

lp	proponowany temat	imię i nazwisko prowadzącego	wydział	kontakt e-mail	uwagi
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1	Hydrochemical conditions in the area of „Zwieszło” Nature Reserve (Bieszczady Mountains, SE Poland)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The aim is to document and interpret the chemical composition of surface and groundwater (from springs) in the area of the "Zwieszło" nature reserve (in the Chryszczata massif, Bieszczady Mountains) created to protect lakes formed as a result of a landslide (in 1907). The waters in this area have no chemical composition documentation referring to geological and hydrogeological conditions. For this purpose, (1) field measurements and analyses of collected water samples, and (2) chemical modelling of waters will be carried out. The work will include field and laboratory investigations and collection, review and compilation of literature information on the geology of the area. Due to the variety of natural conditions, the site can be divided into two parts, which gives the possibility of parallel carrying out two MSc theses or execution of the topic by a two-persons team.
2	Hydrochemical survey of the Bystre thrust-sheet (Bieszczady Mountains, Outer Carpathians)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The aim of this study is to document chemical anomalies that are manifested by the presence of as yet unknown mineral water outflows in the area of the Bystre thrust-sheet (Bieszczady). This will be done by performing hydrochemical survey of surface waters and groundwaters (from springs) in terms of measurements of basic physico-chemical parameters. In selected points, water samples will be taken for laboratory analyses. The collected hydrochemical data will be interpreted in relation to geological conditions. The study will comprise field and laboratory tests and compilation of literature information on geology of the area. Taking into account the size and variety of natural conditions and the need for hydrochemical reconnaissance of the whole Bystre thrust-sheet, the studies should be carried out by a team of two persons.
3	Hydrogeochemical conditions in the alimentation zone of thermal water intake in Karpniki (Sudetes, SW Poland)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The recently documented site of artesian outflow of thermal waters in Karpniki (Rudawy Janowickie, Sudetes) provides new and very valuable information on hydrogeochemical conditions in Jelenia Góra geothermal system. The aim of this study is to characterize hydrogeochemical conditions in the area of alimentation of this thermal water intake. This will require carrying out hydrochemical survey of surface waters and groundwaters in a part of the mountain range of the Rudawy Janowickie Mts. in the field of measurements of basic physico-chemical parameters and collection of water samples and their analyses for making spatial characteristics of variability in chemistry. The study comprises compilation of own and archival hydrochemical data and review and compilation of literature information on geology and hydrogeology of the area. A set of archival hydrochemical data will be provided by the supervisor.
4	Geochemistry of (selected trace elements) in mineral waters ... (Carpathians) (location to be arranged, possibility of carrying out several M.Sc. theses on this subject)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			Ongoing hydrogeochemical studies on selected Carpathian mineral waters, including brines and therapeutic waters, give an opportunity to become familiar with the methodological tasks concerning the identification of this type of medium and to become more familiar with hydrogeology and geology of water-bearing rocks of the Carpathian Flysch. Implementation of the MSc thesis will include sampling of water samples, field physico-chemical measurements of water, analyses of basic components, interpretation of hydrogeochemical data in relation to lithological and hydrogeological conditions and archival and literature information.

