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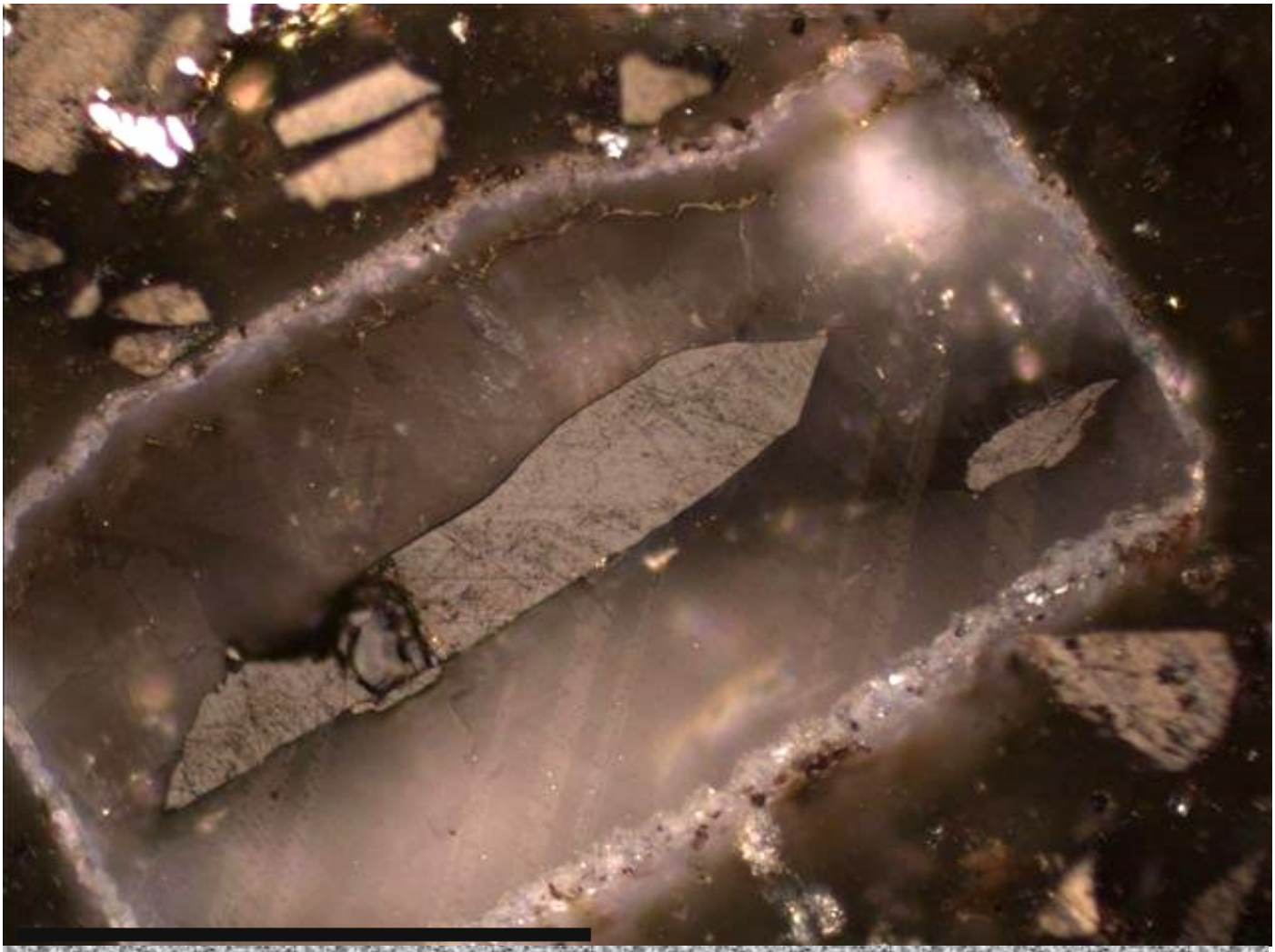


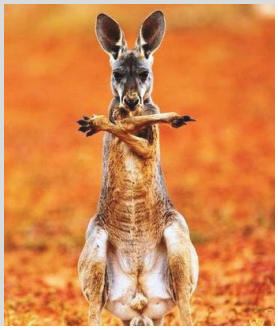
THE PEN IS MIGHTIER THAN THE SWORD

In This Issue

REMEMBER

70th Annual Meeting of the International Committee for Coal and Organic Petrology (ICCP)

September 23 - 29, 2018
Brisbane, Australia



INSTITUTIONAL MEMBER

SERVICIO GEOLÓGICO COLOMBIANO

ICCP WEBSITE

https://www.iccop.org

Please send any feedback, comments, and uploads to Stavros Kalaitzidis mail-to:skalait@upatras.gr

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, Walter Pickel. walter.pickel@organicpetrology.com

Deadline for next ICCP Newsletter:

23 November 2018

EDITORS COLUMN

Greetings, All. Apologies for the delayed, and somewhat brief, Newsletter.

I note in the World Coal magazine today that metallurgical coal prices and production are up in Australia, which I hope bodes well for a well supported ICCP Meeting and Symposium in September. Please continue to check the website for http://www.iccop.org/2018-iccp-meeting-in-brisbane-australia/ I recently convened an (non-nuclear) Energy session at our local Geocongress (South Africa), and was pleasantly surprised how well supported it was. Coal continues to hold promise for development in Africa.

