



**THE SOCIETY FOR ORGANIC PETROLOGY**



# NEWSLETTER

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## 2021 TSOP Award Winners

### **THE JOHN CASTAÑO HONORARY MEMBERSHIP AWARD**



Shifeng Dai and Isabel Suárez-Ruiz

### **THE SPACKMAN AWARD** *Graduate Student Research Grants*

**Leibo Bian**  
*Aarhus University, DENMARK*

**Wei Li**  
*University of Nottingham, UK*

### **COLIN WARD EMERGING STUDENT RESEARCHER AWARD**

**Xiaowei Zheng**  
*Aarhus University, DENMARK*

**Leibo Bian**  
*Aarhus University, DENMARK*

**Vikram Yadav**  
*Ranchi University, INDIA*

### **DANIELLE KONDLA OUTSTANDING STUDENT PRESENTATION**

**Oral Presentation**  
**Dane Synott**  
*University of Calgary, Canada*

**Poster Presentation**  
**Leibo Bian**  
*Aarhus University, DENMARK*

*Congratulations*

**STUDENT TRAVEL AWARD****DANE SYNNOTT***University of Calgary, CANADA***WEI LI***University of Nottingham, UK***LEIBO BIAN***Aarhus University, DENMARK***VIKRAM YADAV***Ranchi University, INDIA***NEELU TIRKEY***Ranchi University, INDIA***XIAOWEI ZHENG***Aarhus University, DENMARK**Congratulations!***PLANNED ANNUAL TSOP MEETINGS**

TSOP sponsors an annual meeting which features technical talks and poster presentations, business meetings, field trips, short courses and social events. Conference Abstract and Program volumes, group photos, field trip guides and short course notes are available to TSOP members through the TSOP secure site. <https://members.tsop.org/>

<b>2022</b>	<b>Virtual meeting – TBA – see page 4</b>
<b>2023</b>	<b>Patras, GREECE - TBA</b>
<b>2024</b>	<b>Oklahoma City, OK, USA - TBA</b>
<b>2025</b>	<b>TBD, China - TBA</b>
<b>2026</b>	<b>Bogotá, COLOMBIA - TBA</b>

**The Society for Organic Petrology**

TSOP is a society for scientists and engineers involved in 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 website, Facebook Page, quarterly newsletter, annual meeting program and abstracts and special publications. Members are eligible for discounted subscriptions to Elsevier journals *International Journal of Coal Geology* and *Review of Palaeobotany and Palynology*.

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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 [editor@tsop.org](mailto:editor@tsop.org)

#### **Membership Information:**

Please report any changes in address or contact information to Brett Valentine, TSOP Membership Chair:  
[bvalentine@usgs.gov](mailto:bvalentine@usgs.gov)

Members can also update their own information by logging into the secure TSOP website:  
[www.tsop.org/mbrsonly/](http://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](http://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**

December Issue: Dec. 10th, 2021  
March Issue: March 10th, 2022  
June Issue: June 10th, 2022  
September Issue: Sept. 10th, 2022

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Dear TSOP Members,

After some positive news in the last president's letter, it seems things are back to more of the same with the emergence of the delta variant. But there is a bright side for my family—none of us has had any sickness, not even so much as the sniffles, for the last year and a half of the pandemic. The upside to wearing masks and avoiding crowded indoor spaces as much as possible. And because of the pandemic, I've discovered curbside grocery delivery—I will never give up an hour of my weekend again. Not ever. My younger children are back to school in person for two and a half weeks now. And, although the youngest is not able to get vaccinated yet, they wear masks throughout the day, and there has not been a single covid case reported at the elementary school so far.

The USGS has allowed more people back into the laboratories and I believe we are at something like forty percent occupancy. The Organic Petrology Laboratory is allowed two people in the laboratory simultaneously as long as both are vaccinated and masked. So, we've taken advantage of this to catch up on some training and make new data. Some new collaborations have opened up and the samples are coming in!

