

Name and surname:	Witold Rohm
Academic Degree:	prof. dr hab. inż. (Prof.)
Institute/Department:	Institute of Geodesy and Geoinformatics
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ORCID:	https://orcid.org/0000-0002-2082-6366
UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info/author/UPWr4d682756bd1243c58f310f8e07f263af/
Researchgate:	tps://www.researchgate.net/profile/Witold-Rohm
Personal website / Working group website:	https://spaceos.igiq.upwr.edu.pl
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	EPOS – European Plate Observing System. PI at UPWr: start date 01-09-2016, end date 31-12-2021, GNSS observation as a numerical weather prediction data source, a way forward to enhanced forecasts quality. PI, start date 14-08-2014, end date 13-08-2018, finished, Commercialization of the result of the project: GNSS tomography as an important source of the meteorology data. PI, start date 01-09-2015, end date 31-10-2019, Column water vapour content (PWAT) as a predictor of extreme weather events in Poland in the light of high resolution multi-source measurement data.PI at UPWr, start date 27-04-2016, end date 26-04-2020, Three-dimensional integrated observations of the troposphere using ground-based and satellite GNSS observations. PI at UPWr, start date 10-01-2021, end date 30-09-2025, in progress
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Second supervisor (from other discipline, Polish or international research unit)
Name and surname:	Kefei Zhang
Academic Degree:	Prof.
Faculty, Institute/Department:	China University of Mining and Technology
e-mail address:	pr0003@cumt.edu.cn
ORCID:	
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	Ban, W., Zhang, K., Yu, K., Zheng, N., & Chen, S. (2022). Detection of red tide over sea surface using GNSS-R spaceborne observations. IEEE Transactions on Geoscience and Remote Sensing, 60, 1-11. Li, H., Wang, X., Choy, S., Wu, S., Jiang, C., Zhang, J., ... & Zhang, K. (2021). A new cumulative anomaly-based model for the detection of heavy precipitation using GNSS-derived tropospheric products. IEEE Transactions on Geoscience and Remote Sensing, 60, 1-18. Li, H., Choy, S., Wang, X., Liang, H., Purwar, S., & Zhang, K. (2023). Investigating the Optimal Spatial Resolution for Assimilating GNSS PWV into an NWP System to Improve the Accuracy of Humidity Field. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.
Researchgate:	-
Personal website / Working group website:	-
Participation projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	Title: GNSS水汽多源融合信息挖掘及其在低空通航中的应用 Host institution: China University of Mining and Technology Source of funding: National Natural science Foundation of China Start and end date: On-going Project ID: 42274021 Amount of funding [currency]: 560,000 yuan [RMB] Title: 风云三号C星掩星数据误差特性和优化算法研究 Host institution: China University of Mining and Technology Source of funding: National Natural science Foundation of China Start and end date: 01-01-2019 — 31-12-2022 Project ID: 41874040 Amount of funding [currency]: 630,000 yuan [RMB] Title: GNSS+水汽探测研究及其在极端天气和气候变化中的创新应用 Host institution: China University of Mining and Technology Source of funding: National Natural science Foundation of China Start and end date: 01-01-2018 — 31-12-2022 Project ID: 41730109 Amount of funding [currency]: 3,120,000 yuan [RMB]
PhD topic:	Space-based GNSS remote sensing using reflectometry and polarimetry concept
Research discipline in Doctoral School:	Civil Engineering, Geodesy and Transport

<p>Short description of the research problem to be solved in the PhD (minimum 1000 characters):</p>	<p>Two major new GNSS remote sensing techniques are currently available: GNSS reflectometry and polarimetry. The former is sensitive to variation of the reflected surface, but also is subjected to atmosphere delay, the later is sensitive to the rain particle amount and shape, that change signal polarization.</p> <p>We aim to extend our in-house end-to-end forward propagation of the coherent electric field from a GNSS transmitter toward a polarimetric and reflectometric LEO receiver. It is proposed that we extend the capabilities to contain systematic effects, such as the GNSS transmitter polarization purity, Faraday rotations and antenna phase pattern.</p> <p>Using this updated tool we plan to test the sensitivity of Polarimetric and Refletometric GNSS Radio-Occultation to rain, wind, clouds and ice particles. Furthermore, those results are expected to be used in GNSS-R technique as an innovative application of GNSS system. Datasets will be retrieved from PAZ mission, as well as MERRByS data base.</p>
<p>Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):</p>	<p>Master (in specific cases also Bachelor) in geodesy, geophysics, physics, remote sensing or computer science, willing to work with new techniques for next generation remote sensing (GNSS-R, GNSS-PRO), skills in at least one programming language such as Python, Matlab, C++, Fortran, English level allowing for smooth communication and high writing skills, persistence in conducting research work, motivation to work in the multi-disciplinary and multi-cultural environment, <u>ability to present results at the seminars and conferences.</u></p>
<p>a) Project title:</p>	<p>New horizon of tropospheric studies using next generation GNSS, Network of Satellite Constellations and AI</p>
<p>b) Agreement number:</p>	<p>UMO-2023/48/Q/ST10/00278</p>
<p>c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):</p>	<p style="text-align: right;">36</p>
<p>Project website:</p>	