Included in this Newsletter is a synopsis of one of my PhD students who has recently submitted his thesis for examination. Please do encourage your students completing organic petrology projects to submit a contribution to the ICCP Newsletter. And please do comment on the submission. It would be great to get a discussion going; although this format of discussion may seem a bit old fashioned. Perhaps we need to consider an ICCP blog page / tweet / Instagram? (I have never participated any of these media, so not sure why I am suggesting it, but perhaps for the younger petrologists?) .

In the middle of July, you all should have received an email regarding permission to continue to provide you with information from the ICCP. In order to meet the requirements pertaining to the General Data Protection Regulation (GDPR) (an EU regulation), and in line with similar regulations being promulgated in other countries globally, the ICCP requires you to confirm that you wish to continue to receive electronic and postal correspondence from the ICCP for the sole purpose of ICCP related activities. The ICCP will not share your information with a third party, and is taking all reasonable measures to ensure that the Membership Directory remains in the secure part of the Webpage, and that you have all the control regarding your personal data.

In the event you did NOT receive this email, please can you urgently contact me (nwagner@uj.ac.za); if you DID receive the email and have not responded, please could you do so a.s.a.p. Please ensure that your fees are paid up and that your contact information is up to date (you can check this on the Webpage, or via an email to me).

Please ensure that you have submitted your abstracts for the ICCP Symposium in Brisbane – final deadline end of July - and reserved your accommodation. Looking forward to seeing as many of you as possible in Brisbane.

Best wishes, Nikki (Ed)

KNOW YOUR COAL PETROLOGIST

who would you entrust with your samples?
Answer on page 5

PRESIDENTS COLUMN

You have in your hands the 2nd Newsletter of the year, the one before the annual ICCP Meeting, to be held in Brisbane in September. At this time you should have sent or be about to click the mouse for sending the registration for the meeting, and your contribution for the symposium and your hotel booking requirements (*Ed: Early bird registration ends 31st July, as do abstract submission).* I would like to see you all there. It is not common that all the organizing committee of the ICCP Meeting consists of long standing members with very active participation, but this is the case in our forthcoming meeting. Our Australian colleagues have got together to organize the 2nd ICCP meeting to be held in Australia. Thanks to all the organizing committee for the effort to have it running!!.

A two days training course on General Coal Petrology (11th ICCP Course) will be held in connection with the meeting, and the 12th ICCP Course will take place the last week of October, 2018. This will be a practical course devoted to identification and quantification of organic components dispersed in sedimentary rocks, therefore talks will be reduced to a minimum and most of the time will be devoted to joint work on images taken from the microscope. It is expected that either attendees have carried out any of the previous ICCP courses or have enough experience in organic petrographic analysis. I would like to thank our team in Potsdam, Andreas Küppers and Antje Treutler, for having sorted out the difficulties, making it possible the continuation of our annual courses in Potsdam. Autumn is also a very nice season there.

There are many activities on going right now. Full members should have received or are about to receive the voting slips for Vice-President - if you have **not** received this please contact the General Secretary. It is important that you participate in the elections. This brings us to the point of the relevance of having updated your contact information in the web page directory. We have quite often difficulties to reach our membership. You have read in the Editors' column information about the General Data Protection Regulation (GDPR). Please reply to the emails dealing with this topic.

The samples from SCAP and DOMVR Accreditation Programmes have been posted and results should be returned soon. I would like to thank Kimon and João Graciano for the effort put in the organization of the exercises. There are also a number of working groups with activities going on. It is important for the success of the working group and the relevance of the results to have a significant participation. Relevant advances have occurred as consequence of the work of the groups. I, in particular, encourage new members to join these activities, which are an excellent opportunity to exchange views and problems with experienced colleagues.
I wish you enjoyable holidays *(Ed: For those in the Northern Hemisphere – it's cold here in the South!)* and hope to meet you in Brisbane very soon.

Angeles G. Borrego

ICCP Services

ICCP Reflectance Standard

If you would like to check the calibration of your reflectance standard against the ICCP standard, please contact the following people for availability and costs:

- Dr Walter Pickel, ICCP General Secretary
Coal & Organic Petrology Services Pty Ltd
Unit 3 & 4/328-330 Darling Street
Balmain, NSW 2041
P.O. Box 672, Rozelle, NSW 2039
tel.: +61-2 -98103970; mobile: +61 (0)410418756
e-mail: walterpickel@optusnet.com.au

- Dr David Pearson
David E. Pearson & Associated Ltd
Victoria, British Columbia, Canada
Ph +1-250 477 2548
mailto: dpearson@coalpetrography.com

- Gerd and Gisela Bieg
Mikroskopische Untersuchungen
Haltern am See, Germany
Ph +49-2364-6285
mailto: mikro-un@t-online.de

Front cover: vitrinite fragments trapped in a carbonate (calcite) mineral. Scale = 100 microns. Limpopo Coalfield, South Africa. Reflected light, immersion oil, x500. Image courtesy of N.Wagner