The first-ever TSOP virtual meeting is coming, hosted from Sofia by TSOP Councilor Irena Kostova and her organizing committee. The program is queued up and finalized with a slate of exciting talks. As I'm writing this on Tuesday, September 7, the meeting will start this coming weekend with short courses on Sunday to be given by TSOP luminaries Shifeng Dai, Bob Finkelman, and Jim Hower. Talks and posters will then appear on Monday and Tuesday. I hope some of the membership who wouldn't otherwise be able to travel to a meeting in a far-away place will take advantage of the virtual opportunity to tune in and connect.

By the time you read this, my tenure as TSOP President will be over and you'll be in the good hands of incoming TSOP president Kaydy Pinetown and her Council. It's a pity that my time as the president was marked by covid and we didn't get to meet in person. I guess that not much has really happened with TSOP over the last year and a half of staying home—but at least I didn't raise your dues!

I will leave you with a quote from another president whose tenure was marked by not much really happening—"I did not have sexual relations with that woman." Wait, maybe you're only going to know that one if you're from the States? How about—"they underestimated me." A lot happened under that guy for sure. Actually, my favorite quote from him—"I'll be long gone before some smart person ever figures out what happened."

And I'm outta here!



Be safe and well,  
Paul Hackley, Outgoing TSOP President

## PLANNING FOR THE 2022 VIRTUAL ANNUAL TSOP MEETING IS WELL UNDERWAY!

There is an old curse that says, "May you live in interesting times". We think that we have all been living that curse for the last 18 months! Although the world is seemingly pointed in the right direction for normality and a return to travel, there will no doubt be several obstacles to overcome.

As many of you may know, the 2022 Annual TSOP Conference was to be held in beautiful Colombia, specifically Bogotá. Earlier this year, though, the Organizing Committee of that meeting requested to TSOP Council that it be postponed because of the uncertainty of travel, not just to and within Colombia but the world in general. Council decided that the 2022 TSOP Annual Meeting would be planned purely as a virtual conference. This was not an easy decision, one not taken lightly but to mitigate risk and allow the maximum amount of time for planning it was thought prudent.

As soon as Council approved the 2022 Virtual meeting, we started planning, beginning with appointment of the Organizing Committee, which we considered crucial. We wanted to bill this meeting, which would have no fixed 'abode' as a "Global" TSOP meeting and thus we wanted our Organizing Committee to be representative of that. We have 16 members, from six of the seven continents (understandably Antarctica is not represented!) representing 10 countries - see table below.

Region	Member	Organisation	Country	City
Australia	Dr Sandra Rodrigues	University of Queensland	Australia	Brisbane
	Dr Tim A Moore	Cipher Consulting Pty Ltd	Australia	Brisbane
	Dr Carol Sule	Woodside Energy	Australia	Perth
Asia	Prof Shifeng Dai	China University of Mining and Technology	China	Beijing
	Prof Hendra Amijaya	University of Gadjah Mada	Indonesia	Yogyakarta
Africa	Prof Ofentse Marvin Moroeng	University of Johannesburg	South Africa	Auckland Park
	Dr Alex T. Wheeler	Independent Consultant (recent UQ graduate)	South Africa	Bloemfontein
Europe	Prof Hamed Sanei	Aarhus University	Denmark	Aarhus
	Prof Andreas Busch	Heriot-Watt University	Great Britain	Edinburgh
	Dr Grzegorz Lis	Instytut Nauk Geologicznych, Uniwersytet Wrocławski	Poland	Wrocław
North America	Dr Paul Hackley	U.S. Geological Survey	U.S.A.	Reston
	Ms Leslie 'Jingle' Ruppert	U.S. Geological Survey	U.S.A.	Reston
South America	Prof Wolfgang Kalkreuth	Instituto de Geociências, UFRGS	Brazil	Porto Alegre
	Prof Jill Pearse	Universidad de los Andes	Colombia	Bogotá
	Prof Carme Huguet	Universidad de los Andes	Colombia	Bogotá
TSOP Pres	Kaydy Pinetown	CSIRO	Australia	Sydney

We purposely chose a mix of long-time TSOP members to learn from their experience as well as new members, which will help to instill new ideas and innovation. Our committee meets once every 4-5 weeks to plan. We are having our 4th meeting in mid-October.

