

4th Geoenergetics and Geothermal Heat Pumps Seminar on:

„GeoHorizons – discover potential of the Earth”

Krakow, Podhale, Poland, 16-18 of October 2024

Honorary Patronage



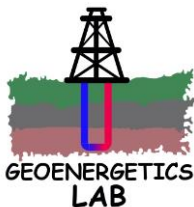
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Akademia Górniczo-Hutnicza
im. Stanisława Staszica w Krakowie

PROGRAMME

Hybrid conference

Programme of the 4th Seminar

Day	Hour	Event
16 October AGH University of Krakow	from 14 ⁰⁰	Registration of participants, ground floor, pavilion A4
	15 ⁰⁰ -16 ³⁰	Welcome session, papers by the GEOWIERT Student Scientific Association on its 70th anniversary + commemorative cake, A4 room 3
	16 ³⁰ -16 ⁴⁵	Coffee break, ground floor, pavilion A4
	16 ⁴⁵ -18 ⁰⁰	Exhibition of equipment and materials and company achievements in the field of geoennergetics and geothermal heat pumps
	18 ⁰⁰ -19 ³⁰	Honey cocktail, refreshments, A4 – room 106
17 October AGH University of Krakow	from 8 ⁰⁰	Registration of participants
	9 ⁰⁰ – 10 ³⁰ 10 ⁴⁵ – 12 ¹⁵ 12 ³⁰ – 14 ⁰⁰ 15 ³⁰ – 17 ⁰⁰ 17 ¹⁵ – 18 ⁴⁵	Paper session I – „Deep geothermal - heat source for district heating networks” Paper session II – „Shallow Geothermal - from theory to application” Presentation of the AGH Geoennergetics Laboratory Paper session III – „Interdisciplinary geoennergetics” Posters session
	14 ⁰⁰ – 15 ¹⁵	Lunch, C.K. Browar, Krakow, ul. Podwale 7, ckbrowar.pl
	10 ³⁰ -10 ⁴⁵ 12 ¹⁵ -12 ³⁰ 17 ⁰⁰ -17 ¹⁵	Coffee break, exhibition of drilling and installation equipment and promotional materials
	19 ³⁰	Drillers' Beer Tavern + Women's Comber = Beer Feast, C.K. Browar, Krakow, ul. Podwale 7, ckbrowar.pl
17 October Podhale	12 ⁰⁰	Field session: Podhale (drilling at UOS Drilling S.A. in Szaflary; Geotermia Podhalańska S.A., geotermia.pl)
	14 ⁰⁰ – 15 ⁰⁰	Lunch
	17 ⁰⁰	Geothermal pool complex, Thermae „Gorący Potok”, goracypotok.pl , Osiedle Nowe 45, 34-424 Szaflary*

* Please bring your bathing „equipment”

Titles of papers

Paper session I – Deep geothermal - heat source for district heating networks **(Moderated by dr hab. eng. Jan Ziaja, prof. AGH, dr hab. eng. Tomasz Śliwa, prof. AGH)**