Accreditation Programs

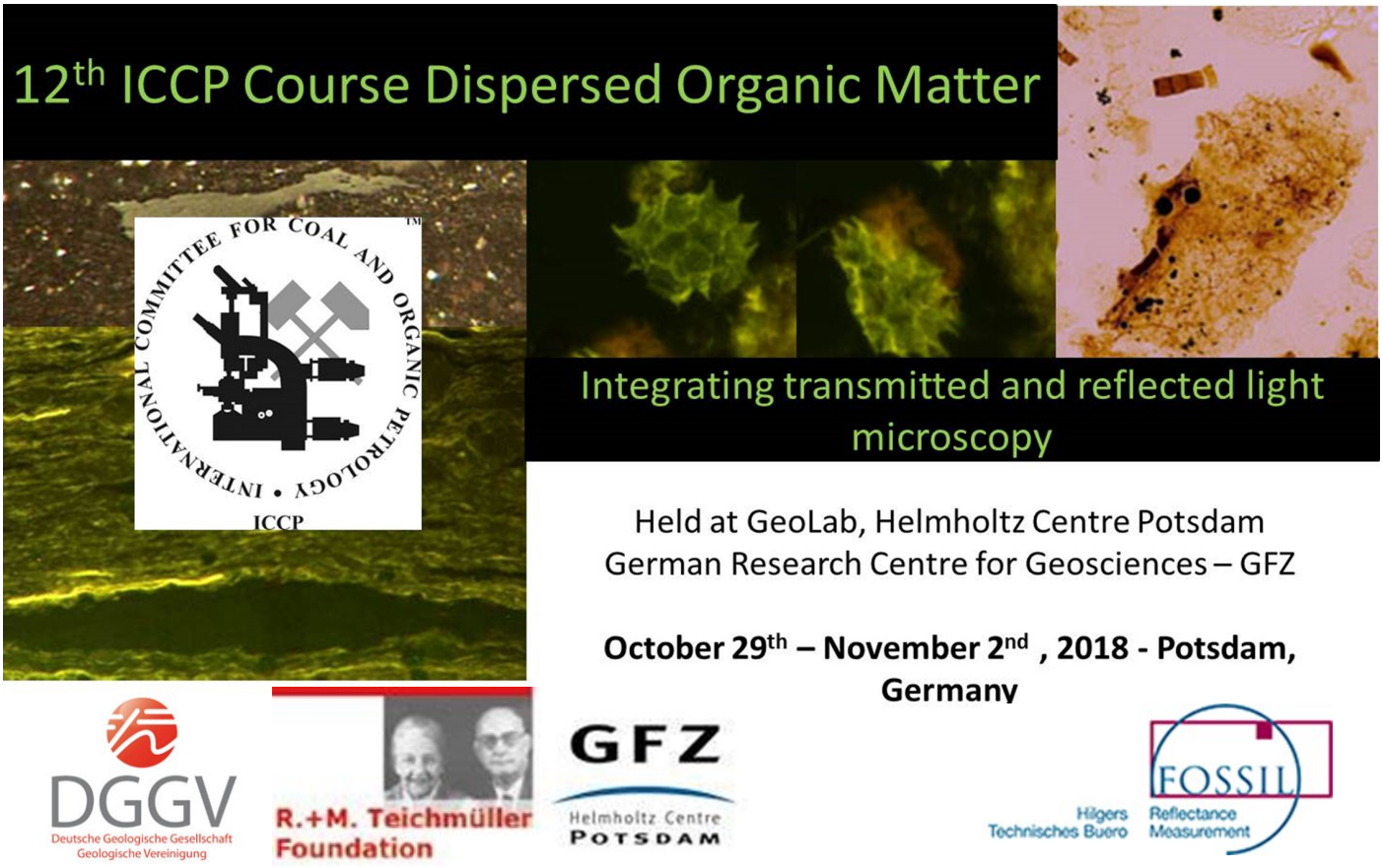
Maceral Group Analyses of Coals (SCAP)
Convenor: Dr Kimon Christanis
Department of Geology
University of Patras
Ph +30-2610-99 7568
mailto: christan@upatras.gr

Vitrinite Reflectance of Coals (SCAP)
Convenor: Dr Kimon Christanis
mailto: christan@upatras.gr

Coal Blend Analysis (CBAP)
Convenor: Dr Isabel Suárez-Ruiz
Instituto Nacional del Carbon—CSIC
Oviedo, Spain
Ph +34-98-5119090
mailto: isruiz@incar.csic.es

Vitrinite Reflectance of Dispersed Organic Matter (DOM)
Convenor: Prof. João Graciano Mendonça Filho
Dean of the Mathematical and Natural Sciences Center (CCMN)
Universidade Federal do Rio de Janeiro - UFRJ
Tel. +55 21 3938 9401 / 9480
Cel. +55 21 99602 4528
mailto: graciano@geologia.ufrj.br

12th ICCP Course: Dispersed Organic Matter – Integrating transmitted and reflected light microscopy



The International Committee for Coal and Organic Petrology (ICCP), in conjunction with Geolab, DGGV (Deutsche Geologische Gesellschaft – Geologische Vereinigung e.V.), the Teichmüller Foundation and GFZ (the German Research Centre for Geosciences), is pleased to announce a training course in Organic Petrology to be held in Potsdam from **29th of October till 2nd of November 2018**.

Instructors will be Prof. Joao Graciano Mendonca Filho, Universidade Federal do Rio de Janeiro, Brazil, and Dr. Angeles G. Borrego, Instituto Nacional del Carbón, CSIC, Oviedo, Spain. A Textbook will be available for the participants. Practical sessions will be hold using a microscope with image projection, set up for transmitted and reflected white light observation, as well as reflectance measurements (FOSSIL software). The microscope system will be provided by Hilgers Technisches Büro.

