



30th Meeting of the Petrology Group of the Mineralogical Society of Poland

Lubliniec (16-19 October, 2025)

Conference program

—— Thursday 16.10.2025 ——

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| 11:30-17:00 | Field trip "The Częstochowa ore-bearing region: Jurassic sedimentary iron deposits" |
| 19:00-20:00 | PTMin General Assembly (Zamek Lubliniec Hotel) |
| 20:00-22:00 | Ice-breaker (Zamek Lubliniec Hotel) |

—— Friday 17.10.2025 ——

How Mineralogical Sciences can support the mineral
resources industry? (*chaired by Piotr Wojtulek & Anna
Potysz; Lubiteka Municipal Library*)

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| 08:45-08:55 | Conference opening
(Piotr Wojtulek, Anna Potysz, Jarosław Majka) |
| 08:55-09:15 | History of the Petrology Sessions (Jacek Puziewicz) |
| 09:15-09:30 | 80 th Anniversary of the Institute of Geological Sciences,
University of Wrocław (Magdalena Matusiak-Matek) |
| 09:30-09:50 | Keynote: Comprehensive resource characterization – key for a
sustainable supply of raw materials for Europe
(Jens Gutzmer, Petya Gutzmer) |



09:50-10:10

Keynote: Mining the Urban Mine: Biohydrometallurgy and E-Waste in the Circular Economy (Eric D. Van Hullebusch)

10:10-10:20

Group photo 

10:20-10:45

Coffee break 

New advances in exploring secondary raw material resources (*chaired by Anna Potysz*)

10:45-11:05

Keynote: Unrevealing the potential of nature - bio-based technologies for metal recovery from primary and secondary resources (Katrin Pollmann)

11:05-11:20

From metal retention to metal release in ferronickel slags (Tamara Đorđević, Anna Potysz, Artur Pędziwiatr, Sabine Schwarz, Wencke Wegner)

11:20-11:35

Resource potential of hazardous waste incineration bottom ashes: phases composition and metal leachability (Mateusz Wolszczak, Wojtech Ettler, Jiří Hykš, Michal Šyc, Zuzana Korbelová)

11:35-11:50

Hydrometallurgical and Nanofiltration Approaches for Sustainable Recycling of Photovoltaic Waste (Sebastian Hedwig, Markus Lenz)

11:50-12:05

Pb-modified zeolite as a novel material for rapid arsenate removal from water through mimetite $Pb_5(AsO_4)_3Cl$ formation (Ewa Stępień, Maciej Manecki, Tomasz Bajda)

12:05-12:20

From Industrial Input to Biogenic Ore Formation: Fe, Pb, Zn, and As Redistribution in Anthropogenic Wetland Sediments (Beata Smieja-Król, Mirosława Pawlyta, Franco Magurno, Paulina Biniecka, Zofia Piotrowska-seget)



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- 12:20-12:35 The ASTRA beamline at the SOLARIS Synchrotron: Advanced X-ray Absorption Spectroscopy in Environmental Science and Mineralogy (Lulu Alluhaibi, Alexey Maximenko, Grzegorz Gazdowicz, Marcin Brzyski, Marcel Piszak, Henning Lichtenberg, Alexander Prange, Josef Horne)
- 12:35-12:50 Sponsor presentation: Unlocking Value through Process Mineralogy: TIMA-powered Automated Characterisation of Raw Materials (Eligiusz Gugąła)
- 12:50-14:00 Lunch break 🍴 (Lubiteka Municipal Library)

Carbonation of rocks: Petrological insights and industrial applications (*chaired by Jakub Kierczak*)

- 14:00-14:20 **Keynote:** Decarbonisation potential of ultramafic rocks – challenges and opportunities (Alicja M. Lacinska, Kathryn M. Goodenough)
- 14:20-14:40 **Keynote:** Carbfix technology – from research project to commercial deployment (Iwona Gateczka)
- 14:40-14:55 Ex situ mineral carbonation of ultramafic rocks from SW Poland: Potential, advantages, and limitations for CO₂ sequestration (Błażej Cieśliński, Jakub Kierczak, Natasza Markiewicz, Anna Pietranik, Alicja Lacinska)
- 14:55-15:10 Particle size effects on Ni and Cr mobilization during ex situ mineral carbonation of ultramafic rocks. (Natasza Markiewicz, Błażej Cieśliński, Jakub Kierczak, Anna Pietranik, Grzegorz Lis, Artur Pędziwiatr)
- 15:10-15:25 REE-enriched calcite veins in Permo-Carboniferous volcanics of the Intra-Sudetic Basin (the Central Sudetes, SW Poland) (Grzegorz Gil, Anna Grabarczyk-Gurba, Marek Awdankiewicz)