There are many logistical issues we will need to overcome in having a global conference. We have reached some fairly definite decisions already though, like who will host the website, what the meeting platform will be and what organization will run it. We'll share these with you in the next TSOP Newsletter, but we can say that the meeting will be held over 3 days, but only 4 to 4.5 hours each day. This will allow all members to join when during reasonable times of the day. Like most TSOP meetings we'll have it in September or early October.

So, for now, watch this space!! - we'll be back with an ever-accelerating rate of information and news on the 2022 TSOP Meeting. In the meantime, we only ask – get the word out and start thinking about what you'll present! It'll be GREAT – mark those calendars.

Tim A Moore

For the 2022 TSOP Annual Conference Organizing Committee







[www.facebook.com/OrganicPetrology](http://www.facebook.com/OrganicPetrology)



Abstracts from annual meetings are available through [AAPG Datapages](#).

## Join or Renew Your Membership



### TSOP Membership Dues

TSOP dues payments are due on or before **December 31<sup>st</sup> each year**. 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.

TSOP dues are currently set at:

#### Individuals:

- \$25 per year or
- \$100 for 5 years (5 years for the price of 4!)

#### Students:

- \$15 per year

#### Institutional/Corporate:

- \$75 per year

You can use our convenient online dues payment system to pay dues by credit card.

You can login at the [Members Only TSOP](#) website and select 'Online dues payment' or go to [www.tsop.org/dues](http://www.tsop.org/dues) and access the online form without logging in.

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

## Influence of palaeovegetation shifts on organic matter sources: An acuity from the n-alkane palaeohydrological proxies

Dinesh Kumar<sup>a,b</sup>, Santanu Ghosh<sup>a,c</sup>, Atul Kumar Varma<sup>a\*</sup>

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The Palaeohydrological proxies, i.e., the proxy aqueous ratio ( $P_{aq}$ ), the proxy wax ratio ( $P_{wax}$ ), and the average chain length (ACL), derived from the n-alkane distribution of organic matter are used in this investigation to depict the influences of the palaeovegetation shifts on the organic matter sources of the Paleogene sedimentary archives deposited in the Bikaner-Nagaur Basin, Rajasthan, India. The  $P_{aq}$  values in the Paleogene lignite, carbonaceous shale, and shale samples (0.24 – 0.86) may indicate the organic matter contribution from submergent and emergent communities (Fig.1a). The emergent vegetation communities include the mangroves, which are a variety of emergent species that proliferate in the eu littoral zone of coastal environment in the sub-tropical and tropical habitats (Göltenboth and Schoppe, 2006).

The submerged and emergent vegetation do not always inhabit the same territory at the same period (Baker et al., 2016). Submergent plants proliferate at the high-water level of the peatland, and this high-water level may alleviate the oxic water/sediment interface, which reduces the sufficiency of oxygen availability to thrive the emergent plant roots (Baker et al., 2016; Nichols et al., 2009). On the other hand, the emergent plants dominate over the submerged communities during the low-water level of the peatland due to adequate oxygen supply to support their roots. These water level variations in the peatland may be associated with the climatic shifts between wet (humid; high rainfall) and dry (arid; low rainfall) climatic conditions (Kumar et al., 2021). Therefore, the paradigms in the  $P_{aq}$  values in the lignites, carbonaceous shales, and shales may correspond to the palaeovegetation shifts induced by the climatic oscillations and consequent palaeohydrological changes.