The course focuses on the Petrology of Dispersed Organic Matter, examined both in transmitted and incident light, with particular emphasis on the integration of the information from both observation modes. The course will cover identification of palynofacies components and macerals, as well as the procedures for the quantification of various components. Determination of source rock maturity, geochemical and optical parameters, identification of vitrinite and measurement of vitrinite reflectance will be covered. Difficulties and common mistakes will be discussed.

It is recommended that the Organic Petrology or Dispersed Organic Matter ICCP basic courses have been attended, or previous experience in organic petrographic analysis. A training kit with the samples analysed in the course will be provided for the attendees to take home.

A Certificate of Participation will be awarded to each person completing this course, but this does not include accreditation from the ICCP.

Registration includes tuition. Costs include course notes, lunches, coffee and farewell function. Powerpoint presentations will be used for the lectures. Course notes will be distributed to each participant and a CD of the notes and Powerpoint presentations will be available. Course language is English.

It is required the participants to bring along their own laptop.

Company / Professional	1300 €
Government / Non-Profit	700 €
Student	250 €

Cost for the course excludes travel, accommodation and meals except where stated. Costs include course notes, lunches and coffee, and course dinner.

Space is limited and will be on a first come basis. Further information is available from:

Peter Crosdale at peter.crosdale@energyrc.com.au

Course outline

The course run daily from 9:00 a.m. - 6:00 p.m., with breaks for morning and afternoon tea, and lunch.

The following items will be covered:

- Dispersed Organic Matter (DOM): Concepts and definitions, OM production, processes and sedimentation, OM evolution, physico-chemical transformation during maturation.
- Transmitted and reflected light microscopy techniques (white and blue lights), sample preparation, modes of illumination, qualitative and quantitative procedures.
- Palynofacies. Identification and classification of components. Interpretation of results.
- Identification and quantification of macerals.
- Maturity of organic matter: SCI-Spore Colour Index; spectral fluorescence parameters. Vitrinite reflectance measurement. Identification of indigenous vitrinite. Interpretation of results.

Practical sessions will be conducted using a microscope with image projection, equipped with the FOSSIL software for reflectance measurement. The microscope system will be provided by Hilgers Technisches Büro.

Members Corner

Members who can supply suitable bulk, single coal samples, for the SCAP Program please contact Kimon: christan@upatras.gr.

New Applications for Associate Member

Dr. (Mrs.) Neha Aggarwal (I, II)

Birbal Sahni Institute of Palaeosciences

53, University Road, Lucknow-226007

India

Email & chat: neha_264840@yahoo.co.in

Dr Aggarwal obtained her PhD from the Lucknow University, Lucknow, and M. Phil. from Kurukshetra University, Kurukshetra, and a M.Sc. in Botany from Kurukshetra University, Kurukshetra. Presently, Dr Aggarwal is working on the coal sequences of Indian Gondwana especially dealing with palynostratigraphy, correlation of coal sequences, and palaeo-deposional environments with the help of dispersed organic matter studies (DOM). This data is utilized by different exploring agencies, *viz*.: Singareni Collieries Company Limited (SCCL), Mineral Exploration Corporation Limited (MECL), GSI (Geological Survey of India), etc.

WARM WELCOME WARM WELCOME

KNOW YOUR COAL PETROLOGISTS — (the non-scary ones)

Dr's Marlies (1914—2000) and Rolf (1904 - 1983) Teichmüller (married 1938).

M. Teichmüler was a founding member of the ICCP (1953), and was awarded the Reinhardt Thiessen Medal in 1971 for her "successful coal petrographic research in the areas of coalification and coal genesis." Marlies determined that the polished surface method was the preferred sample preparation technique for organic petrology. The Teichmüllers have many joint author papers, and collaborated extensively, and were both co-editors of Stach's Textbooks.

As stated in the article by Kasig (1992, Portrait of Marlies and Rolf Teichmüller, Int Jnl Coal Geol 21, 99-112 — well worth a read): "The field of coal petrology is an example of a broad methodological application (p. 110)", applicable to technological and geological aspects in coal science. As stated by Paul Lyons in the introduction to the article by Kasig (1992): "Malies and Rolf Teichmüller worked together throughout most of their professional careers and their scientific research was so intimately intertwined that it is impossible to adequately consider one without the other" (p99).

Rolf Teichmüller believed that initiative and curiosity are the traits that will draw attention to oneself, when asked how to obtain a dissertation topic. Initiative and curiosity have been keen drivers behind the Teichmüller's research, spanning approximately 60 years.