15:25-15:45

Coffee break ☐

Challenges of modern investigations in ore geology (chaired by Piotr Wojtulek & Beata Naglik)

15:45-16:05

Keynote: Can we do it? Thoughts on Europe's future demand for critical mineral raw materials and examples from Austria (Frank Melcher)

16:05-16:20

Current state of research on the mineralogy of Baltic nodules (Krzysztof Szamatek, Karol Zglinicki, Michał Pilasziewicz*)

16:20-16:35

Automated mineralogy application (TIMA system) in exploration and economic geology – examples from Polish targets and deposits. (Władysław Zygo, Krzysztof Foltyn, Elżbieta Gugata, Adam Piestrzyński)

16:35-16:50

Ore mineralogy of the porphyry Mo-Cu-W Myszków deposit: recent advances and opportunities for the recovery of critical raw materials (Beata Naglik, Magdalena Dumańska-Słowik, Ryszard Habryn, Artur Sosna, Tomasz Toboła, Jakub Miksa)

16:50-17:05

From mineral chemistry to mineral exploration: novel pathfinders to concealed porphyry deposits (Artur Sosna, Beata Naglik, Ryszard Habryn, Magdalena Dumańska-Słowik, Tomasz Toboła)

17:05-17:20

The recent data on the Bibiela PIG-1 borehole as well as seismic 2D profile Sosnowiec-Starcza: new evidences on the tectonic evolution of the Kraków-Lubliniec Fault Zone and its metallogenic potential (Agnieszka Bractawska, Ryszard Habryn, Marcin Bolek, Paweł Czarniak, Rafał Laskowicz, Beata Naglik, Jacek Nowak, Zdzisław Petecki)

17:20-17:35

Identification of hydrothermally altered clastic rocks: geochemical and mineralogical approaches. Chrzastowice



	PIG-1 borehole profile case study (Jakub Miksa, Ryszard Habryn, Beata Naglik, Artur Sosna, K. Jarmotowicz-Szulc, P. Derkowski, Agnieszka Bractawska)
17:35-17:50	Chemistry of apatite from AMCG-related ilmenite-apatite deposits of the Ukrainian Shield: petrogenetic indicators and economic potential (Krzysztof Foltyn, Władysław Zygo, Adam Piestrzyński, Leonid Shumlyanskyy)
17:50-18:05	Role of the sulfide-saturated pyroxenite melts in the metallogeny of the subcontinental lithospheric mantle (Bartosz Pieterek, Magdalena Matusiak-Matek, Riccardo Tribuzio, Magdalena Pańczyk, Jakub Ciążęła)
18:05-20:00	Poster Session I (Lubiteka Municipal Library)
19:00-19:30	Meeting of the Petrology Group PTMin (Lubiteka Municipal Library)
20:00	Dinner 🍽️ (Zamek Lubliniec Hotel)

———— Saturday 18.10.2025 ————

Geochronology in igneous and metamorphic systems (chaired by Jarosław Majka; Lubiteka Municipal Library)

09:00-09:15	Various forms of lead nanostructures in experimentally heated zircons (Paulina Zieja, Monika A. Kusiak, Pilar G. Montero, Fernando Bea, Richard Wirth, Bożena Gołębiowska, Aitor Cambeses)
09:15-09:30	Searching for the missing Eastern Antarctica-Western Australia connections in SE Bunge Hills: the tale of three rocks (Maria Maraszewska, Monika A. Kusiak, Simon A. Wilde,



Martin J. Whitehouse, Paulina Zieja, Keewook Yi, Shinae Lee, Grzegorz Zieliński)