The  $P_{aq}$  exhibits an opposite trend to the distributions of the ACL and the  $P_{wax}$  parameters (Fig.1a,b,c). The  $P_{aq}$  and  $P_{wax}$  values show an inverse correlation ( $r = -0.99$ ; Fig.1d) (except CG4092). Under the arid climatic condition, a low amount of rainfall led to a low water level of the peatland, which favored the growth and dominance of mangroves-dominated emergent communities over the submerged varieties leading to the low  $P_{aq}$  values of the supplied organic matter. In addition, the mangrove-dominated emergent plants, terrestrial gymnosperms, and angiosperms produced high amounts of long-chain waxy hydrocarbons to alleviate the evapotranspiration of water (Andersson et al., 2011), resulting in the high  $P_{wax}$  values of the organic matter (Fig. 1a,b). However, the high rainfall amount under the humid climatic spell led to a high-water level of the peatland that supports the proliferation of the submerged plants over the emergent vegetation. Additionally, due to the culmination in the amount of the evapotranspiration, the emergent and terrestrial plants produced small amounts of waxy n-alkanes, which led to high  $P_{aq}$  and low  $P_{wax}$  values of the supplied organic matter (Kumar et al., 2021; Fig.1a,b).



The  $P_{aq}$  values further reveal an inverse correlation with the ACL values ( $r = -0.97$ ) with (Fig.1e), but the ACL shows a positive correlation with the  $P_{wax}$  parameter ( $r = 0.95$ ; except CG4092 (Fig.1f)). These interrelations may suggest that the increasing abundance of the mangrove-dominated emergent communities during the warm and arid spell supplied large amounts of waxy n-alkanes to the peatland, which resulted in the high ACL and  $P_{wax}$  values of the sourced organic matter. However, the alleviation in the abundances of the submergent plant communities due to the low-water level in the peatland led to low  $P_{aq}$  values (Fig.1a-c). On the other hand, the proliferation of submerged plants during the high-water level of the mire under a wetter and cooler period supplied organic matter with high  $P_{aq}$  values. Besides, the organic matter sourced during this humid climatic spell shows lower  $P_{wax}$  and ACL values than those from the arid period due to plausible alleviation of the long-chain n-alkane production from the mangrove-dominated emergent and terrestrial plants (Kumar et al., 2021; Fig.1a-c).