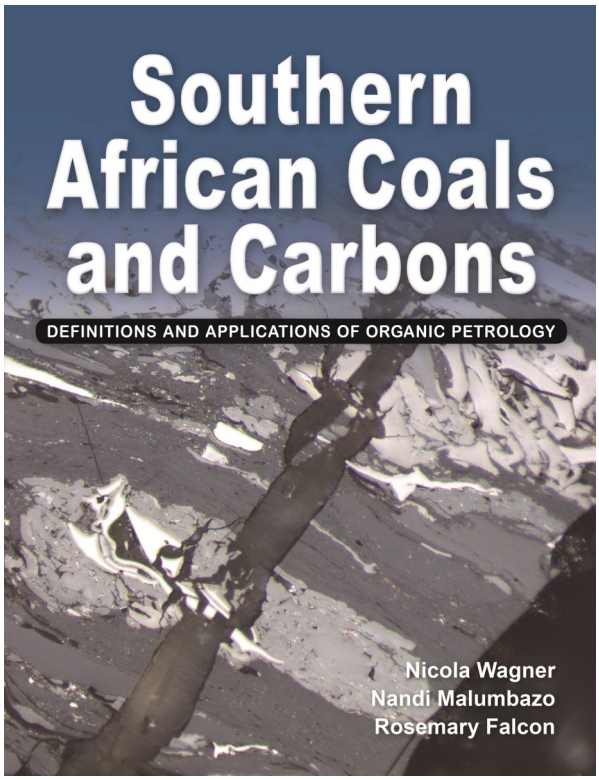
Photograph courtesy of Jim Hower

The more scary petrographer …

Dr Peter Crosdale

Peter is the current chair for the 70th ICCP Meeting, to be held in Brisbane in September. He is the current Vice-President of the ICCP, and previously was the Editor of the Newsletter (for 15 years!) Peter hails from Australia, and runs his own laboratory, as well as assisting at the University.

BOOK LAUNCH: AUGUST 2018. Contact Nikki Wagner (nwagner@uj.ac.za) for further information



PLEASE REMEMBER TO SUBMIT ADVERTS FOR CLASSIFIEDS, OBITUARIES FOR ICCP MEMBERS, SNIPPETS OF INFORMATION, OR ANYTHING THAT MAY BE OF INTEREST TO THE MEMBERS.

2018 ICCP Meeting in Brisbane, Australia
70th Annual Meeting of the International Committee for Coal and Organic Petrology (ICCP)
September 23-29, 2018, Brisbane, Australia

Dear Colleagues,
An update of the 70th ICCP Meeting has been posted on the website, with more information regarding the accommodation.
Please note that the venue (Royal on the Park) will discount bookings made through their website by 20% - enter the code GROUP20 in the Discount CodeBox.
More updates regarding registration will follow soon.
Kind regards
Peter Crosdale

ICCP DOWNUNDER

Remember to bring along your polished blocks for observations and discussion.

Note that the meeting will be concurrent with the Festival of Brisbane and its many cultural events

www.brisbanefestival.com.au/ .

PLEASE DO BOOK EARLY FOR THE SHORT COURSE

ICCP Short Course in General Coal and Organic Petrology

Thursday Sept 20—Friday Sept 21, Royal on the Park, Brisbane

A short course in general coal and organic petrology will be held on the Thursday and Friday before the meeting. This will be a condensed version of the full 5 day course normally presented. It is designed for industry, but all are welcome to register.

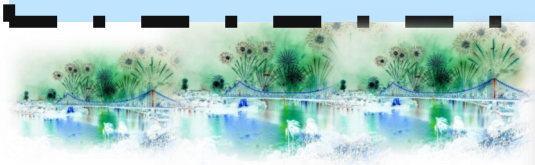
For more info **please visit ICCP 2018 Short Course.**

If you have any questions regarding the meeting, please contact the Chair of the Organizing Committee:
Dr. Peter Crosdale
peter.crosdale@energyrc.com.au

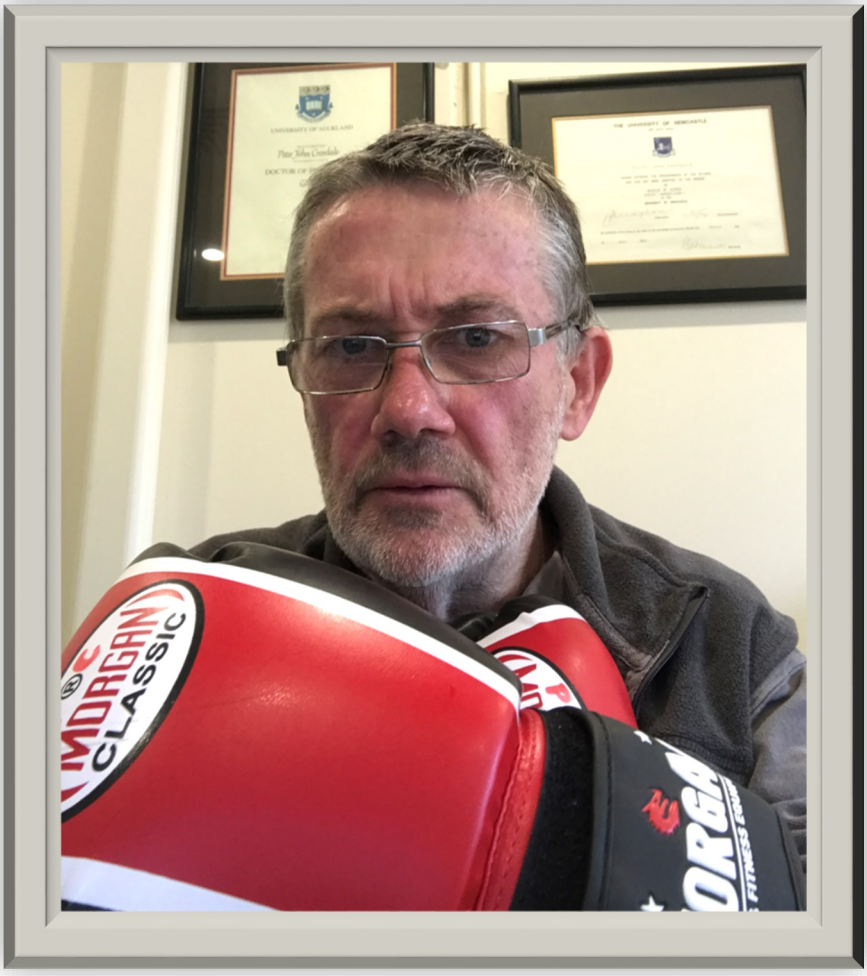
http://www.iccop.org/2018-iccp-meeting-in-brisbane-australia/

Abstract submission deadline July 31.