- 09:30-09:45 Exsolution records UHT metamorphism in the Bungeer Hills, East Antarctica (Prakash Ch. Arya, Monika A. Kusiak, Simon A. Wilde, Martin J. Whitehouse, Paulina Zieja, Keewook Yi, Shinae Lee, Grzegorz Zieliński)
- 09:45-10:00 Is zircon a problem when it comes from a solution: dating of hydrothermally altered zircon from the Organy Wielistawskie rhyolite (Anna Pietranik, Elżbieta Stodczyk, Magdalena Pańczyk, Arkadiusz Przybyto)
- 10:00-10:15 Zircon record of Crystal Mush Remobilization within rhyolitic Halle Volcanic Complex (Germany) (Elżbieta Stodczyk, Anna Pietranik, Arkadiusz Przybyto, Urs Schaltegger, Martin Senger, Hripsime Gevorgian, Magdalena Pańczyk, Rafał Tysza, Grzegorz Zieliński, Christoph Breitzkreuz)
- 10:15-10:30 Submicron-scale constraints on zircon growth and alteration under ultrahigh-pressure, eclogite-facies metamorphic conditions (Maciej Jaranowski, Vladimir Roddatis, Richard Wirth, Bartosz Budzyń, Anja Schreiber, Jarosław Majka, Karolina Kościńska)
- 10:30-10:50 Coffee break ☐



From mineralogy and petrology to structural geology and paleogeography (*chaired by Anna Pietranik*)

- 10:50-11:05 Geochemical insights into the origin of eclogites in the Kamieniec Metamorphic Belt (Fore-Sudetic Block, SW Poland) (Sławomir Ilnicki, Jacek Szczepański)
- 11:05-11:20 Tectonometamorphic history of supracrustal formations revealed by phase equilibria modelling and quartz-in-garnet geobarometry: The Orlica-Śnieżnik Dome (Sudetes, Bohemian Massif) (Jacek Szczepański, Xin Zhong)
- 11:20-11:35 UHP eclogites of the Śnieżnik Massif (Sudetes, Bohemian Massif): Geodynamic insights into the Variscan orogen (Małgorzata Nowak, Lucie Tajčmanová, Marcin Dąbrowski, Iris Buisman, Jacek Szczepański)
- 11:35-11:50 Does detrital rutile in the Magura Nappe of the Western Carpathians record subduction of Alpine Tethys? (Ludwik de Doliwa Zieliński, Jakub Bazarnik, Ellen Kooijman, Karolina Kościńska, Stanisław Mazur, Jarosław Majka)
- 11:50-12:05 Eocene tectonothermal event recorded by in situ Rb/Sr biotite geochronology in the Western Tatra Mts. (Jarosław Majka, Christopher Barnes, Ludwik de Doliwa Zieliński, Riccardo Callegari)
- 12:05-12:20 Ultra-high pressure meta-ophiolites recorded diachronous peak ages: new constraints for subduction and exhumation of the Western Alps (Stefano Ghignone, Alessia Borghini, Federica Boero, Emanuele Scaramuzzo, Michele Locatelli, Mattia Gilio, Aratz Beranoaguirre, Marco Bruno, Axel Gerdes, Matteo Alvaro)
- 12:20-12:35 The petrological reinterpretation of the Pusztaföldvár Basement High, Hungary, and its spatial correlation in the basement of the Great Hungarian Plain (Péter Ábel Polyák, Tivadar M. Tóth)



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- 12:35-12:50 Reassessing terrane provenance and collision-related metamorphism in the Lapland-Kola Orogen, northeastern Fennoscandian Shield (Marek Zastąpito, Bjørn Eske Sørensen, Trond Slagstad)
- 12:50-14:00 Lunch break 🍽️ (Lubiteka Municipal Library)

General session in mineralogy and petrology I (*chaired by Jacek Szczepański*)

- 14:00-14:15 Pfaffenbergite & bonaccorsiite, new minerals crystallizing in nanorocks (Silvio Ferrero, Sofia Lorenzon, Roberto Borriello, Alessia Borghini, Richard Wirth, Anja Schreiber, Rico Fuchs, Patrick J. O'Brien, Edward S. Grew, Enrico Mugnaioli)
- 14:15-14:30 Lower Palaeozoic protolith ages for eclogites in the Norwegian Caledonides: Iapetus Ocean terranes within a giant subducted continental crust complex? (Simon Cuthbert, Charlotte Möller, Ane Engvik, Leif Johansson)
- 14:30-14:45 Investigation of the coesite-quartz phase boundary at LT-HP conditions: preliminary results from an experimental approach (Riccardo Callegari, Jay Thomas, Karolina Kościńska)
- 14:45-15:00 The kinetics of organic maturation in the Torres del Paine contact aureole and lessons for RSCM thermometry (M. Margarita Ariza-Acero, Lukas P. Baumgartner, C. Tom Foster)
- 15:00-15:20 Coffee break ☕



