its implication for vegetation and paleoenvironmental changes.



Panpan Xie

Panpan Xie is currently a PhD candidate at China University of Mining and Technology (Beijing) studying the petrological, mineralogical, and geochemical characteristics of late Permian coals from southern China. Panpan was a visiting student (2017-2018) at the Center for Applied Energy Research, University of Kentucky. Her research topics focus on coal geology, geochemistry, and petrology.



Adam Nocoń

Adam Nocoń's professional experience and interests are related to new solid fuel heating technologies. Currently, Adam is PhD student focusing on the best pellet mixtures available on the domestic market and testing them using modern research methods. He is also a co-owner of a solid fuels boiler production company.

Let your colleagues and students know
about joining TSOP!

www.tsop.org/join_TSOP.html

Ohio Valley Organic Petrographers Annual Meeting

March 29, 2018

Morehead State University, Morehead, Kentucky, USA

The annual Ohio Valley Organic Petrographers meeting was held at Morehead State University in Morehead, Kentucky on March 29, 2018. Participants included faculty and students from SIUC, UK, IU, Indiana and Kentucky geological surveys and Morehead State University. The meeting is designed to provide a venue for student presentations and allows for feedback on talks in an informal setting. Talks covered a range of topics including coal mine safety, palynology, coal mineralogy and shale geochemistry. Speakers and their presentations are below:

Heather Lawson: An overview of NIOSH sponsored research into coal composition as it pertains to dynamic failures in underground coal mines

Kuo Li: Petrographic characteristics of nature graphitized coals from central Hunan, China

Jim Hower: Anthracite rank mechanisms: Examples (mainly) from Pennsylvania

Steve Austin: The Life History of Lepidophloious, a Major Carboniferous Coal-Forming Tree

PanPan Xie: Petrological characteristics of the Lopingian coals from the Yueliangtian Coalfield, Guizhou, southwestern China: implications for the tectonism

Jen O'Keefe: McKinney Roughs, an update: preliminary palynology and tonnstein petrography and geochemistry in relation to petrography of the Hooper Coal, Texas

Kristina Gardner: Wetlands in Palm Savannahs: palynology and organic petrography of channel-fill coals in the uppermost Wilcox Group, Texas

JingJing Liu: Modes of occurrence of non-mineral inorganic elements in lignites from Mile Basin, Yunnan Province, China

Biao Fu: A comparative study on the mineralogy, chemical speciation and combustion behavior of toxic elements of coal beneficiation products

Jake Dyson: Chemostratigraphy, Geochemistry, and Petrography of the Anna Shale and Pyrite Sands of the Illinois Basin

Bei Liu: Petrographic and micro-FTIR study of organic matter in the Upper Devonian New Albany Shale during thermal maturation: Implications for kerogen transformation

Corey Brazell: Low-temperature methane generation of the New Albany Shale

Cortland Eble: Organic Matter Content and Thermommaturation Trends in the Ohio and Sunbury Shales, Eastern Kentucky, Central Appalachian Basin



Ohio Valley Organic Petrographers Annual Meeting, Morehead State University, Morehead, Kentucky, USA

Origin, properties, and implications of solid bitumen in unconventional systems: A review.

**Mastalerz, M., Drobniak, A., and Stankiewicz, A.
International Journal of Coal Geology Volume 195, 1 July 2018 p.14-36.**