Early bird registrations close on July 31



Have you registered? If not, apparently the organizing committee knows people who know people, who may assist you….



ICCP BRISBANE SPONSORSHIP OPPORTUNITIES

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1x Display board

Trade Display Package Investment $2,000 excluding GST

Sponsorship Opportunities and Further Information:
Please email: peter.crosdale@energyrc.com.au

Hope to see you all here – dinner will be stunning; the icebreaker amazing; the field trip full of soft furry things and the programme outstanding,
regards Peter and the LOC

PhD STUDENT SYNOPSIS

Geochemistry of a South African coal: Insights into the formation of certain macerals

Submission by:

Ofentse M. Moroeng, PhD Candidate, University of Pretoria (under examination)

Supervisors: Dr. James Roberts (University of Pretoria), Prof. Nikki Wagner (University of Johannesburg)

South African coals of the Main Karoo Basin, which are generally inertinite-rich, continue to be important to the country's economic prospects. The formation of inertinite macerals present in coal continues to be a subject of controversial discussion, and is generally attributed to multiple origin pathways. Although multiple origin pathways are generally recognized globally (ICCP, 2001; Hower et al., 2013; Richardson et al., 2012; O'Keefe et al., 2013), the various inertinite macerals in South African coals have historically been attributed to aerial oxidation of plant matter in a cold climate, with the degree of oxidation responsible for the maceral produced (Falcon, 1986; Hagelskamp and Snyman, 1988; Cadle et al., 1993; Snyman and Botha, 1993). However, the view that the processes responsible for the formation of inertinite present in South African coals were wholly exclusive of those recognized in other regions of the world is, at best, difficult to accept. If the cool, oxidizing conditions were solely responsible for the preservation of morphology, and subsequent formation of inertinite macerals in the coals, it would not be unreasonable to imagine similar macerals to be completely absent in coals formed in tropical climates such as the Pennsylvanian coals of the northern hemisphere.

It is important to mention that most work on the origin of inertinite macerals in South African coals was undertaken in the late 1980's (e.g., Falcon, 1986; Hagelskamp and Snyman, 1988; Cadle et al., 1993; Snyman and Botha, 1993). Following which, there was a general paucity until the work of Glasspool (2003a, 2003b). This latter work disagrees with the earlier studies regarding the origin of the inertinite macerals, with Glasspool (2003a, p. 966) stating "...the abundance of Gondwana semifusinite has been explained-to have formed as a direct result of sub-aerial exposure in a cold climate setting. This hypothesis is not accepted. No mechanism by which cold climate alone can form high reflecting inertinites has so far been satisfactorily demonstrated. Conversely, wildfires can be demonstrated to produce a wide suite of inertinite morphologies and reflectances".

Glasspool (2003a, 2003b) was thus the first to show, through the description of what he termed "fossil charcoal", that inertinite macerals in South African coals are likely to have a pyrogenic origin. Macroscopic charcoal associated with the clastic sedimentary rocks of the Vryheid Formation (Vereeniging Coalfield) have also been documented (Jasper et al., 2013). Despite this, the now firmly entrenched view that the inertinite macerals are oxidation- and cold climate-derived continues to be persist and is often cited as fact in the published literature on South African coals (e.g., Van Niekerk et al., 2008; O'Keefe et al., 2013). The controversy stems, in part, from the glacial/post-glacial climatic conditions prevailing in Gondwana in contrast to the more tropical conditions of Laurasia. The Gondwana conditions were previously assumed to have hindered the development of extensive wild and/or peat fires. However, as Jasper et al. (2013) argued in their paper, the concentration of free oxygen in the atmosphere peaked at around 30% in the Early Permian falling to around 20% in the Late Permian (see also, Berner, 1999; Diessel, 2010; Glasspool and Scott, 2010). Thus, with the atmospheric oxygen exceeding the minimum required to sustain a fire, plants would likely have been prone to fires, even while wet (Jasper et al., 2013).

This Doctoral Thesis aims to constrain the origin pathways for macerals present in a Permian aged, medium rank C bituminous South African coal using selected organic geochemical analytical techniques. A coal sample was obtained from the No. 4 Seam Upper of the Witbank Coalfield, South Africa. Following crushing, a portion of the original sample was reserved to represent the "parent sample", while the rest was density-fractionated to create iso-rank vitrinite-rich and inertinite-rich sub-samples. The analyses conducted on the samples include: (1) basic chemical characterization (proximate, elemental, and calorific value analysis); (2) detailed petrographic analysis (maceral, microlithotype, and mean random vitrinite reflectance); (3) electron spin resonance (ESR); (4) carbon-13 cross-polarization magic-angle-spinning solid-state nuclear magnetic resonance (^{13}C CP-MAS SS NMR); and (5) stable nitrogen and carbon isotopes (δ^{15}N and δ^{13}C) values used in conjunction with the concentration of nitrogen functionalities (N-pyridinic, N-pyrrolic, N-quaternary, and N-oxide complexes) determined used X-ray photoelectron spectroscopy (XPS).

