

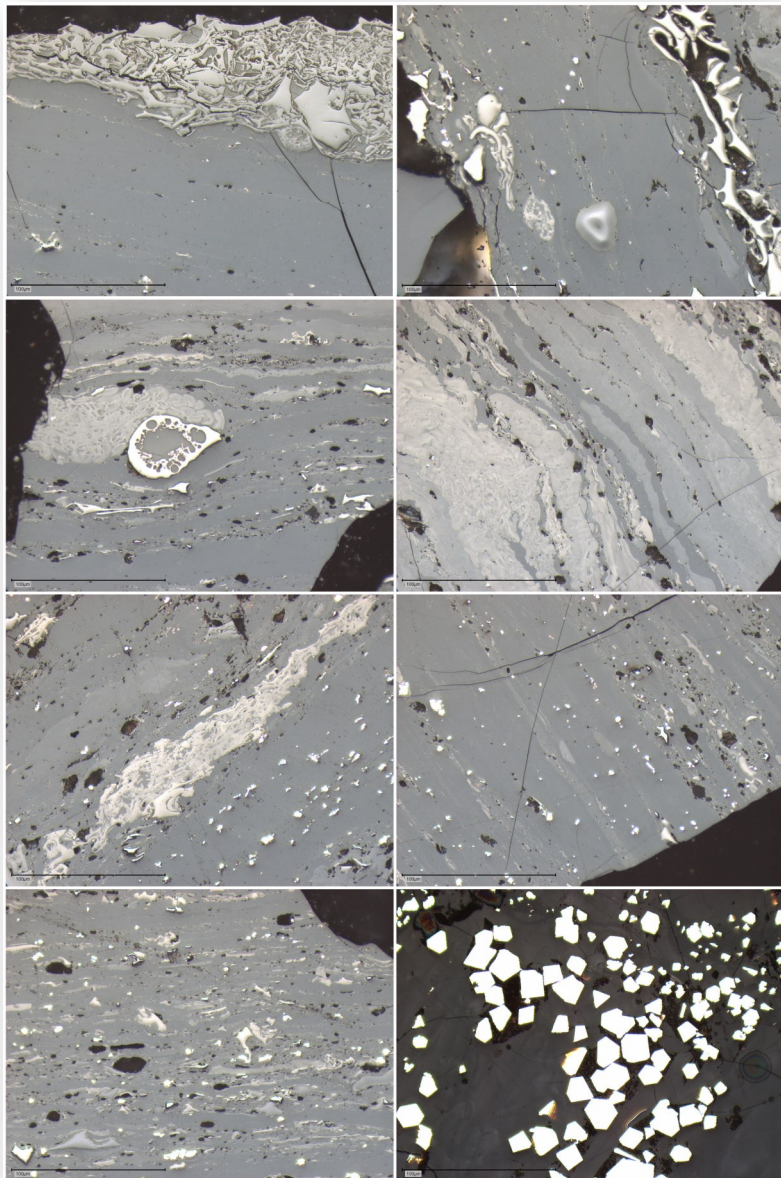
# ICCP NEWS



NO 88  
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Newsletter of the International Committee for Coal and Organic Petrology (ICCP).  
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## Sponsors & Supporters





## EDITORS COLUMN

Dear ICCP Community and other interested people,

My sincerest apologies for this extremely belated Newsletter. The year is getting away with me and this item simply keeps getting pushed to the back of the queue. Not because it isn't important, nor because of lack of interest, but unfortunately the Newsletter doesn't pay my salary. On this note, as a reminder, the ICCP Committee is not paid; we enact our roles because we are proud to be part of the ICCP and in the promotion of organic petrology. **So, a big thank you to my ICCP Committee family for a wonderful society where colleagues are friends and friends are family-in-organic petrology.** (On the topic of families, Dr Marvin Moroeng and his beautiful wife Katlego recently gave birth to a lovely girl, nick-named 'Sporinite' by our Carbon Ore Research Group students at UJ). And on the topic of beautiful things, please do send me your favorite petrographic images. On the front cover are recent images taken on South African bituminous coals. Even after 30+ years in organic petrology, I continue to marvel at what I see under the microscope.

Please note that the deadline for the Accreditation Exercise has now passed; please keep an eye on the website for further information. We welcome four new ICCP members and we look forward to meeting you at the upcoming ICCP Meeting in Oviedo. Again, please keep an eye on the website for updates pertaining to the ICCP Meeting in Oviedo. We mourn the loss of Neely Bostick; he certainly contributed to the success of both the ICCP and TSOP (please refer to the obituary herein). Several working groups are busy with round robin exercises, such as the Fly WG (deadline 31st May), and the 'Radiolytic alteration of organic matter in coal and rocks enriched in radioactive minerals' WG (calling for images).

The ICCP successfully completed the online election process for the Chair of Commission I and Secretary Commission III. We welcome Peter Crosdale as Chair of Commission I and Małgorzata Wojtaszek-Kalaitzidi as Secretary for Commission III.

I am very pleased to share with you some abstracts submitted by Georgeta Predeanu and students from the University of Bucharest; please do continue to send through extended abstracts emanating from the completion of MSc and PhD studies.

Several members of the ICCP Council have assisted Angeles G. Borrego (the ICCP representative on ISO) with updates on the ISO 7404 petrographic standards. Please do assist your country representative on this matter when the drafts are circulated for voting.

Best wishes,

Nikki Wagner, ICCP Editor.

**ICCP WEBSITE** <https://www.iccop.org>

**Please send any feedback, comments, and uploads, to Stavros Kalaitzidis**

The ICCP Newsletter, ISN 1445-4793 (1445-4858 online) is distributed 3 times a year, & welcomes contributions from members & non-members. The minutes of the Annual Meeting are published in the final issue each year, & the program for the Annual Meeting is included mid-year. The Newsletter is distributed to all members & is available on the open area of the webpage. This enables anyone interested in the science to obtain exposure to the ICCP activities. ICCP application details are available on the website, or contact the General Secretary Paul Hackley [hackley\\_paul@yahoo.com](mailto:hackley_paul@yahoo.com).



The poster for the ICCP Meeting 2024 features a large '75' logo at the top, indicating the 75th anniversary of the International Commission for Coal Petrology. Below the logo, the text reads 'ICCP Meeting' followed by the dates '22-28 September 2024' and the location 'Oviedo, Spain'. A large blue hexagonal banner in the center contains the text 'Organic Petrology Research and Applications for the 21<sup>st</sup> Century' in yellow. At the bottom, there are logos for CSIC, INCAR, and the Delegación en Asturias, along with a small circular logo for the ICCP.

**SEE PAGES 6-9 FOR  
DETAILS ABOUT  
THE OVIEDO ICCP  
MEETING 2024**

**CONTRIBUTIONS TO THE  
NEXT ICCP NEWS BY  
30 JULY 2024**

## PRESIDENT'S COLUMN

Dear Members,

Although it seems like yesterday that we met with many of you in Patras, time has its own momentum, and it is already the end of Spring in the Northern Hemisphere. Hence, time for all of us to start preparing for the Oviedo Meeting, useful information for which you will find within this issue.

Many things have taken place in the previous months keeping our Organization active. We had elections, preparations for the AP rounds, publications by WGs and planning for the next meetings.

Thanks to Paul Hackley, who was responsible for the electronic elections, and Ángeles G. Borrego, who took over from Rudi Schwab as our Returning Officer, the elections for the positions of the Chair of Commission I and the Secretary of Commission III have run smoothly. Taking this opportunity, I would like to thank all the candidates, namely Dragana Životić, Peter Crosdale, Rich Pearson and Małgorzata Wojtaszek-Kalaitzidi, for standing for the elections, and for their passion to serve our Committee. Congratulations to Peter and Margo, and I am sure we will have a fruitful collaboration within the Council to advance the efficiency of ICCP.

Furthermore, our Committee is engaging young people, as you

will meet our new applicants within this issue, something that is definitely facilitated by the return to meetings in person. Unfortunately, though, on 18<sup>th</sup> of April we lost a dear colleague and friend, Prof. Dr. Aleksandar Kostić from Faculty of Mining and Geology, University of Belgrade; our thoughts are with his family and colleagues.

Inspired by the topic of our next meeting "*Organic Petrology Research and Applications for the 21<sup>st</sup> Century*" and following the international discussions in media or industrial and political fora, it is evident that our scientific branch keeps playing an important role in preserving the development trend of our society. Your efforts, reflected in the diversification of Organic Petrology applications, can significantly contribute towards the sustainability of our living space. Although, particularly at the EU level, we are in a "*Coal-Phase Out*" era, it seems that many stakeholders are starting to realize the non-pragmatic transition time frames and requirements. Additionally, a positive outcome of the new EU Critical Raw Materials Act (CRMA), which last March has taken green light, is the inclusion of Coking Coal as a critical raw material.

I am looking forward to meeting most of you in Oviedo, to enjoying the technical sessions, Angeles' hospitality and the Spanish gastronomy as well.

Stavros Kalaitzidis

### Call for samples for the DOMVR accreditation program.

Please contact convener Prof. João Graciano Mendonça Filho ([graciano@geologia.ufrrj.br](mailto:graciano@geologia.ufrrj.br)) for details."

## Results on the Elections for Chair of Commission I of the ICCP

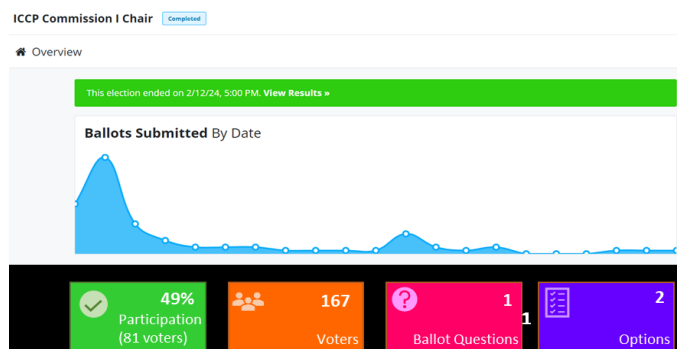
The results of the elections for Chair of Commission I are now available. According to the statutes all members of Commission I are eligible to vote (167). The 22nd of January 2024 an email from the election runner was received with the instructions to vote in the period from 01/22/24 6:00 pm to 02/12/24 5:00 pm (America/New\_York).