<https://doi.org/10.1016/j.coal.2018.05.013>

This paper reviews the significance of solid bitumen with emphasis on source-rock reservoirs. We discuss difficulties and discrepancies with terminology, especially those terms related to the origin of solid bitumen and its physical and chemical properties. Various definitions of solid bitumen have their own justifications and can be used provided there is clarity about which defining criteria are being considered. Difficulties in conforming to chemical-, solubility-, or origin-related definitions lead us to suggest adapting the reflectance of solid hydro-carbon as a practical choice for placing the boundary between solid bitumen and pyrobitumen, and 1.50% is proposed as the boundary value. It has to be noted that this boundary may be shifted down to 1.3% for sulfur-rich kerogen. Recently, much progress has been made by combining imaging and physical adsorption techniques in porosity studies, and so the porosity of solid bitumen is given special emphasis. Comparing pore characteristics obtained from SEM versus those generated by gas adsorption, mercury intrusion, or neutron scattering techniques indicates that the SEM pore inventory fails to account for the smallest pores (< 5 nm in size) present in organic matter. Therefore, low-pressure CO₂ adsorption is still the most effective technique to assess micro-porosity (pores < 2 nm in diameter) in shales. We conclude that combining observational in situ techniques with techniques based on physical principles is necessary to make progress toward a better understanding of porosity systems in organic matter, including solid bitumen.

We review the implications of the abundance of solid bitumen on reservoir quality, porosity, permeability, and producibility, based on examples of selected sequences. One of the difficulties in predicting the influence of solid-bitumen-bearing horizons on reservoir quality arises from the problems with detecting organic phases using various logging techniques. The use of specialized techniques such as NMR logging that allows two-dimensional T₁ and T₂ measurements should be expanded, and other potential techniques need to be further researched and tested. Certain aspects of the properties of solid bitumen that are not as well understood, such as its hydrocarbon generation potential or its role in hydrocarbon migration are also discussed with the aim of identifying further research that could lead to a better understanding of the role that solid bitumen plays in unconventional reservoirs.

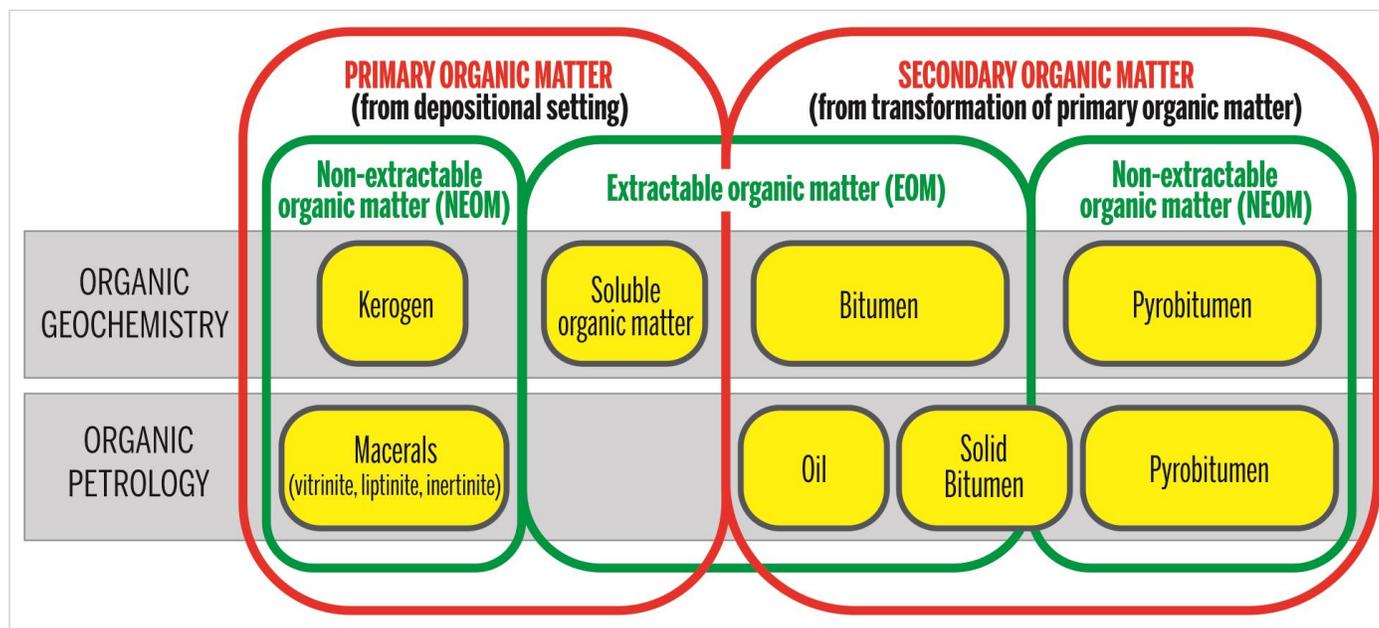


Figure 1 from Origin, properties, and implications of solid bitumen in unconventional systems: A review.