The parent sample comprises of 41.6 vol. % vitrinite and 48.5 vol. % inertinite (mineral-matter-included basis). The vitrinite-rich sample consists of 81 vol. % vitrinite (dominated by collotelinite and collodetrinite), whereas the inertinite-rich sample consists of 63 vol. % inertinite (dominated by fusinite, semifusinite, and inertodetrinite). Further, the samples comprise of mostly vitrite and inertite microlithotypes. The ESR analysis revealed that the inertinite-rich sample has a higher radical concentration relative to the iso-rank vitrinite-rich sample, implying thermally driven pre-diagenesis metamorphism for the major components of the former sample (Austen et al., 1966). According to the NMR analysis, the inertinite-rich sample has an abundance of 6-aromatic carbon rings and the vitrinite-rich sample has multi-ring clusters. The 6-carbons ring in the inertinite-rich sample are interpreted to be guaiacol and syringol, the principal products of low-temperature (below 400 °C) lignin pyrolysis (Asmadi et al., 2011; Kawamoto, 2017). Based on the stable isotopes, the vitrinite-rich sample has the lower δ^{13}C and the lower ^{14}N value relative to inertinite-rich counterpart. Because of the higher N-quaternary and N-pyridinic, the loss of ^{14}N in the vitrinite-rich sample is attributed to bacterial degradation (Schulten and Schnitzer, 1998, and references therein; Kelemen et al., 2006; Rimmer et al., 2006). In contrast, the inertinite-rich sample has a higher concentration of both N-pyrrolic and N-oxide complexes, with the latter interpreted to be indicative of exposure during charring of the dominant macerals of this sample.

A fusinite-rich section of a coal particle was interpreted to represent the outermost layers of a plant organ. The inner, comparatively lower-reflectance portions of the same particle may then represent semifusinite. During charring, the outermost layers of a plant organ would have been directly exposed to the fire, whereas the inner portions would have been shielded and may thus, have remained relatively unaffected by the elevated temperature. This process accounts for a gradational boundary between fusinite and adjacent semifusinite, as shown in Figures 1 and 2. In the absence of a gradational contact between inertinite macerals (Figure 3), the botanical organs can be interpreted to have been distinct and discrete. The degree of charring, controlled in part, by moisture and perhaps size of the affected plant organ, would then have determined whether fusinite or semifusinite was formed. A fusinite particle of uniformly high reflectance (Figure 3) was interpreted to reflect charring when the botanical precursor had already died and was dried out, and was thus, more readily and evenly charred.

It was thus concluded that fusinite and semifusinite present in the No. 4 Seam Upper Witbank coal were formed through charring of plant matter, and that the moisture content of affected vegetation determined the degree of charring, and thus, the resultant inertinite maceral.

Figure 1: *Mosaic photomicrograph showing fusinite (right; well-preserved structure, high reflectance) grading into semi-fusinite (structured still, lower reflectance), and finally into vitrinite (bottom left; unstructured, lowest reflectance) observed in the inertinite-rich sample. 500x magnification, reflected light under oil immersion. Scale bar = 100 microns*

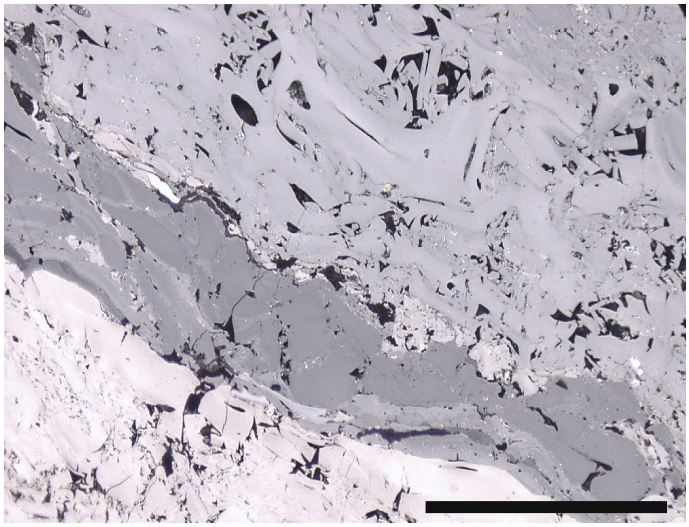

Figure 2: *Inertinite macerals with varying reflectance observed in the inertinite-rich sample. 500x magnification, reflected light with oil immersion. Scale bar = 100 microns*

Inertodetrinite was interpreted to have formed through the same process as the dominant, primary inertinite macerals. Inertodetrinite-forming particles were interpreted to reflect charred matter that was reworked by sedimentary processes. The dominance of monomacerals over bi- and trimacerals was interpreted to reflect an interchange between wet periods during which mostly vitrinite was formed, and relatively dry, inertinite-forming periods during which fires occurred.

Scientific publications derived from the PhD Thesis:

Moroeng, O.M., Keartland, J.M., Roberts, R.J., Wagner, N.J., under review. Characterization of coal using Electron Spin Resonance: Implications for the formation of inertinite macerals in the Witbank Coalfield, South Africa. International Journal of Coal Science & Technology (Submission no.: COAL-D-18-00049).

Moroeng, O.M., Wagner, N.J., Brand, D.J., Roberts, R.J., 2018. A Nuclear Magnetic Resonance study: Implications for coal formation in the Witbank Coalfield, South Africa. International Journal of Coal Geology 188, 145-155.