Two candidates could be elected: Peter Crosdale (AU) and Dragana Životić (RS).

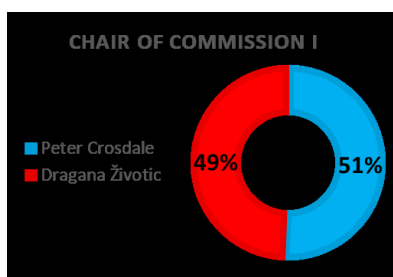
The election closed the 12th of February and Figure 1 shows the flow of voting and a summary of some relevant information. Most of the votes were received right after the call was launched, with a peak corresponding to the reminder. A total of 81 votes were received representing 49% of the eligible voters.

The outcome of the election was very close as shown in Figure 2, with 51% of the votes corresponding to Peter Crosdale and 49% to Dragana Životić, being elected Peter Crosdale as Chair of Commission I for the next 4 years. The participation in the elections by membership category is shown in Figure 3. Most of the voters were full members (57%) and this represents a 65% of the total eligible voters, whereas only 36% of the associated members voted representing a 43% of the total emitted votes. The on-line election for Chair of Commission I has been successfully carried out thanks to the arrangements of the General Secretary. Thanks for participating and congratulations to the elected candidate.

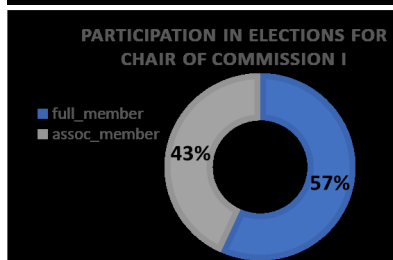
Acting Returning Officer  
Angeles G. Borrego



**Figure 1.** Overview of the election process for Chair of Commission I showing the kind of information provided by the Election Portal.



**Figure 2.** Outcome of the election process for Chair of Commission I.



**Figure 3.** Distribution of the participation by membership category.

## TSOP CORNER

### John Castaño Honorary Membership Award Call for nominations, 2024 *Deadline: May 31, 2024*

TSOP members are invited to nominate the scientist of your choice for the 2024 John Castaño Honorary Membership Award, The Society for Organic Petrology's highest honor ([www.tsop.org/honmem.htm](http://www.tsop.org/honmem.htm)). The award acknowledges distinction in a scientific discipline of significance to the society, in recognition of contributions in research, service to TSOP, or education. The John Castaño Honorary Membership conveys life membership in the society. It is named in honor of John Castaño, one of our most active Houston-based founding members. John served as inaugural Vice-President, and later, as President of TSOP. He was an organizer of three TSOP meetings in the Houston area, and was made an Honorary Member in 1995. John served TSOP in many capacities until his death in 1997; a memorial article was published in the June 1997 issue of the TSOP Newsletter.

If you would like to suggest a candidate for the 2024 John Castaño Honorary Membership Award, please submit a letter of recommendation and a brief CV of the nominee to:

Dr. Magdalena Misz-Kennan, University of Silesia, Faculty of natural Sciences, Institute of Earth Sciences, ul. Będzińska 60, 41-214 Sosnowiec, Poland; email: [magdalena.misz@us.edu.pl](mailto:magdalena.misz@us.edu.pl)

by **May 31, 2024.**

It is suggested that supporting letters of recommendation from colleagues and other scientists accompany the package. Emphasis should be placed on the significance of the nominee's work.

Nominations will be reviewed by the John Castaño Award Committee and results will be announced at the Annual Meeting. The selection process is confidential and nominees do not have to be former or current TSOP members.

The committee evaluates research, service and educational impact on the following criteria:

- Research contributions include work that demonstrates a high degree of originality and serves to advance the science of organic petrology or related disciplines. Nominees must possess a sustained international record of professional publication and achievement.

- Nominees recommended for service must demonstrate significance contributions to TSOP in a leadership role. Their service must have enabled the society to stimulate interest and promote innovative research in coal geology. Contributions include educational activities, administrative duties, or the development of the society.

Nominees recommended for education must demonstrate a high degree of dedication and significant impact as a teacher of organic petrology or related disciplines.

**Dr. Magdalena Misz-Kennan**

TSOP Vice President, Chair of the Honorary Member Selection-Committee

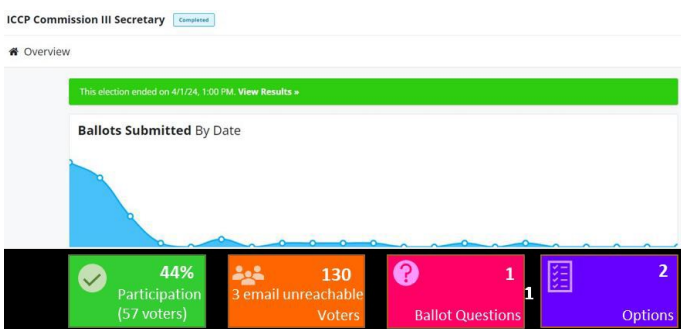
### Results on the Elections for Secretary of Commission III of the ICCP

The results of the elections for Secretary of Commission III are now available. According to the statutes all members of Commission III are eligible to vote (130). Out of them only 127 were reachable by email and therefore able to effectively emit a vote. The 11th of March 2024 an email was received from the General Secretary (Paul Hackley) announcing the forthcoming election and providing the election documents comprising the CV and vision of the position of the two candidates. Right afterwards an email from the election runner was received with the instructions to vote in the period from 03/11/24 2:00 pm to 04/01/24 1:00 pm (America/New York).

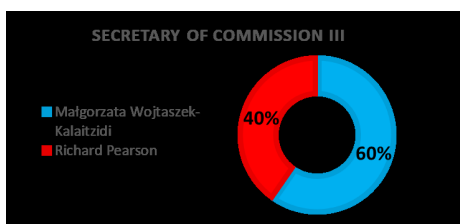
Two candidates could be elected: Richard Pearson (CA) and Małgorzata Wojtaszek-Kalaitzidi (PL).

The election closed the 1st of April and Figure 1 shows the flow of voting and the participation provided by the election portal. Most of the votes were received right after the call was launched, with a peak corresponding to the reminder. A total of 57 votes were received representing 44% of the eligible voters (130) and 45% of the voters informed by email about the election process. The outcome of the election was as shown in Figure 2, with 60% of the votes corresponding to Małgorzata Wojtaszek-Kalaitzidi and 40% to Richard Pearson, being

elected Małgorzata Wojtaszek-Kalaitzidi as Secretary of Commission III for the next 4 years. The on-line election for Secretary of Commission III has been successfully carried out thanks to the arrangements of the General Secretary. Thanks for participating and congratulations to the elected candidate.



**Figure 1.** Overview of the election process for Secretary of Commission III referred to the total eligible votes with the format of the Election Portal.



**Figure 2.** Outcome of the election process for Secretary of Commission III as provided by the Election Portal.

Acting Returning Officer Angeles G. Borrego

## ICCP Honorary Treasurer's Report

### Report to Council- 18 September 2023

#### Summary Introduction

The ICCP is financially stable, and once the treasurer issues membership dues fees, we will have additional income. [invoices for 2023 dues were sent out to ~220 members; of those ~120 have paid as of 22-12-23]. The financial system XERO is working well as is the online STRIPE payments. If members pay online, we have absorbed the transaction fees; if they pay via direct debit we often lose money as banks take a hefty transaction fee. Still some teething issues to work out with the system, and we thank members for their patience. Income was down on accreditations but up on short courses, as I used the accounting year from Oct 2022 to Sept 2023, which shows payments from the 2022 Organic Petrology course in Patras and the 2023 DOM course in Patras. Expenditures were up for accreditations (this is in part to payments for last year, and advances for 2024). Cash payments (outgoing and incoming) are difficult to track in the system and this is a discussion point. International travel expenses were incurred in support of ICCP representation at the ISO 2023 meetings. The student scholarship of E1000 to Juan Sebastian Neita was made. A profit-loss statement for the past 3 years is shown below.

## Profit and Loss

International Committee for Coal & Organic Petrology

For the 12 months ended 30 September 2023

EUR (Euro)

Account	Oct 2022-Sep 2023	Oct 2021-Sep 2022	Oct 2020-Sep 2021
<b>Trading Income</b>			
200 – Accreditations*	573.58	12,863.74	2,837.43
210 - Short Courses**	6,951.07	6,810.47	0.00
260 - Other Revenue	0.00	6.64	0.00
270 - Interest Income	0.00	4.98	0.00
<b>Total Trading Income</b>	<b>7,524.65</b>	<b>19,685.82</b>	<b>2,837.43</b>
<b>Gross Profit</b>	<b>7,524.65</b>	<b>19,685.82</b>	<b>2,837.43</b>
<b>Operating Expenses</b>			
390 - Accreditation Expenses***	2,857.38	1,904.17	2,038.29
404 - Bank Fees	(129.52)	311.26	233.91
425 - Freight & Courier+	819.89	0.00	0.00
429 - General Expenses	361.25	0.00	0.00
475 - Short Course Expenses****	4,401.92	606.90	0.00
476 - Scholarships	993.29	165.94	0.00
489 - Telephone & Internet	309.26	0.00	255.18
494 - Travel – International*****	2,906.01	0.00	0.00
498 - Unrealised Currency Gains	27.19	(59.78)	0.00
499 - Realised Currency Gains	72.00	305.82	0.00
506 - Stripe Fees	118.73	349.53	0.00
<b>Total Operating Expenses</b>	<b>12,737.39</b>	<b>3,583.84</b>	<b>2,527.38</b>
<b>Net Profit</b>	<b>(5,212.74)</b>	<b>16,101.98</b>	<b>310.05</b>

#### **Dear Participants of the Working Group 'Radiolytic alteration of organic matter in coal and rocks enriched in radioactive minerals'**

It is spring again, and the time for our 2<sup>nd</sup> Round Robin Exercises. It was very nice to see you all at the Patras meeting. As we concluded after discussions on the results of the 1st Round Robin, this year we will concentrate only on radiolytic alteration in coal, the bitumen will be later.