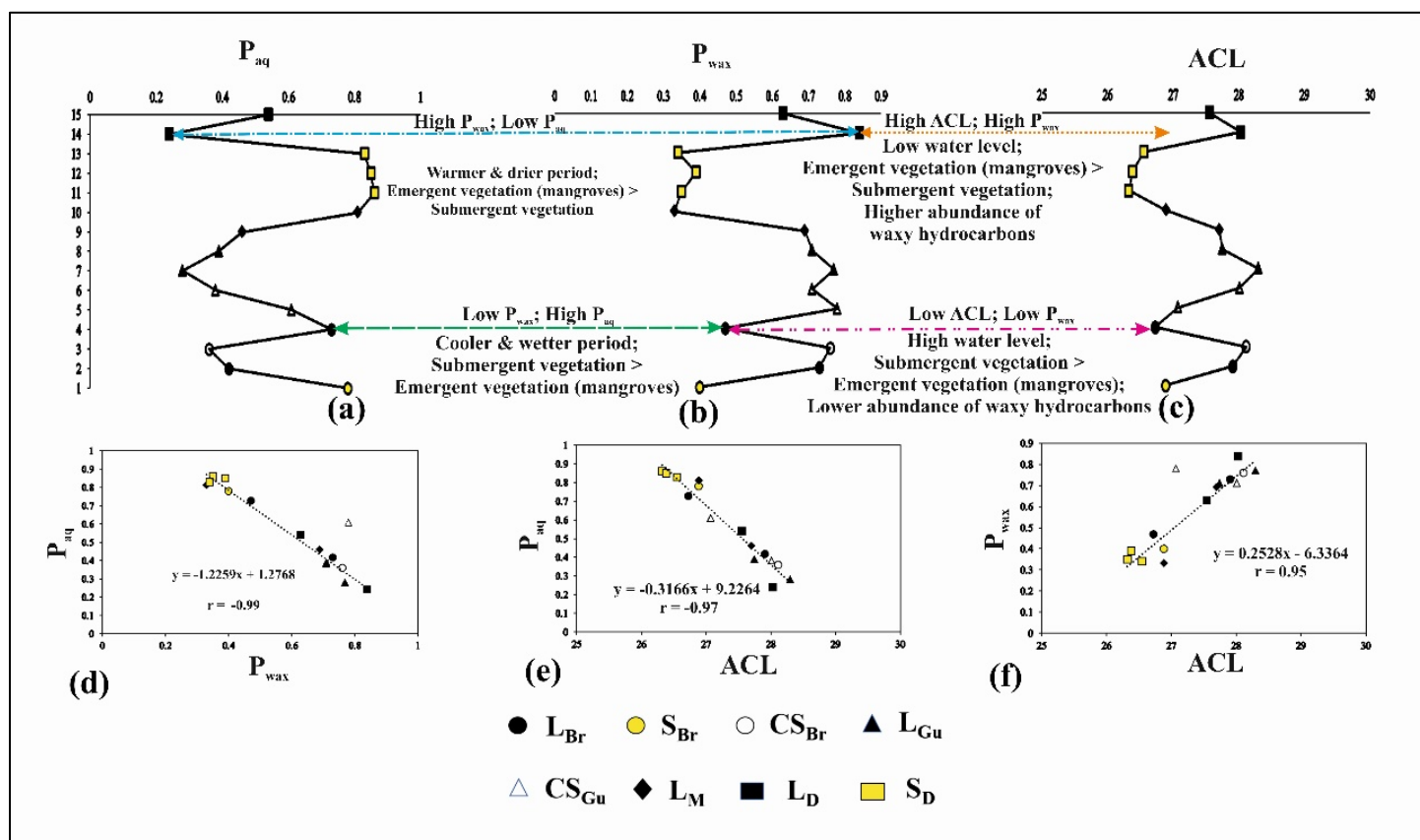


Fig.1 (a-c) Palaeohydrological proxies revealing the shifts in n-alkane sources due to climatic oscillations along with the cross-plots between (d) proxy wax ( $P_{wax}$ ) and proxy aqueous ( $P_{aq}$ ), (e) average chain length (ACL) and proxy aqueous ( $P_{aq}$ ), and (f) average chain length (ACL) and proxy wax ( $P_{wax}$ ) showing shifts in n-alkane sources with palaeoclimatic conditions (after Kumar et al., 2021; reuse of this figure is permitted by Elsevier and Copyright Clearance Center; License Number: 5144730263049; dated: 9th September, 2021).

Explanations:  $L_{Br}$  = Lignite from Barsingsar;  $S_{Br}$  = Shale from Barsingsar;  $CS_{Br}$  = Carbonaceous shale from Barsingsar;  $L_{Gu}$  = Lignite from Gurha;  $CS_{Gu}$  = Carbonaceous shale from Gurha;  $L_M$  = Lignite from Matasukh;  $L_D$  = Lignite from Diyatra;  $S_D$  = Shale from Diyatra. Y axis in Fig.1a-c indicates the number of the samples.

## References

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<https://doi.org/10.1016/j.coal.2021.103848>

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**Reinhardt Thiessen  
Medal Award  
2020**