Moroeng, O.M., Wagner, N.J., Hall, G., Roberts, R.J., under review. Using $\delta^{15}N$ and $\delta^{13}C$ and nitrogen functionalities to support a fire-origin for certain inertinite macerals in a No. 4 Seam Upper Witbank coal, South Africa. Organic Geochemistry (Submission no.: OG-3813).

Moroeng, O.M., Mhuka, V., Nindi, M.M., Roberts, R.J., Wagner, N.J., Comparative study of a vitrinite-rich and an inertinite-rich Witbank coal using pyrolysis-gas chromatography, South Africa. To be submitted to Energy & Fuels.

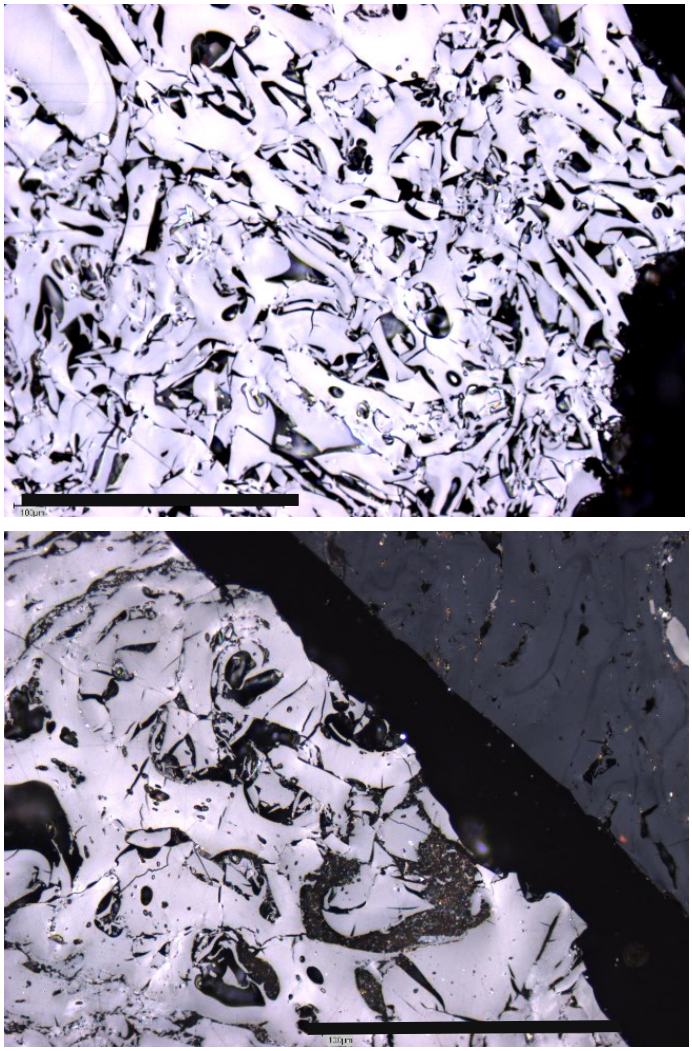

Figure 3: *Top & bottom: fusinite observed in the inertinite-rich sample. 500x magnification, reflected light with oil immersion. Scale bar = 100 microns*

References (continued over page)

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***11—13* September 2018:** **8th Cofiring Biomass with Coal workshop,** Copenhagen, Denmark . *xing.zhang@iea-coal.org*.

15 - 17 September 2018: **International Conference on Energy Internet and Energy Systems** (EIES 2018), Chongqing, China. www.engii.org/conference/EIES2018/

15—21 September 2018: **XXIX IMPC 2018—International Mineral Processing Congress**. Moscow, Russia. www.impc2018.com

24—28 September 2018: **70th Annual ICCP Meeting**, Brisbane, Australia. http://www.iccop.org/2018-iccp-meeting-in-brisbane-australia/

29 October—2 November 2018: 12th **ICCP Training Course: Dispersed Organic Matter**. Potsdam, Germany. http://www.iccop.org

15-18 October, 2018: **Pittsburgh Coal Conference**, Xuzhou, China. http://www.pccpitt.org

12—15 November 2018. **1st Conference of the Arabian Journal of Geoscience, Hammamet, Tunisia.** www.cajg.org

3—5 December 2018: **2nd International Earth Science & Global Geology Conference**, **Dubai, UAE.** https://earthscience.madridge.com/

28—29 January 2019: **8th Annual International Conference on Sustainable Energy and Environmental Sciences (SEES 2019)**, Singapore. http://www.env-energy.org/PriorYearsPaper.html.

14-15 March 2019. **International Conference on Innovative Applied Energy (IAPE'19),** St Cross College, University of Oxford, United Kingdom. contact@iape-conference.org; http://iape-conference.org

13—16 May 2019. **World of Coal Ash,** St. Louis, USA. http://worldofcoalash.org/

19—22 May 2019. **American Association of Petroleum Geologists Annual Convention and Exhibition,** San Antonio, USA. http://www.aapg.org/events/conferences/ace/announcement/articleid/12088/aapg-2019-annual-convention-exhibition

June 2019. **19th International Coal Preparation Congress**, New Delhi, India. http://showsbee.com/fairs/53691-International-Coal-Preparation-Congress-2019.html

18—23 August 2019. **Goldschmidt,** Barcelona, Spain. https://goldschmidt.info/2019/

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