Density calculation of coalified fossil foliage in extinct seed ferns: Biomechanical implications

José A. D'Angelo^{1,2} and Erwin L. Zodrow^{2*}

¹ IANIGLA - CCT- CONICET, FCEN, Universidad Nacional de Cuyo, Padre Jorge Contreras 1300. Parque General San Martín, M5502JMA, Mendoza, Argentina. joseadangelo@yahoo.com

² Palaeobotanical Laboratory, Cape Breton University, B1P 6L2, Sydney, Nova Scotia, Canada. zzodrovii@gmail.com

We present a novel methodology for calculating density of fossil foliage (pinnules attached to an axis) and larger axes to which it is attached. In turn, the density values are used to estimate some of their biomechanical properties, i.e., tensile modulus of elasticity (TME), tensile strength (TS), and flexural stiffness (FS), which cannot be determined experimentally. Study samples (**Fig. 1**) include the largest known compression-preserved seed-fern frond segments of *Neuropteris ovata* (65-cm long) and *Alethopteris ambigua* (45-cm long) (Pennsylvanian, Sydney Coalfield, Canada).

Our methodology includes the following steps: (i) Pinnules and rachides are analyzed by Fourier transform infrared spectroscopy, and data are evaluated by PCA (principal component analysis); (ii) PCA-loading plots indicate which combinations of chemical groups are associated with which pinnule

or rachis; (iii) Different chemical-group combinations found in (ii) allow proposing standards (i.e., molecules having particular chemical structures), which are associated with specific pinnules and rachides; (iv) Using a group-contribution method, density values are calculated for standards proposed in (iii).

Thus, standards and their corresponding density values are associated with pinnules and rachides (**Fig. 2**); (v) finally, using well-known mathematical models linking density to biomechanical properties in living plants we obtain TME, TS, and FS for *A. ambigua* and *N. ovata* specimens. Insights gained are of significant value in reconstructing these seed ferns, and theorizing palaeoecological circumstances in which they lived 300 Ma in the Carboniferous. Moreover, explanations for finding so many more detached foliar pieces than the larger axes reside in the relative brittleness of the former (“self-pruning” strategy of both taxa in strong winds of tropical storms), whereas the latter, as flexible structures, tended to remain attached to the mother plant, rotted, and was consequently not fossilized.

A full-length manuscript with details is prepared for timely publication (D’Angelo and Zodrow, 2018).

Reference:

D’Angelo and Zodrow, 2018. Density and biomechanical properties of fossil fronds. A case study of *N. ovata* (Seed fern, Late Pennsylvanian, Canada)