Before we send you the presentation and exercises, we would like to ask you to send us some of your examples with radiolytically altered organic matter from the coal to broaden the

spectrum of coal localities for our exercises.

We are looking forward to your examples.

Thank you for your participation

Kind regards,

Ivana Sýkorová and Tatiana Larikova

Here is the link to our Working Group,

<https://www.iccop.org/workinggroup/radiolytical-alteration-of-the-organic-matter-in-coal-and-rocks-enriched-in-radioactive-minerals/>



# OVIEDO 2024

## Welcome Address

In 2024 the International Committee for Coal and Organic Petrology will be holding its 75<sup>th</sup> Meeting in Oviedo. This is an extraordinary opportunity to meet and celebrate and to think on the challenges of Organic Petrology in the forthcoming years. Spain has hosted the ICCP meetings six times. The first three in the 60s were held in Madrid and the next three in Oviedo. The city will be dressed in its best clothes right after the patronal feast of St Matthew finishing the 21<sup>st</sup> of September. An additional attraction is that Oviedo has been elected as Spanish Capital of Gastronomy for 2024. Therefore, during your stay, you will have the chance to taste many of the delicacies that have made Oviedo deserving this honour. At the time of writing this note the COP28 has finally found an agreement on the “transition away from fossil fuels” and therefore, the Meeting will be a good opportunity to reflect on the Theme:

### Organic Petrology Research and Applications for the 21<sup>st</sup> Century

The Meeting is organized by the Instituto de Ciencia y Tecnología del Carbono (INCAR-CSIC) together with the Institutional Delegation of CSIC in Asturias and will take place downtown in the building of the Chamber of Commerce of Oviedo which is also the venue of the CSIC Institutional Delegation in Asturias. The daytime is still long in September, the weather is typically mild and we will have the opportunity to visit the pre-Romanesque (IX Century) Monuments in Mount Naranco designated as UNESCO Heritage Sites and a field trip to see some of the Formations responsible for the relief of the Cantabrian Mountains, which are also rich in organic matter. Within this framework the Organizing Committee is having the pleasure to host the 75<sup>th</sup> ICCP Meeting and is preparing a Commemorative Book to remember this date to which every member can contribute with his/her experience about the organization. This will be a unique forum to interact in a week-long meeting to discuss and exchange ideas, and thus contributing to the future of Organic Petrology.

## Organizing Committee

### ICCP Members

Chair: Dr. Angeles G. Borrego  
Prof. Dr. Rosa Menéndez  
Dr. Diego Álvarez

### CSIC Local Team

Juliana Sánchez Villar  
Concha Prieto Alas  
Carmen Niembro  
Olaya Rozada  
Ana Vallejo

### Cámara Oviedo Team

Fernando Villabella  
Susana Estébanez Sierra  
Sonia Fernández Castillo  
Juan Carlos Bueno

### U. Oviedo Team

Dr. Oscar Merino  
Dr. Luis Pedro Fernández  
Dr. Juan Ramón Bahamonde

## Sponsors & Supporters

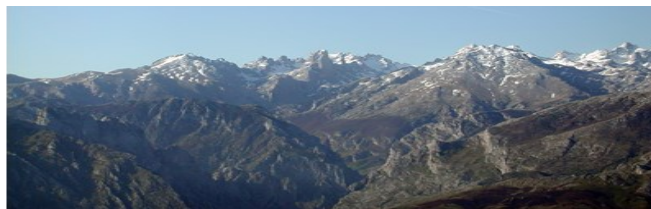


## Venue

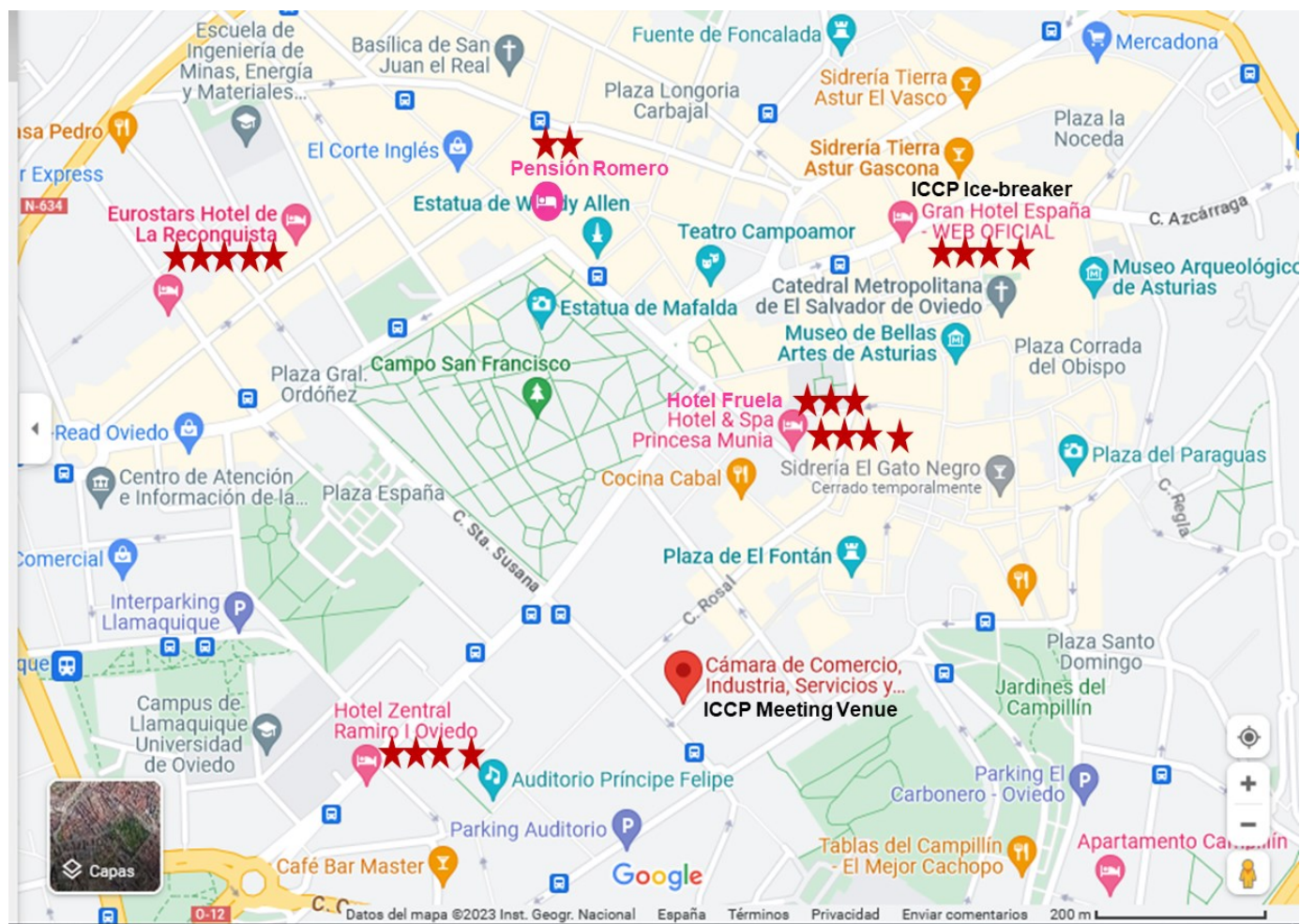
The Venue of the Meeting is located in Oviedo downtown at walking distance from many hotels and the commercial and historical city centre. The Building is the location of the Chamber of Commerce of Oviedo and the Institutional Delegation of CSIC in Asturias (C/ Quintana, 32, 33009 Oviedo).



The Ice-Break party will take place in the Gran Hotel España (C/ Jovellanos 2, 33003 Oviedo)



The location of the Venue and some of the closest hotels to the venue can be found in the following map.



## Registration

### Types of Registration

Category	Early Registration before 15 <sup>th</sup> of June 2024	Late Registration after 15 <sup>th</sup> of June 2024
ICCP Member	400 €	450 €
Non-Member	450 €	500 €
Student*	200 €	250 €
Accompanying person	150 €	
Fieldtrip	90 €	
Symposium Only (1 day)		
Professionals	150 €	200 €
Student*	60 €	

\* Proof of Student enrolment required

#### Please Note:

Registration fee includes: Ice-breaker party, Participation in All Sessions and Symposium, coffee breaks and lunches, Mid-Conference Excursion to Mount Naranco UNESCO Heritage Sites (transport by bus and tickets), Conference Dinner, Book of Abstracts and Special 75<sup>th</sup> Commemorative Book.

Registration fee for the Symposium on 27<sup>th</sup> of September only, includes: Participation, coffee breaks, one lunch, Book of Abstracts.



## Registration fee continued....

Registration fee of accompanying persons includes: participation in Ice-breaker party, coffee breaks and lunches during the week at the venue, Mid-Conference Excursion to Mount Naranco UNESCO Heritage Sites (transport by bus and tickets) and Conference Dinner.

One-day Field Trip to Cantabrian Mountains. The fee includes field guide, transport by bus, and lunch. Minimum number of participants for the field trip: 30 persons.

Please contact the Organizing Committee for further details ([iccp24.oviedo@incar.csic.es](mailto:iccp24.oviedo@incar.csic.es)) regarding registration, and consult the webpage.

## Symposium

The Organizing Committee and the Scientific Committee kindly invite you to submit abstracts to participate as Oral or Poster presentation to the Symposium to be held the 27<sup>th</sup> of September with the theme:

### Organic Petrology Research and Applications for the 21<sup>st</sup> Century

The Sessions to be selected are:

- Organic Petrology and Climate Change
- Environmental applications
- Adapting to the new energy context
- Methodological improvements

A template will be soon provided for the abstract submission with instructions. The Abstracts will appear in the Abstract Book only upon registration of at least one author. The tentative deadline is established the **15<sup>th</sup> of June 2024**. The abstracts will be reviewed by the Scientific Committee and acceptance will be communicated within 15 days after submission.

The posters will be on display from Tuesday to Friday.