General session in mineralogy and petrology II (chaired by Arkadiusz Derkowski & Jakub Kierczak)

- 15:20 -15: 35 Polish Strategic Clay Raw Material Reserves for Nuclear Waste Repository Buffers (Arkadiusz Derkowski, Michał Skiba, Mariola Kowalik-Hyla, Zuzanna Ciesielska, Adam Zięba, Karolina Rybka, Artur Kuligiewicz, Marek Szczërba)
- 15: 35-15:50 Thermal History, Rehydration, and Structural Evolution of Smectites: Implications for Bentonite Barrier Performance (Karolina Rybka, Eirini Siranidi, Michał Skiba, Georgios Chrysikos, Arkadiusz Derkowski)
- 15:50-16:05 Effect of water availability on heat-related layer charge changes in smectites (Artur Kuligiewicz, Reiner Dohrmann, Stephan Kaufhold, Adam Zięba, Arkadiusz Derkowski)
- 16:05-16:20 Fingerprinting hydrothermal events in the Karkonosze–Iżera Massif with Fe–S isotopes and trace elements (Katarzyna Derkowska, Paweł Derkowski, Marina Lazarov, Dimitrina Dimitrova, Sławomir Mazurek)
- 16:20-16:35 The good, the bad and the slow - the ambiguous effects of EDTA, citric, acetic and oxalic acids on monazite dissolution in HNO_3 (Kacper Staszal, Marek Matyasik, Mikołaj Leś, Maciej Manecki)
- 16:35-16:50 Trace elements and mineral inclusions in scheelite: an example from the Szklarska Poręba ore mineralization, Poland (Karolina Mił, Bożena Gołębiowska, Dimitrina Dimitrova, Adam Pieczka, Adam Włodek, Beata Marciniak-Maliszewska)
- 16:50-18:00 Poster Session II (Lubiteka Municipal Library)
- 20:00 Gala Dinner & Closing Ceremony 🍷🍴
(Zamek Lubliniec Hotel)



—Sunday 19.10.2025—

8:15-15:30 Field trip "MVT Pb-Zn-Ag deposits of Upper Silesia and Małopolska in the Tarnowskie Góry region"

Poster Session I (Friday, 17.10.2025; Lubiteka Municipal Library)

1. Sulfides from sphaerosiderites from the Gnaszyn clay pit (Poland) – preliminary data (Szymon Jainta, Piotr Wojtulek, Kacper Lis, Kornelia Stolarczyk)
2. Environmental effects of uncontrolled disposal of lithium-ion batteries: experimental insights into metal leaching under rhizospheric conditions (Gabriela Miśta, Patrycja Michalczyk, Artur Pędziwiatr, Anna Potysz)
3. Assessment of the efficiency of zinc and lead recovery from metallurgical slags (Katarzyna Nowińska, Zdzisław Adamczyk)
4. Structural and chemical characterization of Tl-bearing sulphates in the Tl-Fe-S-H₂O system: insights into dorallcharite formation and thallium retention (Tamara Đorđević, Sofija Miloš, Natalie Lammer, Michael Stöger-Pollach, Ljiljana Karanović)
5. Behavior of Ni and Cr during mineral carbonation of ultramafic rock: an X-ray absorption study (Jakub Kierczak, Anna Pietranik, Błażej Cieślík, Alexey Maximeno, Lulu Alluhaibi)
6. Cadmium occurrence and distribution within sulfide minerals of the Kupferschiefer-series in SW Poland (Andrzej Chmielewski)
7. Pyrometamorphism products from coal waste dumps of Nowa Ruda coal district – preliminary studies (Kacper M. Urbanik, Jan Parafiniuk)