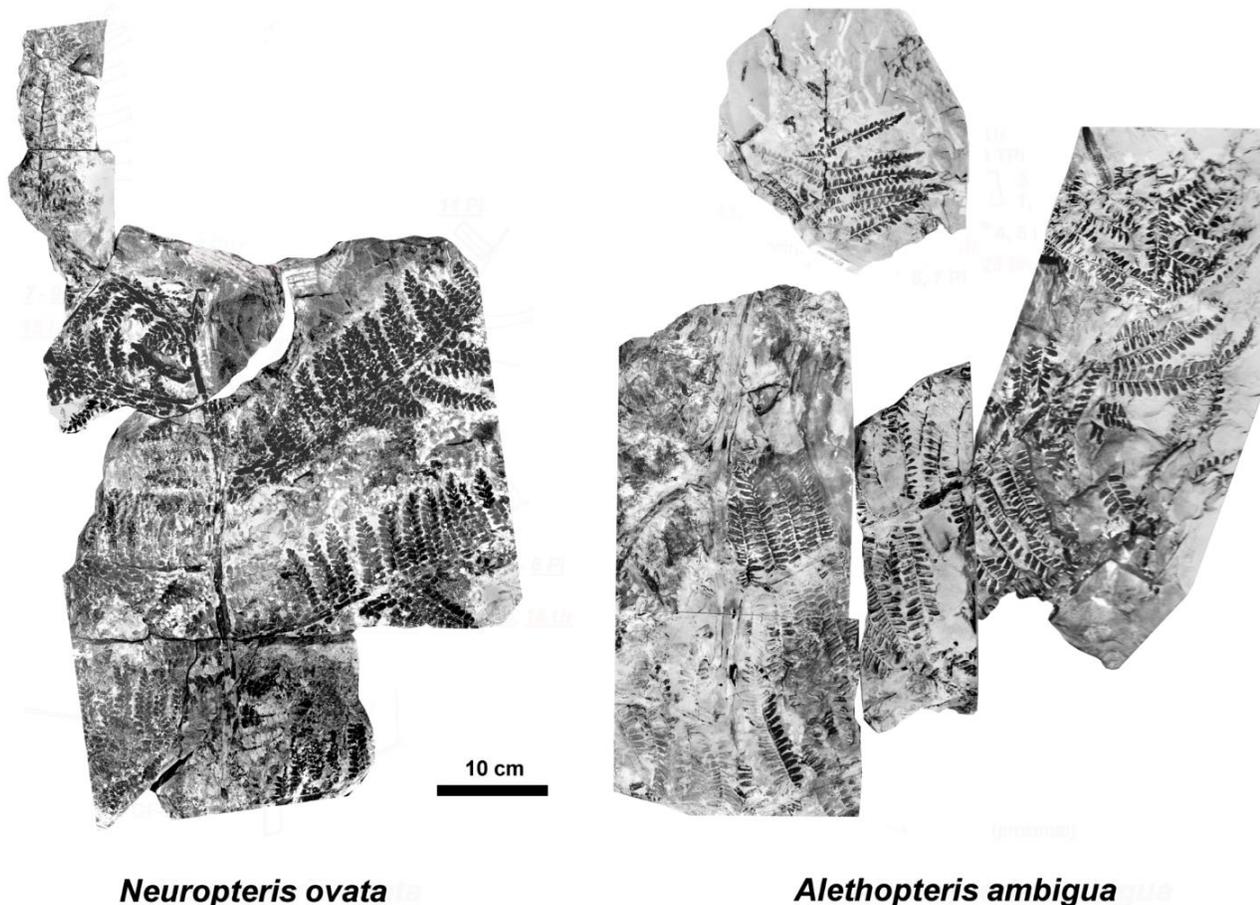


Figure 1. Frond specimens.