### Scientific Committee

Dr. Sandra Rodrigues, The University of Queensland, Australia  
 Prof. Dr. João Graciano Mendonça Filho, Universidade Federal do Rio de Janeiro, Brazil  
 Dr. Qingyong Luo, China University of Petroleum, Beijing, China  
 Dr. Olga Patricia Gómez Rojas, Universidad Pedagógica y Tecnológica de Colombia, Sogamoso, Colombia  
 Dr. Isabel Suárez-Ruiz, INCAR-CSIC, Oviedo, Spain  
 Dr. María Antonia Díez, INCAR-CSIC, Oviedo, Spain  
 Dr. Stavros Kalaitzidis, University of Patras, Greece  
 Dr. Rashmi Singh, Tata Steel, Jamshedpur, India  
 Prof. Dr. Polla Khanaqa, Kurdistan Institution for Strategic Studies and Scientific Research, KRG-Iraq  
 Dr. Magda Misz-Kennan, University of Silesia, Poland  
 Prof. Dr. Deolinda Flores, University of Porto, Portugal  
 Prof. Nicola J. Wagner, University of Johannesburg, South Africa  
 Dr. Paul Hackley, USGS, USA

## Special Commemorative volume 75th ICCP Meeting

Many of you have received specific invitations to participate in different sections of the Commemorative Book on the occasion of the celebration of the 75<sup>th</sup> ICCP Meeting. The Organizing Committee really appreciates the good reception of the book. There is a predecessor in the 50<sup>th</sup> Commemorative Book that has been an opportunity to summarize the historical development of the organization until that date.

In addition to the dedicated chapters there will be a section to compile thoughts and feelings of the Membership which is open to every member. This contribution will have a format similar to a visiting book with a brief text and the name, affiliation and country of the member. Please send your contributions to [iccp24.oviedo@incar.csic.es](mailto:iccp24.oviedo@incar.csic.es) with the subject *Special Commemorative volume 75th ICCP Meeting*. The dead line for contributions will be the end of May.

## Accommodation

The participants shall arrange their own accommodation in Oviedo. There are plenty of opportunities within walking distance to the Venue in downtown. However, the Organizing Committee has made special arrangements with the following Hotels:

Hotel	Price
Gran Hotel España (4 stars) <a href="https://www.granhotelespana.es/reservas/">https://www.granhotelespana.es/reservas/</a>	Single: ~65.97€
Hotel Fruela (3 stars) <a href="https://www.hotelfruela.com/">https://www.hotelfruela.com/</a>	Single: 84.90€ Double: 97.80€
Hotel spa Princesa Munia (4 stars) <a href="https://www.hotelprincesamunia.com/">https://www.hotelprincesamunia.com/</a>	Single: 96.90€ Double: 111.80€

### Please use the code ICCP24 for booking

It is recommended to book as soon as possible because September is still a busy month from the touristic point of view.

## Travelling to Oviedo

Oviedo is located in the North of Spain in the so called "Green Spain". The nearest airport is 45 km away from Oviedo. There are direct flights from some European cities such as London, Paris, Düsseldorf, Roma, Brussels...

(<https://www.aena.es/es/asturias/aerolineas-y-destinos/aerolineas.html>) and frequent daily flights via Madrid and Barcelona

Transport from airport to hotels or places of residence can be made by Bus (to Oviedo hourly 9 €) + roughly 6 € taxi from the Bus station to any hotels down town. Cost of Taxi from the airport to Oviedo is around 60€ the working days and 70€ in the weekend.

A high-speed train is connecting Madrid, Valladolid, Leon and Oviedo. It might be possible to get cheap flights to any of these places and then connection by train (<https://www.renfe.com/es/en>).

## Visa Support

Participants requiring visas must initiate the application process many months in advance of their departure date. For details that apply specifically to your country, please visit the website of the Spanish Ministry of Inner Affairs or the Embassy/consular services in your country.

If you need a personal letter of invitation to attend the 75<sup>th</sup> ICCP Meeting, please provide your personal details and complete postal address and email to [iccp24.oviedo@incar.csic.es](mailto:iccp24.oviedo@incar.csic.es). Note: The Organizing Committee cannot intervene in the visa application process on your behalf at any Spanish Embassy or Consulate office abroad.



## Draft Schedule for Oviedo 2024

Time	Sunday 22-Sep.	Monday 23-Sep.	Tuesday 24-Sep.	Wednesday 25-Sep.	Thursday 26-Sep.	Friday 27-Sep.	Saturday 28-Sep
VENUE	Institutional Delegation CSIC in Asturias	Institutional Delegation CSIC in Asturias	Institutional Delegation CSIC in Asturias	Institutional Delegation CSIC in Asturias	Institutional Delegation CSIC in Asturias	Institutional Delegation CSIC in Asturias	Fieldtrip Carboniferous Carbonatic Formations in Cantabrian Mountains
9:00-10:30		Welcome words + Presentations	Commissions Meeting	Commissions Meeting	Commissions Meeting	Symposium	
10:30-11:00	Coffee break						
11:00-13:00		ICCP General Assembly	Commissions Meeting	Commissions Meeting	Commissions Meeting	Symposium	
13:00-14:00	Lunch break						
14:00-15:30	Council Meeting	Commissions Meeting	Commissions Meeting	Commissions Meeting	ICCP General Assembly	Symposium	
15:30-16:00	Coffee break						
16:00-17:00	Council Meeting	Commissions Meeting	Microscopy Session/slide show	Microscopy Session/slide show	Visit to Unesco Heritage Pre- Romanesque buildings (16:30- 19:00)	Symposium	
18:00-19:00			Council Meeting				
19:00-22:00	Registration & Ice Breaker at Hotel España			Symposium Dinner at place to select			

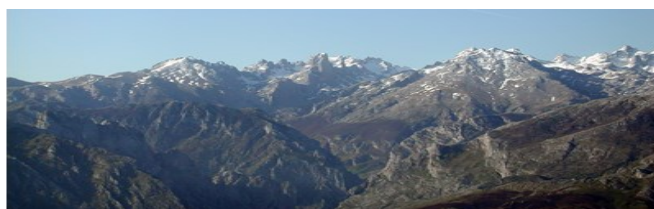
### Editors notes:

I am sure you are all looking forward to the 75th ICCP to be held in Oviedo, Spain. Please read through the above information carefully, noting the suggestion to book accommodation a.s.a.p.— use the booking code ICCP24, to commence with visa requirements a.s.a.p., and note the provisional abstract deadline date of 15 June 2024. It is advisable to frequently check the ICCP webpage and social media pages for up- dates.

SEE PAGES  
6-9 FOR DETAILS  
ABOUT THE  
OVIEDO  
ICCP MEETING 2024

SEE PAGES 6-9 FOR  
DETAILS ABOUT  
THE OVIEDO ICCP  
MEETING 2024

SEE PAGES 6-9  
FOR DETAILS  
ABOUT THE OVIE-  
DO ICCP MEETING



## NEW ASSOCIATE MEMBERS – WELCOME TO THE ICCP

Surname: ADSUL First Name: TUSHAR Title: MR. Position: PhD candidate

Degree: PhD in progress

Organization: Indian Institute of Technology (Indian School of Mines)

Address: Coal Geology and Organic Petrology Lab. Dept. of Applied Geology, Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, Jharkhand, India

Email: tpadsul@gmail.com

Sponsoring member: Prof Atul Varma

Commissions: I, II, III

Comment: Mr. Adsul's doctoral research focuses on organic petrology, encompassing various facets such as reconstructing paleodepositional environments, analyzing maceral reactivity, and assessing hydrocarbon generation potential.



Surname: LUI First Name: BEI Title: DR. Position: Associate Scientist

Degree: PhD; Organic matter accumulation, thermal maturation, and organic pores development in the Upper Devonian New Albany Shale, Illinois Basin

Organization: Indiana Geological and Water Survey

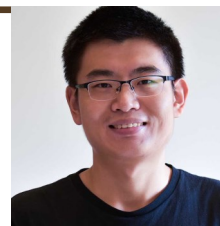
Address: Postal address: 1001 E 10th Street Bloomington, IN, USA 47405

Email: liubei@iu.edu

Sponsoring member: Prof Maria Mastalerz

Commissions: I, II, III

Comment: Dr Lui completed his doctoral degree and postdoctoral studies at the Indiana University in Bloomington. He is now employed full-time at Indiana University working on several projects involving energy and critical minerals.



Surname: ARNDT First Name: INGO Title: MR. Position:

Degree: Dipl.-Ing.

Organization: Thyssenkrupp Steel Europe AG Competence Center Metallurgy/ Technology Coal & Coke/ Rheology & Coke formation

Email: ingo.arndt@thyssenkrupp.com

Address: Kaiser-Wilhelm-Str. 100 D-47166 Duisburg, Germany

Sponsoring member: Mrs Heike Liszio

Commissions: III

Comment: involved in organic petrology since 2011.



Surname: MISHRA First Name: DIVYA Title: DR. Position: Staff Scientist

Degree: PhD;

Geological and Petrographical Controls on Kerogens for Oil and Gas Generation Attributes to Auranga Basin, Jharkhand, India

Organization: Birbal Sahni Institute of Palaeosciences

Address: 53 university road, Lucknow, India

Email: divya.mishra@bsip.res.in

Phone: +48 789 271 590

Sponsoring member: Dr. Paul Hackley

Commissions: I, II, III

Comment: Dr Mishra works on source rock evaluation and characterization for hydrocarbon assessment, using the tools of organic petrology and geochemistry.



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Department of Geology, University of Patras, Rio, Greece  
mailto: [skalait@upatras.gr](mailto:skalait@upatras.gr)



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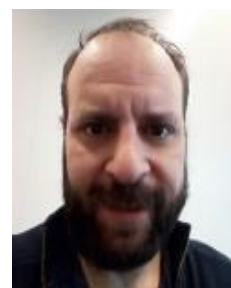
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## OBITUARY

### Neely Bostick, 1931–2023

Neely Bostick passed away peacefully on September 3, 2023, with his wife Joyce at his side. Neely was 91 years old. Neely was a longstanding member of TSOP and ICCP, serving in several leadership roles for both organizations.



Left: Neely Bostick at the 1996 ICCP meeting in Heerlen. Photograph courtesy of Alan Davis.