8. Bacterial-mineral interactions: biohydrometallurgical potential deciphered from black shale bioleaching experiment using dialysis bags (Mateusz Wolszczak, Anna Potysz, Grzegorz P. Lis, Ariel Wojciszewicz, Marcin Siepak)
9. Sediments from copper ore processing as a potential source of critical metals (Agata Duczmał-Czernikiewicz)
10. Mobility and phytoavailability of Al and Zn in sandy and sandy loamy soils amended with household ashes (Artur Pędziwiatr, Anna Potysz, Łukasz Uzarowicz, Jerzy Jonczak)
11. Pyrolytic products of naturally charred plants from wildfires (Aliza Niazi, Monika Fabiańska, Magdalena Misz-Kennan)
12. The principles underlying the dissolution of metal-bearing phases exposed to bacterial metabolites and biofilms (Anna Potysz)
13. Deciphering gases generated from self-heating coal waste dump in northern France based on geochemical and isotopic data (Maciej Górka, Yaroslav Bezyk, Dariusz Strąpoć, Łukasz Kruszewski, Jarosław Nęcki, Dariusz Więclaw, Carina Van Der Veen, Thomas Röckmann)
14. Legacy of iron ore mining: Assessing waste heaps in the post-industrial landscape of the Częstochowa region (Andrzej Chmielewski, Anna Januszewska-Kacprzak)
15. Petrographic evidence of covellinization processes of copper sulfides: Case study from the Kupferschiefer-series, SW Poland (Andrzej Chmielewski, Sławomir Oszczepalski)
16. Selenium distribution in sulfide assemblages of Kupferschiefer-series in SW Poland (Andrzej Chmielewski, Sławomir Oszczepalski)
17. Preliminary analysis of the influence of thermal maturation on organic matter transformations and organic acid generation in source rocks (Kacper Lis, Grzegorz Lis, Dariusz Więclaw, Christian Hallmann, Kristin Günther, Maja Mroczkowska-Szerszeń, Maria Mastalerz)



18. DFT calculations of iodine-bearing apatites for nuclear waste immobilization (Bartosz Puzio, Artur Benisek, Edgar Dachs)
19. Prehistoric ceramic production in Tsakhilurty Hundi, Mongolia: evidence from petrographic analysis (Wojciech Bartz, Przemysław Bobrowski, Maciej Jórdeczka, Mirosław Masojć, Tomasz Gralak, Małgorzata Szczepaniak)
20. Using benzo[ghi]fluoranthene and benz[a]anthracene as a new proxy for assessing wildfire temperature (Leszek Marynowski, Dorota Staneczek, Maria Barbacka, Grzegorz Pacyna)
21. Wildfires in the Frasnian: Evidence from Petrography and Geochemistry during the Punctata Event (Rui Zhao, Michał Rakociński, Leszek Marynowski)
22. Alum Shale of the Scandinavian Caledonides: integrating mineralogy, petrology, and geophysics to assess critical raw material resources (Iwona Klonowska, Alan E. Martinez-Salinas, Christian Schiffer)
23. In situ Rb/Sr and K/Ca mica geochronology of the Mosselhalvøya Group, West Ny-Friesland Terrane, Svalbard (Grzegorz Ziemniak, Jakub Bazarnik, Christopher J. Barnes, Olga Turek, Izabela Grabiec, Magdalena Raczkowska, Jarosław Majka)

Poster Session II (Saturday, 18.10.2025; Lubiteka Municipal Library)

1. Nanotextures of altered zircon from Bancroft (Ontario, Canada) (Fabian Tramm, Richard Wirth, Bartosz Budzyń, Grzegorz Rzepa, Gabriela A. Kozub-Budzyń, Jiří Sláma, Piotr Jeleń, Vladimir Roddatis, Anja Schreiber, Milan Novák)
2. Experimentally altered xenotime-(Y) and zircon with alkali-, alkaline-rich fluids and an Fe-rich environment (Fabian Tramm, Bernd Wunder, Bartosz Budzyń, Gabriela A. Kozub-Budzyń, Krzysztof Foltyn, Jiří Sláma)