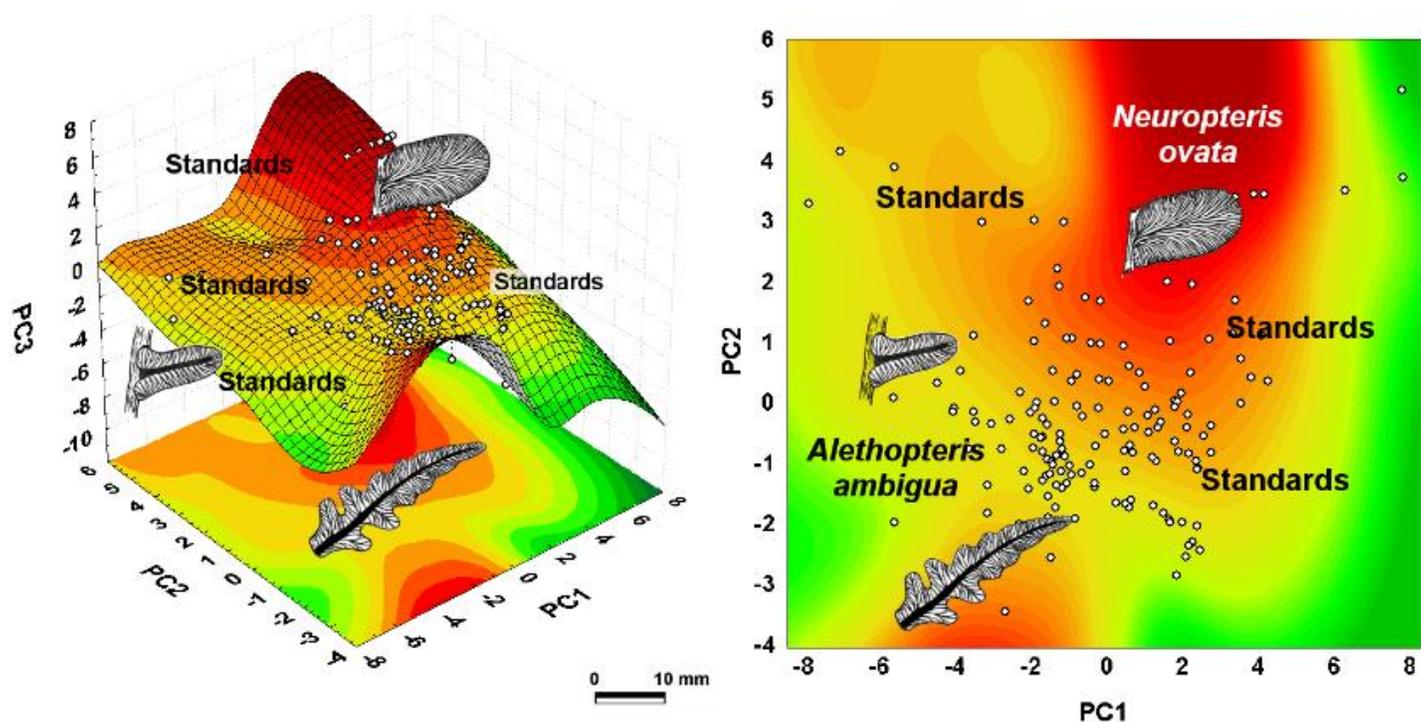


Figure 2. 3D PCA component scores plot showing which standards are most associated with which taxa. *Left.* Surface (three-dimensional) plot (sets of PC 1, PC 2, and PC 3 coordinates) with indication of standards and samples. *Right.* Projected contours of the fitted surface on the PC 1 - PC 2 component plane shown on the left where colors represent approximate density zones. Density values were calculated considering the molecular structures of the proposed structural moieties). Different frond parts are associated with approximate density values. Larger axes are not shown for simplicity. Pen sketches of foliage are to scale.



35th TSOP Annual Meeting

August 17-21, 2018

Beijing, CHINA

Abstracts due by June 15, 2018 via email at lei.zhao@y7mail.com

Register Online: <http://tsop2018.org/index.php/Home/Member/regist>

Conference Topics

- Evaluation of the unconventional resources including shale gas, shale oil, coal bed methane, and gas hydrate
- Coal geology, resources, and utilization
- Toxic/Valuable trace elements and minerals in coal and coal ash
- Petroleum geology, coal and organic petrology, and geochemistry
- New techniques and applications

Technical Sessions

- Coal: geology, technology and the future
- Shale gas and oil shale: geology, geochemistry, and technology
- Coal bed methane: geology, technology and the future
- Elements and minerals in coal and coal by-products: environmental concerns and valuable-metal utilization
- Conventional oil and gas: geology, organic geochemistry, and petrology