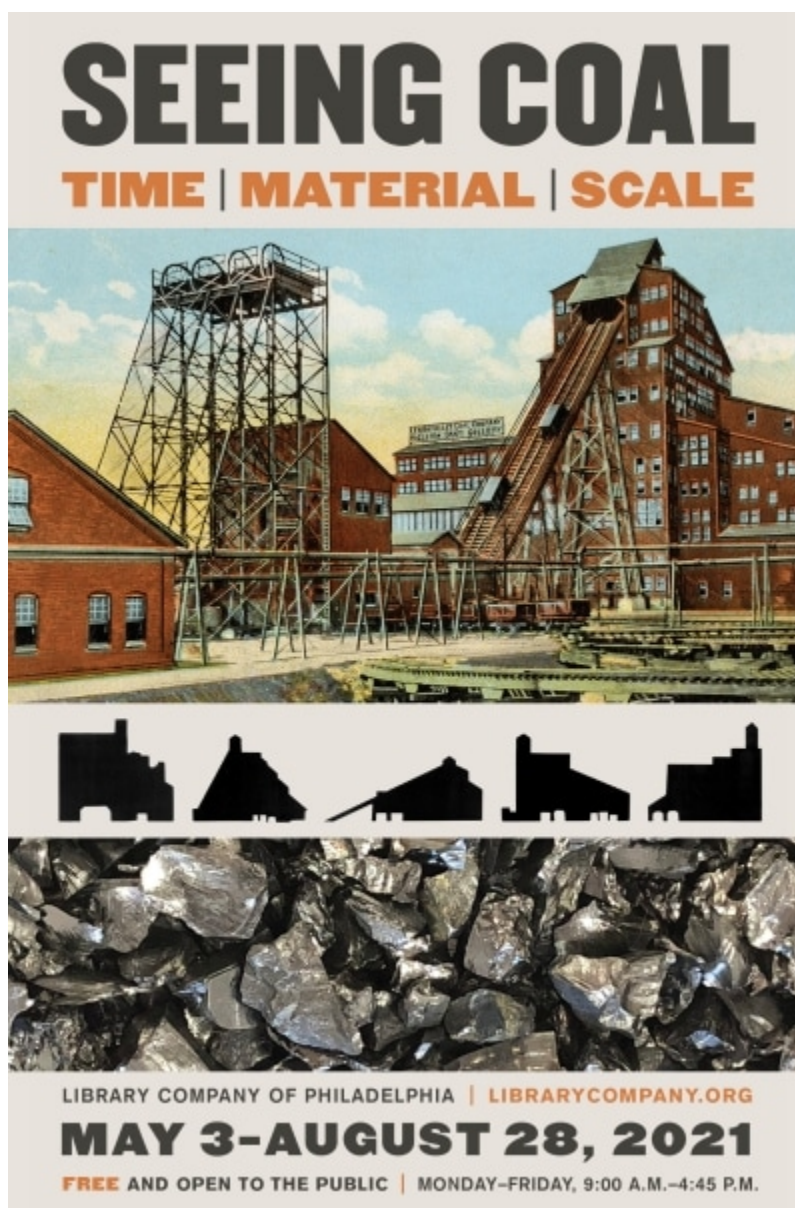
**MARIA MASTALERZ**



The Reinhardt Thiessen Medal is the highest award offered by the International Committee for Coal and Organic Petrology (ICCP). The award recognizes significant achievements and outstanding contributions in the fields of coal and organic petrology and consists of a bronze medal. The 2020 recipient of the Reinhardt Thiessen Medal is Maria Mastalerz. Congratulations to Maria Mastalerz!







Seeing Coal looks at Pennsylvania anthracite coal and raises questions about the significance of its visible and invisible presence in our world. Through historic images, material specimens, poetry and visual art, coal is presented as a material that can help us re-think our relationship with Nature and Time.

View the exhibit online at <https://seeingcoal.librarycompany.org/>

Sharing your Seeing Coal experience on Social Media? Use the hashtag #seeingcoal and add your photos and impressions to the story of Seeing Coal. We can't wait to hear your coal tales!

## ATLAS OF CHARCOAL-BASED GRILLING FUEL COMPONENTS

Agnieszka Drobnik<sup>1\*</sup>, Zbigniew Jelonek<sup>2</sup>, Maria Mastalerz<sup>1</sup>, Iwona Jelonek<sup>2</sup>

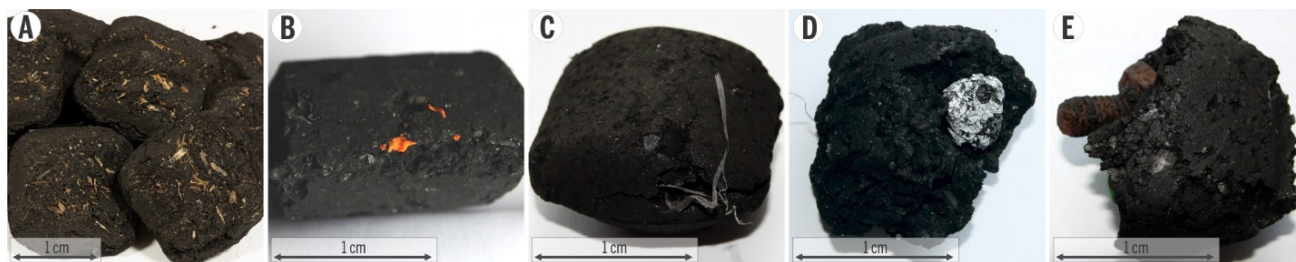
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[CLICK HERE TO VIEW THE ATLAS](#)