3. ^{57}Fe -Mössbauer study of cryoconite from Spitsbergen glacier (Edyta Łokas, Przemysław Wachniew, Artur Błachowski)
4. Petrogenetic characterization of La Vasca alkaline complex: first report in Mexico of eudialyte-bearing agpaitic rocks (Edgar A. Martínez-Salinas, Bodo Weber, Roberto Díaz-Martínez, Sergio Padilla-Ramírez, Dirk Frei)
5. Th-U-Pb dating of monazites in garnet-biotite gneiss from borehole Kybartai 38 – a record of the complex Proterozoic evolution of the SW West Lithuanian Granulite (WLG) domain (Michał Kuliński, Grażina Skridlaitė, Bogusław Bagiński, Petras Jokubauska)
6. New data on the isotope composition of Neogene andesites from the Pieniny Klippen Belt, Western Carpathians (Jakub Bazarnik, Piotr Lenik, Alessandro Maltese, Karin Wallner, Ellen Kooijman)
7. The geochemical survey of the King George Island volcanic sequence, South Shetland Islands, Antarctica (Jakub Bazarnik, Jerzy Nawrocki, Marcin Olkiewicz, Weronika Czarnecka, Magdalena Pańczyk)
8. The increased value of vanadium on the Permian-Triassic boundary in the Holy Cross Mountains – truth or myth? (Jakub Bazarnik, Piotr Lenik, Sylwester Salwa, Karolina Nowakowska, Leszek Giro)
9. Melts evolution in the Kraków-Lubliniec Fault Zone (KLFZ) (Ewa Słaby, Jerzy Żaba, Justyna Domańska-Siuda)
10. Glaukosphaerite – the first occurrence in Poland (Krzysztof Łobos, Krzysztof Turniak)
11. Fluid inclusions in garnets and clinopyroxenes of Bystrzyca Górna garnet clinopyroxenite (Góry Sowie, Poland) (Alessia Borghini, Jarosław Majka, Katarzyna Walczak, Adam Włodek)
12. Conditions of host rock formation in the karst Rovte region, Slovenia (Monika J. Fabiańska, Justyna Ciesielczuk, Bojan Otoničar, Beata Gebus-



Czupyt, Filip Šarc, Andrzej Tyc, Magdalena Misz-Kennan, Vanessa E. Johnston, Krzysztof Gaidzik)

13. Fluid-assisted melting of amphibolites at low-medium pressure in the High-Grade Metamorphic Complex of the Sardinian Variscan Belt (Asinara Island, Italy) (Olga Turek, Silvio Ferrero, Leonardo Casini, Alfredo Idini, Lorenzo Dulcetta, Gabriele Cruciani)
14. Mineralogy and geochemistry of monzogabbro from Punta de los Órganos, Anaga Massif, NE Tenerife: Preliminary results and ideas (Błażej Cieślík, Natasza Markiewicz, Mattia Bonazzi)
15. Lithology and origin of the Hvannhagi Fm., Faroe Islands (Małgorzata Wysocka)
16. Garnet and rutile dating of eclogite records post-peak high-temperature reequilibration in high-pressure Tjeliken lens, Seve Nappe Complex, Caledonides (Katarzyna A. Walczak, Iwona Klonowska, Jarosław Majka, Jiří Sláma, Katrin Fassmer)
17. Magma storage and crystallization depths in the Cenozoic Strzelin Volcanic Field: Insights from Raman spectroscopy of CO₂ inclusions (Kornelia Stolarczyk, Marek Awdankiewicz)
18. Mantle source heterogeneity and magmatic evolution recorded in Late Cenozoic basalts of Central Vietnam (Anna Kukuła, Maciej Fitt, Magdalena Matusiak-Matek, Anna Wysocka, Anna Filippek, Radosław Staniszewski, Quoc Cuong Nguyen, Nguyen Van Tuan)
19. Remnants of HP-LT metamorphism found in mica schists of the Orlica Śnieżnik-Dome (NE Bohemian Massif, SW Poland) (Kamil Bulciewicz, Jacek Szczepański)
20. Metamorphic evolution of the eclogite-hosting augen gneisses from the Richarddalen Complex, Svalbard (Karolina Kościńska, Jarosław Majka, Christopher Barnes)



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21. Syn- and anti-taxial quartz veins (Agnieszka Bylina, Artur Szlęzak)
 22. Origin of enigmatic leucocratic rocks at the orthogneiss/metasediment contacts (Lądek-Śnieżnik Metamorphic Unit, Sudetes) – geochemical and geochronological constraints (Wojciech Stawikowski, Mirosław Jastrzębski, Anna Gumsley, David Chew)
 23. Examining “The Room Problem” through geochronology and geochemistry analysis of zircon and titanite from the Western Idaho Shear Zone, USA (Gabriel Gitter-Dentz, Daniel Rivera)
 24. Primary results on bulk Cu–Fe isotopes in Kupferschiefer-type copper deposits: tracing redox evolution (Katarzyna Derkowska, Marina Lazarov, Piotr Wojtulek, Jakub Kierczak)