1. 9⁰⁰–9¹⁰ Authorities of the Faculty of Drilling, Oil and Gas, dr hab. inż. Tomasz Śliwa, prof. AGH (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – **Opening of the Seminar**
2. 9¹⁰–9²⁰ dr hab. eng. Aneta Sapińska-Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – **Experience in surveillance water parameters in geothermal installations**
3. 9²⁰–9³⁵ MSc Stawomir Lorek (Municipal Heating Company– Konin Sp. z o.o., ul. Gajowa 1, 62-510 Konin) – **Construction of a geothermal heating plant in konin as an example of efficient use of the geothermal resources of the polish lowlands**
4. 9³⁵–9⁴⁵ dr hab. eng. Tomasz Kujawa, prof. ZUT, dr hab. eng. Stawomir Wiśniewski, prof. ZUT (Department of Energy Technologies, Faculty of Mechanical Engineering and Mechatronics, West Pomeranian University of Technology in Szczecin, al. Piastów 17, 70-310 Szczecin) – **Effect of the solution used in the orc geothermal power plant on the injection temperature for mineralised waters**
5. 9⁴⁵–10⁰⁰ Artur Posyniak, Janusz Dańda (UOS Drilling S.A., Aleje Jeruzolimskie 181 B, 02-222 Warszawa) – **Banska pgg-4 deep geothermal well**
6. 10⁰⁰–10¹⁵ Alison Kirkby, Rob Funnell (GNS Science, Wairakei Research Centre, 114 Karetoto Road, RD4, Taupō 3384), Phil Scadden (GNS Science, 764 Cumberland St, Private Bag 1930, Dunedin, New Zealand), Anya Seward (GNS Science, Wairakei Research Centre, 114 Karetoto Road, RD4, Taupō 3384) - **Mapping new zealand's heat flow using numerical modelling and borehole temperatures**
7. 10¹⁵–10³⁰ MSc eng. Tomasz Wigłusz (independent drilling consultant) – **Technical problems of casing while drilling in geothermal wells with loss circulation zones based on oilfield drilling experiences**

Paper session II – Shallow Geothermal - from theory to application **(Moderated by dr hab. eng. Aneta Sapińska-Śliwa, prof. AGH, dr hab. eng. Jerzy Wołoszyn, prof. AGH)**

8. 10⁴⁵–11⁰⁰ dr hab. eng. Paweł Obstawski, prof. SGGW, dr hab. eng. Krzysztof Górnicki, prof. SGGW (Department of Fundamentals of Engineering and Power Engineering, SGGW Warsaw University of Life Sciences, ul. Nowoursynowska 164, 02-787 Warszawa) – **Geothermal in multi-family buildings**
9. 11⁰⁰–11¹⁰ dr hab. eng. Paweł Bogacz, prof. AGH (Department of Economics and Management in Industry, Faculty of Civil Engineering and Resource Management, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – **Environmental impact analysis in the product life cycle – a new requirement also for geothermal heat pumps**
10. 11¹⁰–11²⁰ dr hab. eng. Tomasz Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – **Geoenergetics in intelligent district heating and cooling networks**
11. 11²⁰–11³⁵ MSc eng. Jakub Drosik, MSc Marcin Franke (PRAWTECH Sp. z o.o., ul. Garbarska 43, 32-340 Wolbrom) – **Web application futurasoft as a support tool for borehole heat exchanger designers and contractors**
12. 11³⁵–11⁵⁰ MSc eng. Michał Szczytowski, MSc eng. Szymon Rogozik (MuoviTech Polska Sp. z o.o. ul. W. Wimmera 31, 32-005 Niepołomice) – **Selection method of ground heat exchangers vs. efficient functioning of heat pump system**
13. 11⁵⁰–12⁰⁰ dr hab. eng. Tomasz Śliwa, prof. AGH, dr hab. eng. Aneta Sapińska-Śliwa, prof. AGH, MSc eng. Tomasz Kowalski (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – **Overview of structures found in shallow geothermal applications**
14. 12⁰⁰–12¹⁵ MSc Michał Bucki, MSc eng. Jacek Nowak (Kazimierskie Wody Termalnych i Lecznicze Sp. z o.o., ul. Partyzantów 29, 28-500 Kazimierza Wielka) – **The use of thermal and medicinal waters in the kazimierski district**

Paper session III – Interdisciplinary geoenergetics (Moderated by dr hab. inż. Paweł Obstawski, prof. SGGW, dr hab. inż. Paweł Boqacz, prof. AGH)