Conference Venue



Xijiao Hotel

No.18, Wangzhuang Road, Haidian District, Beijing

<http://www.xijiao-hotel.com.cn/>

Tel: 8610-6232 2288

Fax: 8610-6231 1142

Coal Courses August 15-17, 2018

Coal Characterization, Utilization and Impact	
Wednesday Aug 15	
8:00-8:30	Registration
8:30-8:40	Welcome and Overview - Shifeng Dai
8:40-10:00	Coal General Characterization (10 min break in between) – Colin Ward/David French
10:00-10:30	Coffee Break
10:30-11:15	Mineral matter in coal – Colin Ward/David French
11:15-12:00	Modes of Occurrence of Elements in Coal – Bob Finkelman
12:00-2:00	Lunch Break
2:00-3:00	Environmental Impacts of coal – Bob Finkelman
3:00-4:00	Chemistry of Chinese Coals – Shifeng Dai
4:00-4:30	Coffee Break
4:30-5:30	Behaviour of coal mineral matter during utilization – Colin Ward/David French
5:30-6:00	Open Discussion
Thursday August 16	
8:00-8:30	Registration
8:30-10:00	Analytical Methods of Mineral Matter in Coal (10 min break in between) – Colin Ward
10:00-10:30	Coffee Break
10:30-12:00	Uncontrolled coal fires, Health Impacts of Coal and Coal Use (10 min break in between) – Bob Finkelman
12:00-2:00	Lunch Break
2:00-3:00	coal conversion – Shuqin Liu
3:00-4:00	Behavior of macerals in coking and combustion (including unburnt carbon) – Jim Hower
4:00-4:30	Coffee Break
4:30-5:30	Critical elements in coal – Shifeng Dai
5:30-6:00	Ice Breaker
Friday August 17	
8:00-9:00	Registration
8:30-8:40	Welcome and Overview – Jim Hower and Jack Pashin
8:40-10:00	Coal formation from a petrographic perspective (10 min break in between) – Jim Hower
10:00-10:30	Coffee Break
10:30-12:00	Coal as a petroleum source rock and reservoir rock (10 min break in between) – Jack Pashin
12:00-2:00	Lunch Break
2:00-3:00	
3:00-4:00	Coal rank and coal types (or others) – Jim Hower
4:00-4:30	Coffee Break
4:30-5:30	Geological Dynamics of Shale Gas Reservoirs – Jack Pashin
5:30-6:00	Open Discussion

Field Trip

Inner Mongolia Autonomous Region

Inner Mongolia Autonomous Region is located in northern China (Fig. 1), bordering the countries of Mongolia and Russia. It is 2400-km long (N-S) and 1700 km wide (W-E), covering an area of 1.183 million km², and accounting for 12.3% of the total China land area.



Xilinhot City is a county-level city which serves as the seat of government for the Xilin Gol league in Inner Mongolia, China. It has a jurisdiction area of 14,785 km², and a population of 245,886, with 149,000 being in the Xilinhot urban area.

The elevation of the city is about 990 metres (3,250 ft) and is 610 km from Beijing. The historic centre includes an artistic temple. The Naadam Festival, a Mongolian feast, is celebrated here every year. Naadam is a gathering of the Mongolian people for wrestling, horse trading, costume contests, horse racing, etc. It's their summer festival and is generally very colorful with costumes and colorful yurts set up to serve food and sell trinkets and supplies.

Mongolian culture is very prominent with pictures, tapestries and monumental statues of Genghis Khan in every home, shop and street corner. Tourists can stay at nearby yurt resorts where there is a large yurt for dining surrounded by smaller individual yurts for sleeping. The surrounding countryside is rolling grasslands populated by Mongolians who have horses, sheep, goats and some cows. Meals consisted of mutton, beef, cabbages, and other fruit and vegetables.