Despite the popularity of gas grills, charcoal briquettes and lump charcoal are still a popular fuel for barbecuing. However, many studies have demonstrated a wide range of air pollutants associated with charcoal production and combustion and have documented various impurities found in charcoal-based grilling fuels. Although most impurities are recognizable only under the microscope, some of these fuels can contain contaminants visible even megascopically, exhibiting in some extreme cases as much 26 vol. % of impurities (Figure 1).



**Figure 1.** Photographs illustrating the megascopic impurities found in charcoal briquettes acquired for our study.

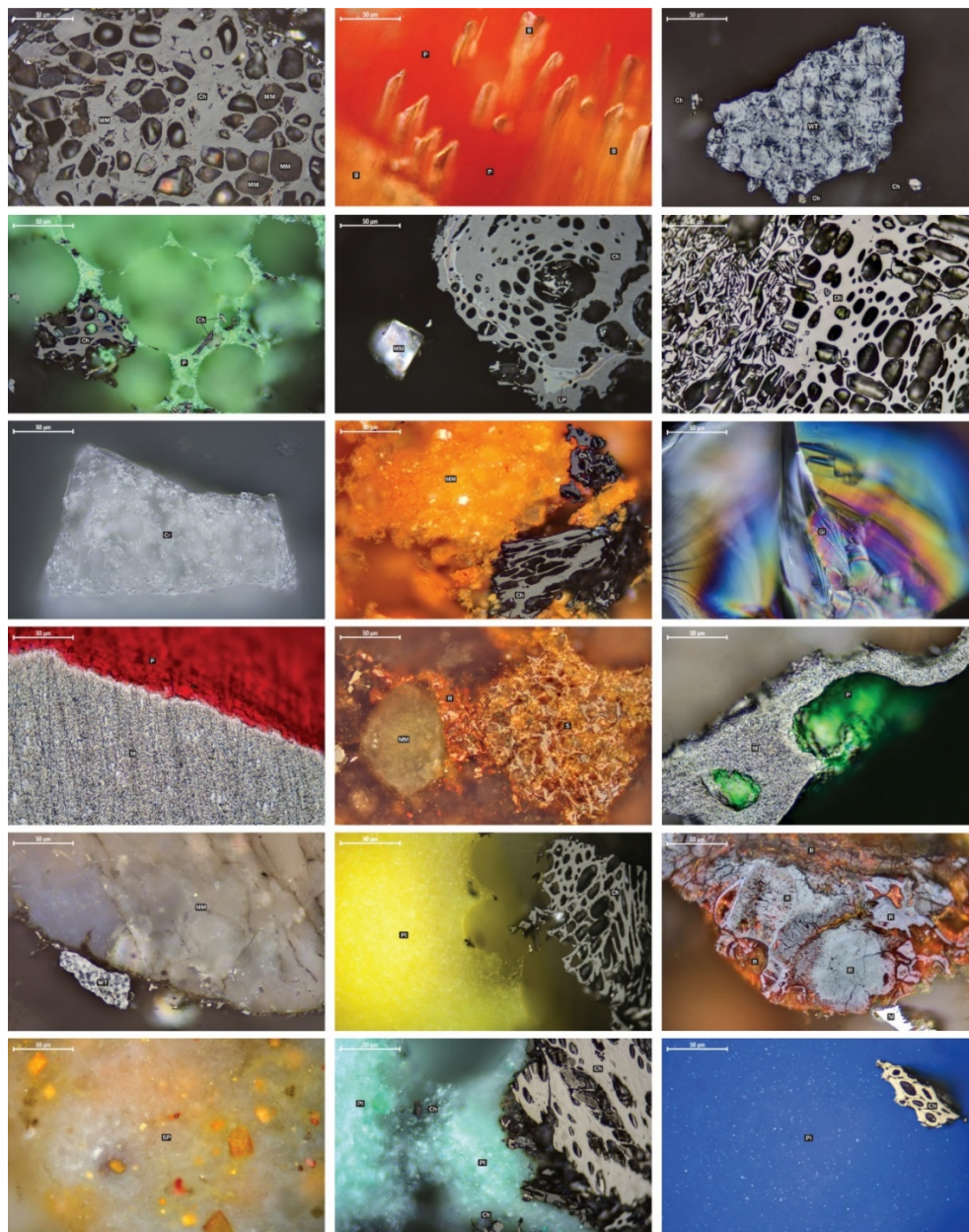
*D – briquette containing a piece of metal (aluminum foil from candy), E – briquette containing a metal screw.*