15. 15³⁰-15⁴⁵ Assoc. Prof. Pavel Pospisil, PhD, Prof. Nada Rapantova, PhD (Department of Geotechnics and Underground Engineering, Faculty of Civil Engineering, VSB Technical University of Ostrava) – Geothermal energy research at vsb technical university of ostrava
16. 15⁴⁵-16⁰⁰ dr hab. eng. Jerzy Wołoszyn, prof. AGH (Department of Power Systems and Environmental Protection Facilities, W Faculty of Mechanical Engineering and Robotics, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – The influence of selected parameters of a high-temperature underground thermal energy storage on its energy
17. 16⁰⁰-16¹⁵ dr hab. eng. Jan Ziąja, prof. AGH (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Unconventional applications of hdd technology
18. 16¹⁵-16³⁰ MSc eng. Michał Zorzycki (Soletanche Poland Sp. z o.o., Aleja Solidarności 173, 01-195 Warszawa) - The application of diaphragm walls as heat exchangers in geothermal systems
19. 16³⁰-16⁴⁵ dr hab. inż. Tomasz Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków), Artur Puchalski (DPS Sp. z o.o., ul. Dwa Światy 3F, 55-040 Bielany Wrocławskie) – Cogeneration solar farms with storage of heat and potential energy in borrowholes
20. 16⁴⁵-17⁰⁰ MSc eng. Andrzej Szczygiel (CHEMFOR POLAND Sp. z o.o., ul. Towarowa 29, 38-200, Jasto), dr eng. Aleksandra Jamrozik (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Drilling fluids for geothermal drilling – key selection criteria

Posters session (Moderated by dr hab. inż. Aneta Sapińska-Śliwa, prof. AGH)

21. dr eng. Krzysztof Skrzypaszek, dr eng. Albert Złotkowski, dr eng. Przemysław Toczek, MSc eng. Tomasz Kowalski (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – The possibilities of drilling oil and gas faculty in terms of numerical support for the design of borehole heat exchangers
22. MSc eng. Tomasz Kowalski, dr hab. eng. Tomasz Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Influence of selected design parameters of borehole heat exchangers on their thermal resistance
23. MSc eng. Piotr Buliński, dr hab. eng. Tomasz Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Energy consumption measurements for optimising the drilling process of borehole heat exchangers
24. dr eng. Iwona Kowalska-Kubsiak, dr eng. Dagmara Zeljaś (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Improving energy efficiency of buildings through the use of renewable energy sources (res) as an energy source
25. MSc eng. Kamil Bandura, dr hab. eng. Tomasz Śliwa, prof. AGH (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Analysing the effect of groundwater flow on the performance of a borehole heat exchanger using the tough3.0 numerical simulation tool.
26. MSc eng. Rafał Artym (AR-WIERT Rafał Artym, ul. Cypriana Kamila Norwida 8/30, 37-600 Lubaczów), MSc eng. . Tomasz Kowalski, dr eng. Przemysław Toczek, prof. dr hab. eng. Rafał Wiśniowski (Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Adaptation of inclined boreholes for various purposes, including borehole heat exchangers
27. dr hab. eng. Tomasz Śliwa, prof. AGH, MSc eng. Olga Szydło, MSc eng. Remigiusz Kunasz (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków), eng. Krzysztof Budny (DABI SM BUDNY Sp. z o.o. Sp. K., ul. Romualda Traugutta 352, 43-502 Czechowice-Dziedzice) – Opportunities for the extraction of earth's heat in specialized buldings
28. MSc eng. Krzysztof Seńczuk, dr hab. eng. Aneta Sapińska-Śliwa, prof. AGH, mgr eng. Tomasz Kowalski (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) - Investigating the effect of additives to cement slurries formulations on their thermal conductivity
29. dr eng. Ewelina Stefanowicz, dr eng. Agnieszka Chmielewska (Wydział Inżynierii Środowiska, Politechnika Wrocławska, Wybrzeże Stanisława Wyspiańskiego 27, 50-370 Wrocław - Influence of selected parameters on the results of the soil thermal response test (trt – thermal response test)
30. dr hab. eng. Tomasz Śliwa, prof. AGH, MSc eng. Remigiusz Kunasz (Laboratory of Geoenergetics, Department of Drilling and Geoengineering, Faculty of Drilling, Oil and Gas, AGH University of Krakow, al. Mickiewicza 30, 30-059 Kraków) – Statistical comparison of the interpretation of trt results by different methods

„GeoHorizons - discovering the Earth's potential”

Krakow, Podhale, 16-18 October 2024.