He was awarded the John Castañero Award from TSOP in 2006 in recognition of his outstanding contributions to research in organic petrology, including over 65 publications from the late 1960s through the late 1990s. Neely was

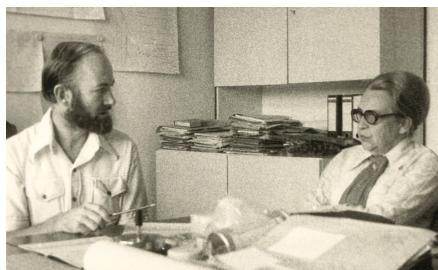
an early member of TSOP and present at the first annual meeting in Tysons Corner Virginia in 1984.



Neely (circled in white) at the 1984 first annual meeting of TSOP in Tysons Corner, Virginia.

Neely served TSOP as Vice-President, then President from 1985 to 1988, later returning to the TSOP Council as the Newsletter editor from 1993 to 1995. He also served on the balloting committee and TSOP's research committee where he facilitated the inclusion of notes in the TSOP News related to 'polishing or embedding techniques, comparisons of kerogen separation techniques, rock color as related to type and amount of kerogen, comparisons of microscope objectives, the effects of solvent extraction and acid treatment on kerogen properties, and the advantages and disadvantages of various immersion media.' These lab notes appeared as letters to the fictional Dr. C.H.O. Anthracos in 1986, reflecting Neely's wry sense of humor. Neely kept at it, writing on 'Measured reflectance suppressed by thin-film interference of crude oil smeared on glass – as on vitrinite in coal or petroliferous rocks' in TSOP News in 2011, fifteen years after he had retired.

Neely was widely regarded as a polyglot, and his translation of Marlies Teichmüller's report '*Fluoreszenz von Liptiniten und Vitriniten in Beziehung zu Inkohlungsgrad und Verkokungsverhalten*' (*Fluorescence microscopical changes of liptinites and vitrinites during coalification and their relationship to bitumen generation and coking behavior*) was well received in the United States.



Neely conferring with Marlies Teichmüller, undated. Courtesy of Angeles Borrego.



Neely and Marlies at the 1992 TSOP-ICCP meeting at Penn State, PA. Courtesy Alan Davis.

Neely spent a year in Germany in the mid-1970s to establish a new organic petrology laboratory at KFA-Juelich with Chris Cornford. After retiring, he spent time in Kyrgyzstan in the mid-1990s to finish a project on coal resources and mining opportunities in the newly independent country, translating Kasharin's '*Coal geology in Kyrgyzstan during 70 years of Soviet power*' from the Russian.

Neely received his PhD from Stanford in 1970 for a study on 'Thermal alteration of clastic organic particles (phytoclats) as an indicator of contact and burial metamorphism in sedimentary rocks', a work which introduced Neely to dispersed organic matter petrology and which formed the foundation of much of his early research in the 1970s. Neely invented the term 'phytoclast', now widely used and intimately familiar to all organic petrologists and palynologists. While at Stanford, Neely began work on reflectance changes of phytoclats due to their thermal alteration through contact metamorphism by igneous intrusion, a subject which would follow him throughout his career. Also at Stanford, Neely was a member of the Alpine Club, reflecting his sense of adventure and love of challenges.

After his PhD, his professional career began at the Illinois Geological Survey (1970 to 1975) where he published research on dispersed organic matter petrology, thermal maturation, contact metamorphism of organic matter, and coal resources. While at the Illinois Geological Survey, Neely employed the concept developed during his PhD work of measuring phytoclast reflectance as a rank parameter for use in coal resource assessment.

In 1976, Neely began employment with the U.S. Geological Survey in Lakewood, Colorado, in the Branch of Petroleum Geology, where he continued until retirement in 1996. During his time at USGS Neely performed research in dispersed organic matter petrology, contributing to many studies which supported petroleum resource assessment. This was the most productive phase of Neely's career and also the height of his many contributions to ICCP and TSOP.

In the ICCP, Neely served as secretary and also chair of the MOD (Matière Organique Dispersée) activities of the ICCP in



CONTINUED FROM PAGE 6:

its Commission II, coordinating several round robin exercises from the early 1970s to early 1980s, including work to understand contact metamorphism effects to dispersed organic matter. Neely served as an informal liaison between TSOP and ICCP, writing summaries of the ICCP meeting activities for the TSOP Newsletter.

My own interactions with Neely came long after he had retired from USGS (in 1996). In 2006 and 2007, I traveled with a group from our Reston, Virginia, office out to Denver, Colorado, where Neely had spent his career. When Neely learned I was the 'new' organic petrographer in Reston, he took me under his wing. Thus, as he cleaned out his office, I was the immediate benefactor of various minutia of organic petrology, for example, correspondence on the proper refractive index of immersion oils. His sense of humor was always on full display, almost

causing an international conflict when he reviewed the organic petrology review papers of Suarez-Ruiz et al. (published in 2012). And when I encountered Neely at the 2007 meeting of ICCP-TSOP in Victoria, Canada (where he was presented TSOP's Castano Award) he borrowed my cell phone several times to check in with Joyce, running up my bill with international call charges, unbeknownst to both of us at the time.

Neely leaves behind his wife of three+ decades, Joyce Bostick of Morrison, Colorado. Neely and Joyce met at the Denver Civic Center through a shared love of folk dancing. Together they cared for a menagerie, having at one time six Icelandic horses, several Siberian huskies, as well as Bouvier des Flandres.

The organic petrology community has lost in Neely Bostick a remarkable scientist whose work has stood the test of time.

*BELOW: Neely (circled in white) at the 2007 Victoria meeting of TSOP-ICCP.*



Above: ICCP Colleagues Kimon Christanis and Stavros Kalaitzidis visited Deolinda Flores, in University of Porto, within ERASMUS +, having an interactive organic petrology session

## Scientific recognition

Contribution by Georgeta Predeanu

On 31 October 2023, Professor Mihai Emilian Popa from University of Bucharest, and Southwest Petroleum University in Chengdu (Sichuan) received the *Doctor Honoris Causa* title from University of Petroșani, the mining university of Romania. For many years, Prof. Popa, his PhD students Roxana Pirnea and Alexandru Călin, and undergraduate students of University of Bucharest collected fossil plants and coal samples from underground mining horizons and from sterile dumps of the Petroșani Basin. Oligocene bituminous coals of the Petroșani Basin are still extracted since mid XIX-th Century from numerous coal mines, and the coal flora is highly diverse and well preserved, with pteridophytes, gymnosperms and angiosperms. A large palaeobotanical collection was gathered and donated to University of Petroșani for a future, dedicated museum as a symbol for the university, for the Petroșani town and for the whole coal-bearing region.



# PhD Thesis Summary

## Petrography of the Oligocene-Miocene dispersed organic matter from the central-southern area of the Getic Depression, Romania

Maria Doina Ghiran (OMV PETROM SA, ICPT Câmpina, Romania)

Supervisors: Prof. Dr. habil. Mihai Emilian Popa (University of Bucharest), Dr. Eng. Georgeta Predeanu (POLITEHNICA Bucharest)

### Introduction

The petrographic analysis of the dispersed organic matter (DOM) from the source rock of the Getic Depression is performed for the first time, within the framework of this thesis which combined the DOM petrography with its geochemistry (RockEval pyrolysis). The petrographic studies of DOM in the source rocks of the Getic Depression were started and partially published by the author (Ghiran et al. 2017a, 2017b; 2018; 2023).

In this thesis, the petrographic analysis of DOM brings additional knowledge regarding the type and frequency of organic matter (continental, mixed, marine), the rank of organic matter (expressed by vitrinite reflectance), the depositional environment for the specific organic matter (organo-facies A-D), and the diagenetic details resulting from the burial process.

### Experimental

The samples used were selected from mechanical cores with Oligocene and Miocene ages, taken over the years by Petrom SA and registered in the ICPT Câmpina repository. The wells were chosen in relation to the number of cores obtained, so that the stratigraphic coverage is maximum, from the Oligocene to the Sarmatian. The samples chosen for the study are mainly pelitic, so that they have a high content of organic matter. The ages of the samples were identified by analysis carried out in the Laboratory of Nanoplankton and Biostratigraphy of ICPT Câmpina, on lithological and bio-stratigraphic bases.

### Results and discussion

A. For the Oligocene – Sarmatian interval, the marine depositional conditions were influenced by a variation of the eustatic level, doubled by the variation of oxygen constant, ranging from anoxic, dis-oxic and oxic), as shown below:

- Oligocene:** mixed environments (predominantly marine, with continental influences), oxic, dis-oxic and anoxic. Marine conditions induced lamalginite and telalginite (algal remains), and continental conditions induced liptinite, as sporinite, resinite and cutinite, associated with vitrinite and inertinite (Fig.1 A-B).
- Lower Burdigalian:** oxic continental environments, with dominant vitrinite and inertinite (Fig.1 C-D).
- Upper Burdigalian:** mixed environments (continental with marine influences), anoxic, secondary dis-oxic. The continental influences are marked by vitrinite and liptinite, as sporinite, resinite, and locally cutinite and inertinite (Fig.1 E-F).
- Badenian:** mixed environments, marine (with telalginite, lamalginite), with continental influences (vitrinite, liptinite as sporinite, resinite, and inertinite). Badenian environments were also marked anoxic conditions, with dis-oxic and oxic transitions (Fig.1 G-H).
- Sarmatian:** mixed environments, predominantly marine (telalginite), with continental influences (liptinite as sporinite, resinite, cutinite and vitrinite), anoxic, with rare

oxic occurrences. The Sarmatian succession is spectacular through its high diversity of algal organic matter, associated with

continental liptinite (Fig.1 I-J).

6. The organic facies succession expresses the eustatic variations, the transition from deep marine Oligocene conditions to shallower waters during the Burdigalian, while during the Badenian recorded a transgression, followed by the Sarmatian deepening (Fig. 2).

7. The maturity of hydrocarbon source rocks was interpreted using vitrinite reflectance, with rather constant values along the stratigraphic record ( $VR_o\% = 0.32 - 0.59\%$ , with immature or early mature rocks), with a single exception to the Lower Burdigalian, where  $VR_o\%$  ranges between  $0.90 - 1.12\%$ , suggesting mature and super-mature rocks (Fig. 3). Tectonic factors played an important role for the maturation of hydrocarbon source rocks, as the area includes anticlinal and synclinal structures which are often faulted. Generating such anticline and syncline structures cooled the sediments bearing organic matter, so that these sediments did not access the oil window. The syncline areas include thermally mature sediments, as the local geothermal gradient varied.