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5	Characteristics of oxidation-reduction conditions in groundwater (.....) (location to be arranged, possibility of carrying out several M.Sc. theses on this subject)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The oxidation-reduction potential (redox potential) is a key parameter describing solution chemistry. However, it is still rarely investigated in groundwater. The main task will be to study the redox potential in waters of the selected site and to interpret its significance in the context of water chemistry, with reference to hydrogeological and lithological conditions. Implementation of the thesis will include water sampling, field physical and chemical measurements of waters (including redox potential), analyses of basic components, interpretation of hydrogeochemical data in relation to archival and literature information. Location of the study site to be agreed.
6	Chemistry of thermal waters in Lower Cretaceous aquifer in Poddębice (Łódź Voivodeship) against the regional geological conditions	dr hab. inż. Dariusz Dobrzyński, prof. ucz. dr hab. Maciej Ziulkiewicz, prof. ucz. (Uniwersytet Łódzki)			Poddębice is a town that has been using geothermal resources for a short time - it is the youngest installation in the Łódź province. It deserves special attention because of the big natural surprise the designers and scientists came across in the geothermal field. To general surprise, these waters were not the same as those found in the nearby Uniejów. The temperature agreed with the project assumptions, but the chemistry was far from expectations. The M.Sc. thesis is to describe this peculiarity and show that it is an anomaly not only in the scale of the Mogilno-Łódź basin, but in the scale of the whole province of the Palaeozoic Platform (B)? The topic will be carried out on the basis of archival materials supplemented with own measurements and analyses.
7	Evaluation of chemical effects of Upper- and Lower-Cretaceous waters mixing in the water supply system of Poddębice town (Łódź Voivodeship)	dr hab. inż. Dariusz Dobrzyński, prof. ucz. dr hab. Maciej Ziulkiewicz, prof. ucz. (Uniwersytet Łódzki)			Geothermal resources are an attractive source of thermal energy. However, there are many technological and environmental challenges associated with their extraction. One of the significant problems affecting the effectiveness of the installation is the utilisation of post-process waters, which are usually characterised by a peculiar chemical composition and very high mineralisation. In the last geothermal power plant put into operation in the Łódź Voivodeship, in Poddębice, there seems to be no such problem. This is due to the fact that the waters are fresh and, if not for the temperature, would be suitable for supplying the municipal water supply. The MSc thesis is to assess the effects of mixing water currently pumped into the water supply system from carbonate formations of the Upper Cretaceous with optionally supplied fresh water from sandstone Lower Cretaceous from a geothermal installation. The topic will be carried out on the basis of archival materials supplemented with own measurements and analyses.
8	Uncertainty assessment of the speciation modelling of groundwater from selected lithological environments using the LJUNGSKILE programme	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			Geochemical modelling, including speciation modelling, is a valuable tool to support practical hydrogeochemical studies. The aim of this study is to assess the scale of uncertainty in calculations performed during geochemical modelling of waters. The topic will be carried out using software and archival hydrochemical materials. Hydrochemical data will come from different geological environments.
9	Hydrogeochemical conditions of (.....) (location of the study area to be agreed)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The objective will be to characterise the hydrogeochemical conditions in the selected area. The extent of field and laboratory investigations will depend on the availability of archival hydrochemical data. The work will include compilation of hydrochemical data and review and compilation of literature information on geology and hydrogeology of the area.
10	Evaluation of the quality of groundwaters in (.....) (location of the study area to be agreed)	dr hab. inż. Dariusz Dobrzyński, prof. ucz.			The aim of this study is to assess the quality of groundwater in relation to various relevant standards and recommendations. The topic can be carried out on the basis of archival materials; the scale of own field and laboratory investigations will depend on the availability of archival hydrochemical data and the location of the working site. The work will include compilation of hydrochemical data, review and compilation of literature information on the geology and hydrogeology of the site, and analysis of literature on water quality assessments.

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11	Renaturalization of river valleys on an example of the ...	dr Agnieszka Kałmykow-Piwińska			The river valleys have been subjected to strong anthropopressure for centuries. In addition to contamination with sewage and runoff from agricultural fields, it most often manifests itself in the straightening of channels, increasing the channel inclination, unifying the shapes and dimensions of river bed cross-sections, eliminating irregularities of the banks and the bottom of the channel, cutting off connections with oxbow lakes, limiting the range and duration of the valley floods. Only recently has it been noticed that natural river valleys have a great natural and economic importance. It became an impulse to modify river development methods and implement river renaturalization projects. The renaturalization of rivers to a near-natural state is generally a long-term process involving both technical measures and natural processes.
12	Assessment of the chemical status of groundwater in the area of the closed municipal waste landfill "Radiowo" on the basis of selected hydrochemical indicators.	dr Joanna Trzeciak, dr Sebastian Zablocki			In order to implement the topic, it is necessary to analyze the hydrogeological conditions and assess the impact of the non-functioning "Radiowo" waste landfill on groundwater. This analysis will be carried out on the basis of archival materials (available cartographic studies and literature) and own field studies. Field studies will require the consent of the landfill administrator.
13	Hydrogeological conditions in the nature reserve... (to be agreed)	dr Joanna Trzeciak, dr Sebastian Zablocki			The aim of the work is to conduct hydrogeological (non-invasive) research in the area of the nature reserve selected by the student and in its surroundings. The result of the research is to indicate the location of the groundwater table in the area, the sub-areas of the reserve where there is a relationship between groundwater and surface waters, determine the amount of infiltration recharge in the area, as well as identify the conditions of the occurrence of the aquifer on the basis of Student's own research and archival data.