Our studies strongly suggest that the properties of raw fuels affect the characteristics of combustion emissions. Therefore, the assessment of the quality of grilling fuels should be of a critical importance, as smoke from their combustion has a direct contact with food, impacts human safety, and pollutes the atmosphere. Knowledge of these aspects is essential to produce superior quality grilling fuels and to determine necessary fuel testing methods to meet these high standards. However, despite concerns about the negative effects of grilling emissions, limited standards have been implemented around the world to assure charcoal-based fuel quality. More importantly, wide range of impurities (mineral matter, coal, metal, rust, plastics, glues, and synthetic resins) documented in previous studies clearly demonstrate that currently used physical and chemical analyses of charcoal-based grilling fuels are not sufficient to guarantee their high quality. One of the most challenging tasks for the current testing methods is to assess the presence of petroleum products (like plastics, rubber, or grease) during the standard chemical analysis. These pollutants have low ash and moisture contents, and they increase the calorific value and mechanical strength of the briquettes. Therefore, based solely on basic standard testing, a sample contaminated by petroleum products could be considered an excellent fuel, while in fact their presence can lead to the emission of carcinogenic compounds and harmful matter suspended in smog.

A quick and reliable solution for identifying and quantifying impurities of grilling fuels is the analysis of a sample under reflected light microscopy (Figure 2). Reflected light microscopy a well-known and widely used method in analysis of various materials (coal, source rocks, metals, ceramics, polymers, etc.), and its value was also recognized and implemented by European Committee for Standardization Technical Committee 281 in the European standard EN 1860-2:2005 as an obligatory test of inadmissible additions in grilling charcoal briquettes.



Our team, after analyzing a large number of pellet fuels, defined, described and documented the impurities and modified the existing classification allowing for easier and more precise. We believe that the ability to identify and quantify even very small contaminants may turn out to be a breakthrough step leading not only to improvements in fuels quality but also to modification of testing procedures and the existing standards. But most importantly it will help achieving the production of the highest quality grilling fuels, improve human safety and lower air pollution. Our “Atlas of Charcoal-Based Grilling Fuel Components” features compilation of over 620 microscopic images taken between 2019 and 2021 while our team was improving methodology of using reflected light microscopy in identification of charcoal-based grilling fuels constituents. These photomicrographs provide documentation of the composition of the fuels and demonstrate the array of impurities that can be present. As such, this atlas is a valuable source of information for anyone interested in grilling, pellet fuels, optical microscopy, and quality assessment techniques.



**Figure 2.** Photomicrographs of selected grilling charcoal-based fuel components in reflected white light and oil immersion. B = biomass, Ch = charcoal, Cr = ceramic, Gl = glass, M = metal, MM = mineral matter, LP = liquid petroleum, P = paint, Pl = plastic, R = rust, S = slag, SP = stone powder, WT = wood tar.



## CALENDAR OF EVENTS 2021-2022

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

### 2021



**October 10-13**

**2021 GSA Annual Meeting** - Portland, OR, USA

### 2022



**July 10-15**

**Goldschmidt Conference** - Chicago, IL, USA



**TBA**

**38th TSOP Annual Meeting** - Online meeting



**TBA**

**73rd ICCP Annual Meeting** - New Delhi, INDIA



**October 9-12**

**2022 GSA Annual Meeting** - Denver, CO, USA