8. The diagenesis of the source rocks was recorded through the organic matter darkening (TAI), as the refraction index in reflected light and the fluorescence increased, the morphological details were gradually lost, and siderite and pyrite formed.

B. The hydrocarbon genesis potential and the maturity of source rocks varied, related to their stratigraphic positions:

- from gas to oil and gas for the Oligocene succession.
- weak (poor) for the Aquitanian and Lower Burdigalian sequences.
- mixed, both weak and gas, for the Upper Burdigalian sequence.
- predominantly gas, for the Badenian sequence.
- predominantly gas, oil-gas, and oil, for the Sarmatian succession.

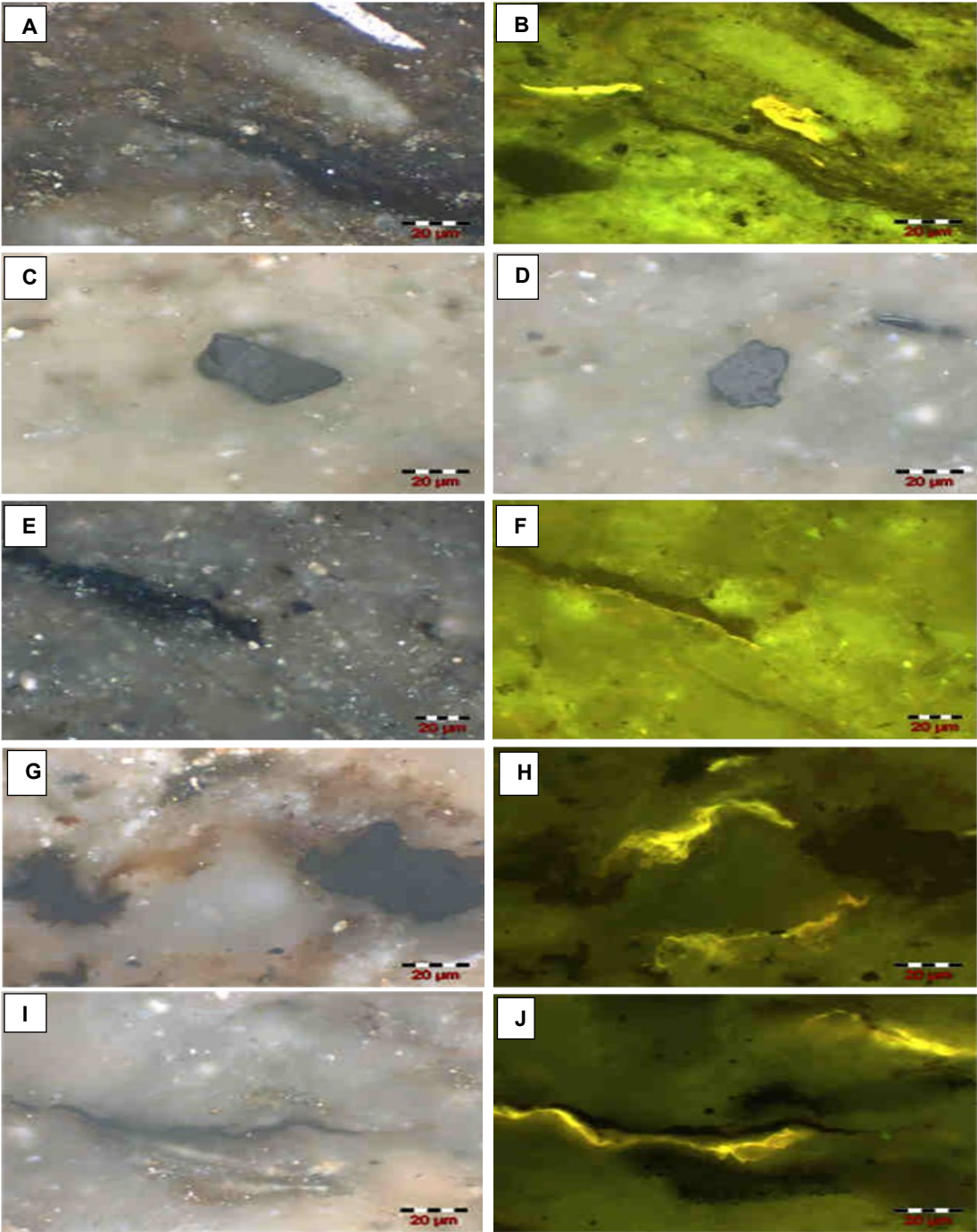
### Conclusions

The detailed petrographic and geochemical research show a continuous evolution of the depositional, diagenetic, and geochemical conditions related to the oxic-anoxic character of the depositional environments specific to the Getic Depression in the Oligocene-Sarmatian interval.

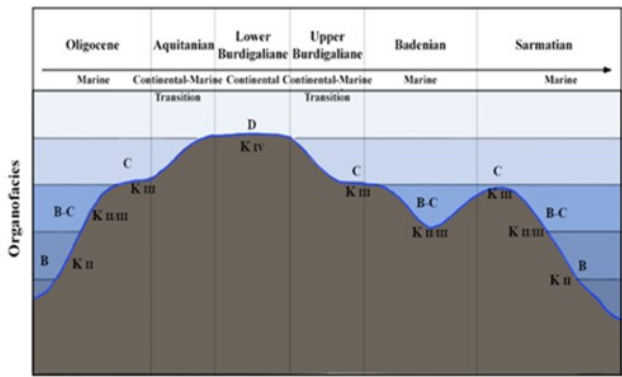
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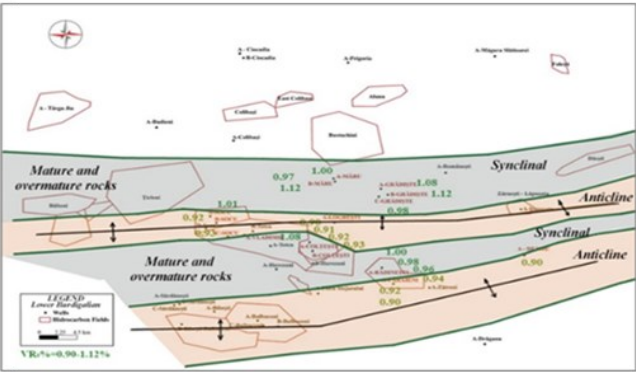




**Fig. 1.** Photomicrographs of types of source rocks of the Getic Depression, showing vitrinite associated with mixed, continental, and marine origins liptinite of different ages: Oligocene (A-B), Lower Burdigalian (C-D), Upper Burdigalian (E-F), Badenian (G-H) and Sarmatian (I-J). Reflected light: A-C-E-G-I; Fluorescent light: B-D-F-H-J. Immersion, 500X.



**Fig. 2.** Stratigraphic distribution of organofacies in the south-central part of the Getic Depression. Interpretation of original data.



# PhD Thesis Summary

## Late Oligocene coal flora of the Petroșani Basin

Roxana Pirnea

Supervisor: Prof. Dr. habil. Mihai Emilian Popa  
(University of Bucharest)

### Introduction

The Petroșani Basin, commonly known in Romania as the Petroșani Depression or the Jiu Valley Depression, is an intra-montaneous basin located in the south-west of Romania. A large number of samples were collected and studied for a new systematic, stratigraphic and palaeoecological perspective on the Late Oligocene coal flora of the Petroșani Basin. A total number of 1315 samples of fossil plants were exclusively collected from the Petroșani Basin, from both underground mining works and waste dumps. For the samples collected from underground horizons, the stratigraphic position is well recorded within the Dâlja-Uricani Formation. The aim of this research is the systematics of the fossil plants occurring in the coal bearing formations of the Petroșani Basin.

### Geology

The region in which the fossil flora of the Petroșani Basin occurred underwent considerable palaeogeographic and palaeoecologic changes during the Cenozoic, caused by tectonic events, sea-level fluctuations and global climate changes. The tectonic history and the evolution of the Petroșani Basin is complex. During the Cenozoic, tectonic activities shaped the South Carpathians through a series of events such as orogen-parallel extension, strike-slip movements, pull-apart basin sedimentation, thrust dynamics, uplift, and erosion, and the two main components of the Petroșani Basin's basement, the Getic and the Danubian domains, were engaged in the well-known overthrust of the Getic Nappe.

The sedimentary cover of the Petroșani Basin ranges in age between the Early Jurassic and Quaternary, and includes the Late Cretaceous, Paleogene, and Miocene. The Mesozoic sequence represents the sedimentary deposits of the Getic and Danubian domains, whereas the Cenozoic sequence represents the post-tectonic filling of the basin. Based on their lithological and palaeontological features, the Cenozoic deposits were separated into five formations: the Rupelian Cimpă-Râșcoala Formation, the Chattian Dâlja-Uricani Formation, the Aquitanian Lonea Formation, the Burdigalian Sălătruc Formation and the Tortonian Gravel Formation.

Thirty coal seams were described from the sedimentary deposits of the basin, and despite their rather young age the coals range from bituminous to sub-bituminous. The overall composition of the coals features vitrinite as the main group of maceral, while the liptinite group is mostly represented by resinite. These microlithotypes are mainly associated with pyrite, siderite, quartz and clay.

### Results

The Petroșani Basin's flora and vegetation have evolved as a result of the basin's geological development and subsequent

habitat changes. The best represented plant families in the Petroșani Basin are Cupressaceae, Lauraceae, Fagaceae, as well as the group of '*Rhamnus*'. The Petroșani Basin had a highly favourable environment for the accumulation of plant material and the formation of coal deposits. The abundance of plants with an affinity with high humidity is correlated with their coal genesis role. The abundance of the leaf material of *Taxodium dubium* (Fig. 1a), *Glyptostrobus europaeus* (Fig. 1b), *Daphnogene cinnamomifolia* (Fig. 1e), *Lithocarpus pulchra* (Fig. 1c), and '*Rhamnus warthae*' (Fig. 1d), in relation to ferns such as *Pronephrium stiriacum* and *Osmunda lignitum*, and other water loving species, reveals the dominantly swampy habitat of the Petroșani Basin during the Late Oligocene. The endemic characteristics of the Petroșani Basin vegetation can be inferred from the occurrence of *Acer hungaricum* (Fig. 1f) and '*Rhamnus warthae*' occurring in large amounts only in the Late Oligocene of Central Paratethys, alongside *Lithocarpus pulchra* and *Grewia stauhi* (Fig. 1g), indicating some kind of isolation of the basin.