Wulantuga Coal-hosted Ge ore deposit

The Early Cretaceous Wulantuga high-Ge coal deposit in the Shengli Coalfield, Inner Mongolia, northern China, is one of the major coal-hosted Ge deposits in the world. The Shengli coalfield is 45 km long and 7.6 km wide, with a total area of 342 km²; however, the Wulantuga coal-hosted Ge deposit only covers an area of 2.2 km² within this coalfield. It is estimated that about 1700 t of metallic Ge could be extracted from this coal, which makes it a super-large Ge ore deposit.

The high-Ge No. 6 Coal in this deposit has a low rank ($R_{o\max}=0.45\%$) and is a low-ash coal (8.77%). The Ge content in the coal is 274 $\mu\text{g/g}$ on average (from 51.3 to 1170 $\mu\text{g/g}$). The Ge content in the fly ashes from the baghouse-filter and from electrostatic precipitator is 14870 $\mu\text{g/g}$ and 4730 $\mu\text{g/g}$, respectively. High-purity Ge metal has been extracted from coal ash.



The high-Ge No. 6 Coal Seam (photo by Shifeng Dai)

Registration Fee Information

(1) The registration fee can be paid via two ways: paying cash at registration desk, or via bank transfer.

(2) The basic registration fee allows participation in all TSOP sessions, ice breaker reception, business lunch, Sunday lunch and dinner, and coffee breaks.

(3) The conference dinner, coal courses, and two-day field trip are optional and their cost must be added to the total registration fee.

(4) Coal courses are optional; participants can choose to attend all three-day course, or first two days, or the 3rd day only.

(5) If you are bringing a partner/guest to any of these optional functions then these costs must be included.

Items	Members	Non-Members	Students	
Basic Registration	\$220	\$260	\$100	Before July 15
	\$260	\$300	\$120	After July 15
Coal Courses				
Three days	\$250	\$250	\$120	
Day 1+Day 2	\$180	\$180	\$80	
Day 3	\$120	\$120	\$50	
Field Trip	\$350, including air tickets, bus transportation, meals, and two-night accommodation.			
	For guests: \$250/person, including air tickets, bus transportation, meals, and two-night accommodation (double occupancy with registering partner), or \$350/person if occupy a separate room.			
Banquet				\$30
Ice-breaker For Guest				\$15

Host Organizations

China University of Mining and Technology (Beijing)

D-11, Xueyuan Road, Haidian District, Beijing 100083, P.R. CHINA



China University of Mining and Technology

No-1, Daxue Road, Xuzhou, Jiangsu, 221116, P.R. CHINA



FIRST ANNOUNCEMENT

ICCP

**International Committee for
Coal and Organic Petrology**

70th Annual Meeting



September 23 - 29, 2018

Brisbane, Queensland, Australia

Visit <http://www.iccop.org/2018-iccp-meeting-in-brisbane-australia/>
for more details and the full meeting flyer.

CALENDAR OF EVENTS

2018



Please send in meeting, short course and special event announcements to the Editor
<http://www.tsop.org/events.html>

 <p>GOLDSCHMIDT BOSTON 2018 - AUGUST 12-17</p>	<p>August 11-17, 2018 Goldschmidt Conference - Boston, MA, USA</p>
 <p>TSOP The Society for Organic Petrology</p>	<p>August 15-17, 2018 Coal Courses - Beijing, CHINA</p>
 <p>TSOP The Society for Organic Petrology</p>	<p>August 17-22, 2018 35th Annual TSOP Meeting - Beijing, CHINA</p>
	<p>August 19-22, 2018 2018 Conjugate Margins Conference – Halifax, Nova Scotia, Canada</p>
	<p>September 20-21 ICCP Short Course in Coal Petrology – Brisbane, QLD, Australia</p>
	<p>September 23-29 70th ICCP Annual Meeting – Brisbane, QLD, Australia</p>
	<p>October 15-18, 2018 2018 International Pittsburgh Coal Conference – Xuzhou, China</p>
	<p>November 4-7, 2018 Annual GSA Meeting - Indianapolis, IN, USA</p>
	<p>December 10-14, 2018 AGU Fall Meeting – Washington, D.C., USA</p>