Possibilities to participate in the Seminar

Package version	Printed Conference Materials	Electronic Conference Materials	Online participation via MS Teams on 16 and 17 October	Pass to the thermal baths Gorący Potok in Podhale	Adverts
A	x	x		x	
B	x	x		x	
C	x	x		x	
D	x	x	x		
E		x	x		
F					x

The programme includes:

- U official speeches;
- U paper sessions;
- U posters session;
- U exhibition of equipment and materials;
- U celebration of the 70th anniversary of the GEOWIERT Student Scientific Association at AGH University of Krakow;
- U presentations of geoenergetics installations at the AGH University of Krakow and in the Podhale;
- U integration events..

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Charges

Package Version	Package name	Price
A	Full seminar fee paid by 30 September 2024 ¹	450 EUR+ VAT
B	Full seminar fee paid after 30 September 2024	650 EUR+ VAT
C	Online participation ²	170 EUR + VAT
D	Free participation ^{2,3}	0
E	Advertise	From 230 EUR+ VAT
	Diamond package (gadgets, roll up, advertising films during breaks in the papers [screen, monitor], files with advertising materials on pendrives, exhibition stand/exhibition table [outside/inside the building] size* adapted to your needs, post on LinkedIn) -> from 1550 EUR* the organisers must be informed in advance about the size of the stand needed	
	Platinum package (gadgets, roll up, advertising films during breaks in the papers [screen, monitor], files with advertising materials on pendrives, post on LinkedIn) -> from 755 EUR	
	Gold package (gadgets, roll up, advertising films during breaks in the papers [screen, monitor], post on LinkedIn) -> from 380 EUR	
	Silver package (gadgets, leaflets with seminar materials) -> from 230 EUR	

1 - the date of crediting the Organiser's account is decisive,

2 - Online participation: transmission of papers on 16 and 17 October 2024 and advertising,

3 - for students and graduates of second-cycle Master's studies in the field of Geoengineering and Open Mining, specializing in „Geoengineering and Geothermal Energy”, for doctoral students of the teaching module „Geothermal Energy”, for students of the Postgraduate studies 'Geothermal energy' at AGH University of Krakow

The number of places for full-time participants is limited

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The 4th Seminar in particular invites:

- U designers of heating and air-conditioning systems, sanitary installations;
- U drillers;
- U manufacturers and distributors of geothermal/ground source heat pumps;
- U suppliers and manufacturers of fittings, equipment and materials for the geoenergetics industry;
- U operators of geothermal heating and leisure facilities;
- U district and provincial geologists;
- U researchers and educators in the field of geoenergetics;
- U Students and PhD Students in geology, mining, district heating and construction;

Organisational considerations

1. **Accommodation** in Krakow (nights from 16 to 17 October and/or from 17 to 18 October each participant books and pays on his/her own).
2. **Parking** in the AGH area is chargeable. For those wishing to do so, it is possible to leave the car on the AGH premises.
3. **Transport** to the Podhale on 18 October is provided by each participant individually
4. **Registration at: geoenergetyka.agh.edu.pl** (IV Seminar), **until 30 September** reduced fee (450 EUR + VAT), after 30 September 2024 full fee (650 EUR + VAT). Online participation on 16 and 17
5. **Payments to bank account:**
PKO Bank Polski S.A. Account number for deposits in euro (EUR): 57 1020 4405 0000 2102 0683 8470, GeoTec Energy Sp. z o.o., ul. Wincentego Pola 4/22, 35-021 Rzeszów, with the title "**AGH Seminar, [proforma invoice number], [name and surname]**".
6. Deadline for submitting topics and abstracts of speeches or posters: **30 September 2024 - form available with participation registration** (geoenergetics.agh.edu.pl).
7. Deadline for submission of full papers for publication in post-seminar materials: **30 November 2024 - details will be provided to authors at a later date**

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