The occurrence of coal deposits in the Petroșani Basin during the Late Oligocene suggests the presence of a large body of water in the area, surrounded by vegetation, mainly dominated by herbaceous plants such as grasses and various other monocots, such as *Monocotyla* sp., representing primary coal generators. The secondary coal generators of the Petroșani flora developed in a mixed environment with swamp elements, where mixed mesophytic forest and temperate deciduous forest elements thrived as well.

The number of plant species recorded in the Petroșani Basin is rather small, as 31 taxa were identified, thus a low species richness can be inferred. Species richness is a measure of biodiversity that quantifies the number of different species present in a particular ecosystem or habitat and it is often used as an indicator of the overall health and diversity of an ecosystem, with higher species richness typically indicating a more diverse and healthy environment. The low species richness encountered in the plant community of the Petroșani Basin may mean that the area was less productive overall, and could support only a small number of animals and other organisms that depended on plants for food and habitat, or that the plant community was not well adapted to the environment and could not be able to perform all the ecosystem services like carbon sequestration, water and nutrient cycling, and pollination.

### Conclusions

The palaeobotanical material collected and studied for this thesis is unique and highly significant, not only scientifically, but also from a heritage point of view. According to palaeobotanical data, swamp and mixed mesophytic forest habitats made up most of the vegetation of the Petroșani Basin throughout the Late Oligocene. The modern equivalent of the overall landscape of the basin fits best that of a laurel woodland in a warm humid climate.

Preliminary results of this study were already published (Pirnea and Popa, 2018; Pirnea et al., 2017, 2022). All the newly collected fossil material, together with coal samples from underground extraction chambers, are curated at the University of Petroșani, representing the core collection of a future palaeobotanical museum in Petroșani town.



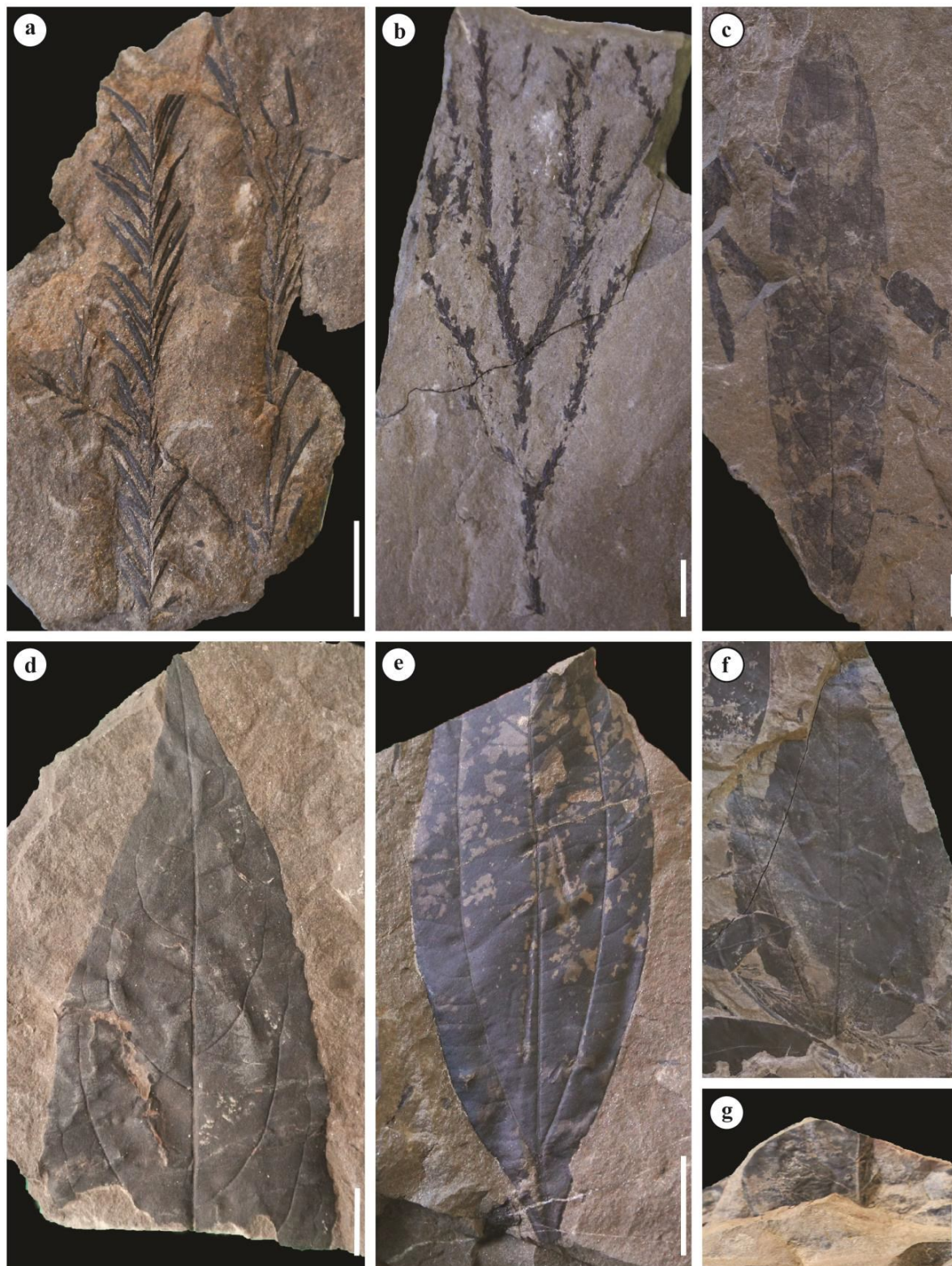


Fig. 1. The most common plant species (a-e) and the endemic species (f, g) of the Petroșani Basin: (a) *Taxodium dubium* (Sternberg 1823) Heer 1853, (b) *Glyptostrobus europaeus* (Brongniart 1833) Unger 1850, (c) *Lithocarpus pulchra* Givulescu 1987, (d) '*Rhamnus*' *warthae* Heer 1872, (e) *Daphnogene cinnamomifolia* (Brongniart 1822) Unger 1850, (f) *Acer hungaricum* Andreánszky 1955 and (g) *Grewia staudi* Givulescu 1973. Scale bar = 1 cm.

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# Petrographic identification of Carboniferous coal inclusions from Amara cores, Romania

Maria Doina Ghiran<sup>1</sup>, Georgeta Predeanu<sup>2</sup>, Mihai Emilian Popa<sup>3,4</sup>

<sup>1</sup> OMV PETROM S.A. - I.C.P.T. Câmpina, 29 Culturii Ave., 105600 Câmpina, Prahova, Romania;

<sup>2</sup> National University of Science and Technology Politehnica Bucharest, Research Center for Environmental Protection and Ecofriendly Technologies, 1-7 Gheorghe Polizu Str., 011061 Bucharest, Romania;

<sup>3</sup> School of Geosciences and Technology, Southwest Petroleum University, 8, Xindu Ave., Chengdu 610500, China

<sup>4</sup> Laboratory of Palaeontology, Department of Geology, Faculty of Geology and Geophysics, University of Bucharest, 1 N. Bălcescu Ave., 011401 Bucharest, Romania.

The territory of Romania occurs to the southeastern end of the Trans-European Suture zone (TESZ), a line related to the interaction between the East European terranes and neighboring Phanerozoic terranes of Europe, some of Gondwanan origin (Balintoni et al., 2011).

This study deals with coal inclusions collected from drilling cores of the Amara structure, at depths of 2140-2142 m and 2580-2582 m. Their age is Carboniferous, occurring in the eastern part of the Moesian Platform, a novel occurrence, **Fig. 1**

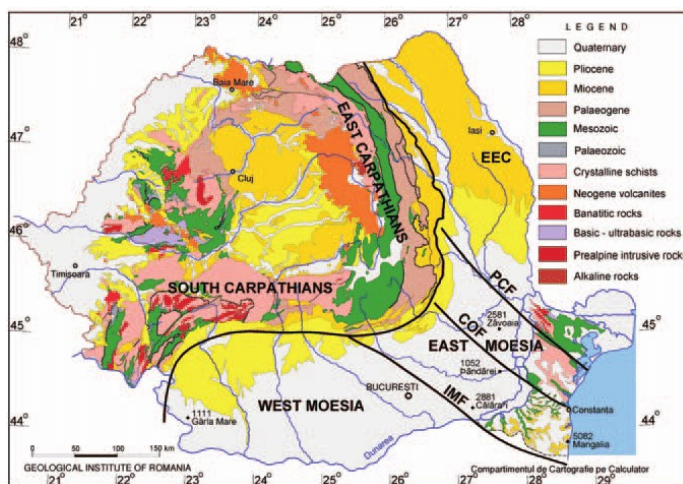
Vitrinite reflectance values show that the coal rank ranges from low to medium in the category of subbituminous to bituminous coal. Inertinite of different textures dominates the samples, with variable content of liptinite and vitrinite.

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## Figures captions:

**Fig.1.** (above) Schematic geological map of Romania with the location of the Moesian Platform and the larger tectonic units; the location of important boundary faults. Abbreviations: PCF-Peceneaga-Camena Fault; COF-Capidava-Ovidiu Fault; IMF-Intra-Moesian Fault; EEC-East European Craton and AM-Amara area (base map after Vaida, M. and Verniers, J., 2005).

**Fig. 2.** (right) Photomicrographs of different macerals in Amara coal structures. A-C and G-J Normal white light; D-F Fluorescent light. Immersion, 50X.

Collotelinite gelified particle embedding inertodetrinite, cuticle and minisporos.

Collotelinite particle embedding inertinite macerals (semifusinite, fusinite and inertodetrinite).

Inertodetrinite in collotelinite (some fissured) and collodetrinite ground mass, incorporating fusinite, semifusinite and megaspores. Normal white light shows several thin cuticles.

Fluorescent light of C). Megaspores ranging from 20 to 50 µm. Thin cuticles embedded in vitrinite and microspores and liptodetrinite reveal different fluorescence intensity.

Macrospore of over 0.2 mm and thin microspores.

Macrospores ranging from 60 to over 100 µm with outer surface well preserved and many microspores.

Inertinite rich particle embedding large inert secretinite particle showing internal structure, surrounded by different reflecting semifusinite.

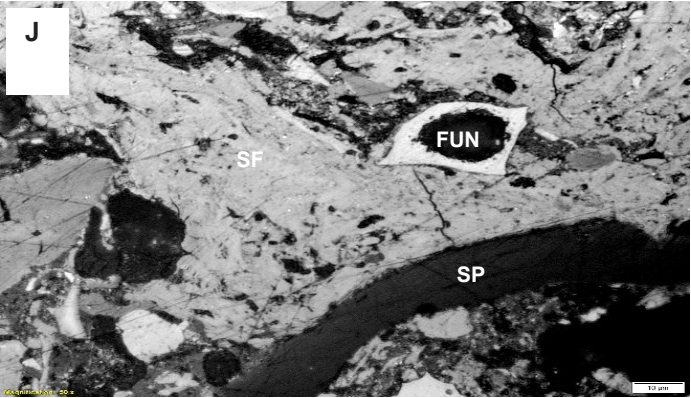
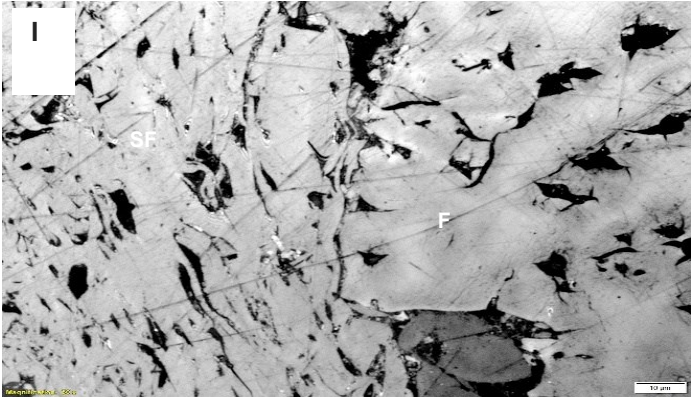
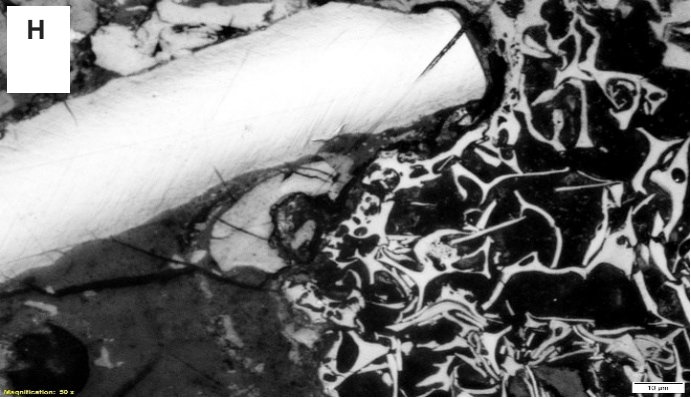
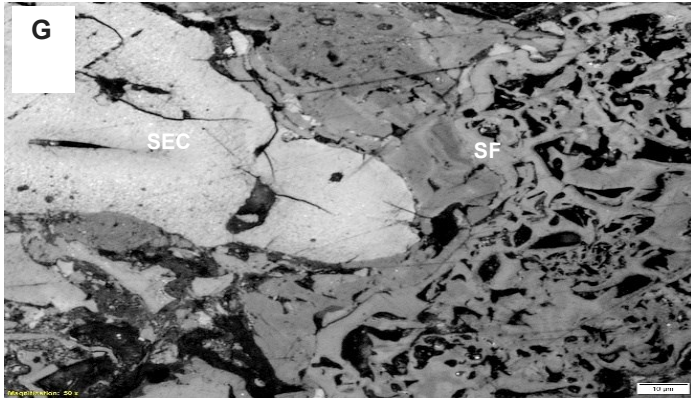
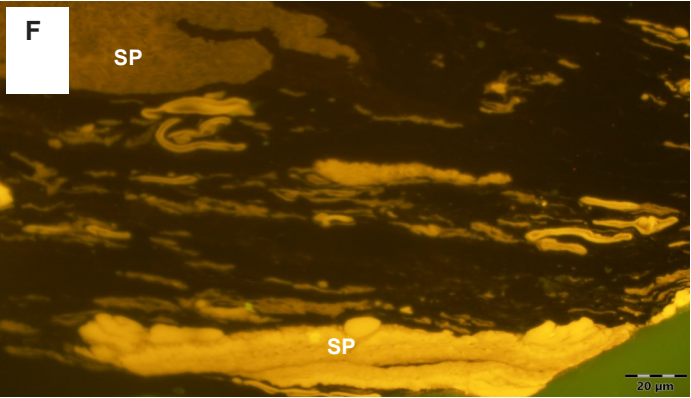
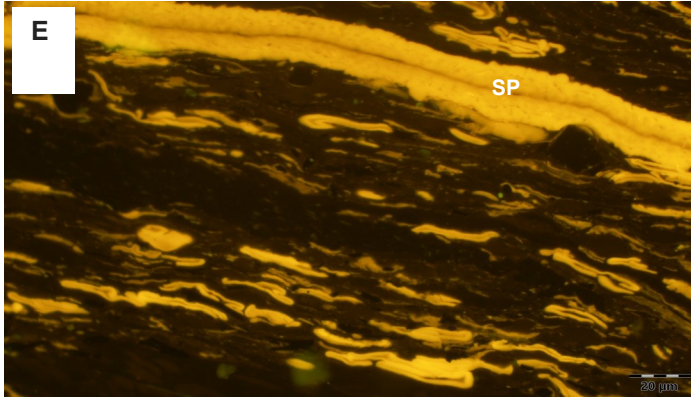
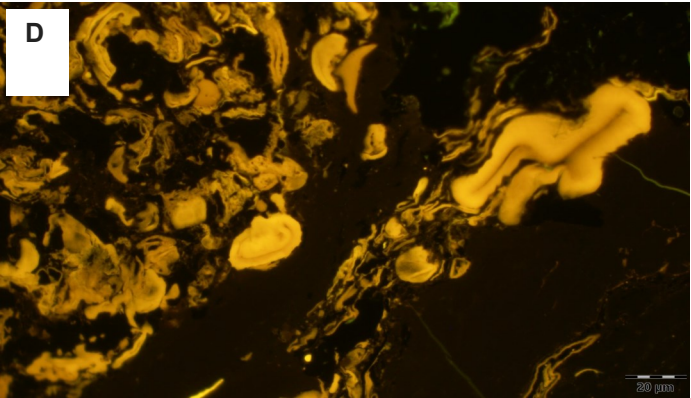
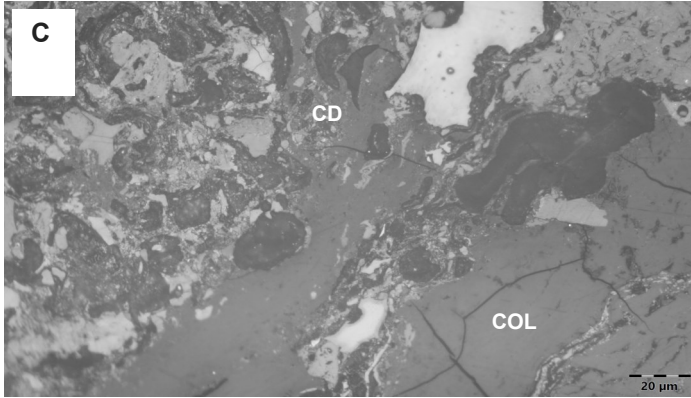
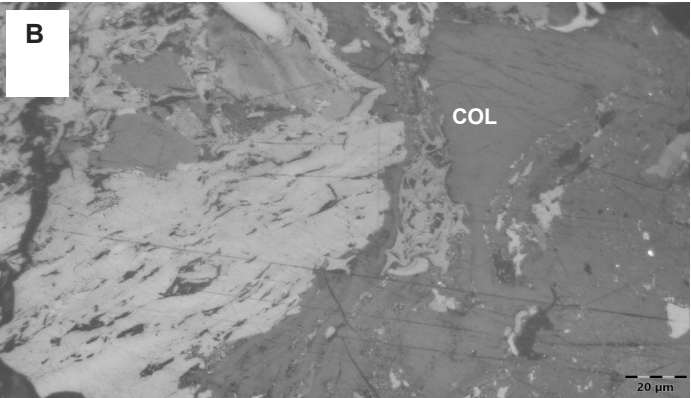
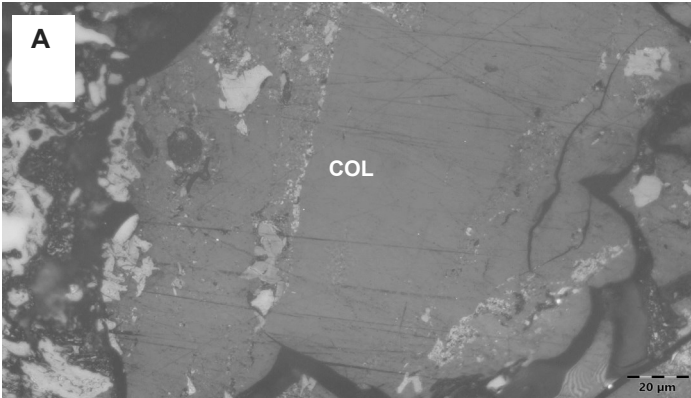
Large inert macrinite particle and semifusinite in a trimacerite.

Semifusinite (left side) and fusinite (right side).

Semifusinite embedding monocellular funginite, thick band of cutinite.

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