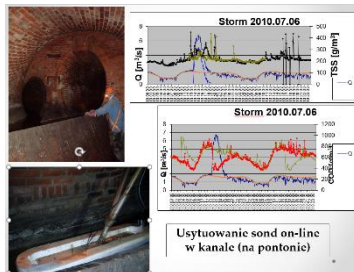
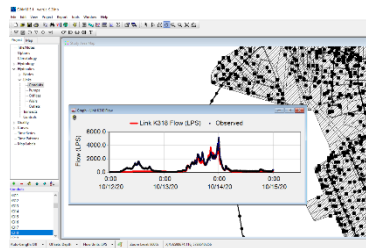




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PROGRAMME

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>name of the unit:</p> <h2 style="text-align: center;">DIVISION OF SANITARY TECHNOLOGY<br/>AND WATER PROTECTION</h2> <p style="text-align: center;">Institute of Environmental Engineering and Building Installation<br/>Lodz University of Technology</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                 | <p>symbol:</p> <h2 style="text-align: center;">I-62</h2> <p><a href="http://http://bais.p.lodz.pl/index.php/kontakt-i62">http://http://bais.p.lodz.pl/index.php/kontakt-i62</a></p>                                                                                                        |
| <p>head of the unit:</p> <p style="text-align: center;"><b>Grażyna Sakson-Sysiak,</b><br/>PhD, DSc, TUL Prof.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>potential promoters:</p> <p style="text-align: center;">Prof. Ewa Liwarska-Bizukojć, PhD DSc<br/>Grażyna Sakson-Sysiak, PhD, DSc, TUL Prof.<br/>Agnieszka Brzezińska, PhD, DSc, TUL Prof.<br/>Ewa Badowska, PhD<br/>Dawid Bandzierz, PhD</p> | <p>contact person:</p> <p style="text-align: center;">Grażyna Sakson-Sysiak, PhD,<br/>DSc, TUL Prof.<br/>phone: 48-42-631-35-27<br/><a href="mailto:grazyna.sakson-sysiak@p.lodz.pl">grazyna.sakson-sysiak@p.lodz.pl</a></p>                                                               |
| <p>scope of activities:</p> <p>Urban hydrology, in particular:</p> <ul style="list-style-type: none"> <li>Modelling of sewage and water supply systems (model construction, calibration and application in the analysis of network operation)</li> <li>Research on the quality of sewage and sewage sludge</li> <li>Forecasting and limiting pollutant emissions from urban areas</li> <li>Modernization of sewage disposal and treatment systems in cities</li> <li>Limiting the operation of combined sewer overflows</li> <li>Sustainable management of stormwater in urban areas, including the use of green infrastructure</li> <li>Stormwater harvesting systems</li> </ul> <p>Evaluation of ecotoxicity of chemicals and materials</p> <p>Modelling and kinetics of biological wastewater treatment</p> <p>Activated sludge flocs morphology and composition</p> |                                                                                                                                                                                                                                                 | <p>material graficzny</p>    |
| <p>present activities:</p> <p>The use of online sensors in monitoring the composition of wastewater in the sewage system: optimization of stations and the monitoring system, operation and calibration of sensors, data denoising. Modelling of sewage systems using the US EPA SWMM software and water supply systems using the EPANET software. Research on the composition of wastewater in the Łódź sewage system in terms of the protection of treatment plants and water receivers. Forecasting the inflow of wastewater to the treatment plant and the amount of pollutant emission to water receivers.</p> <p>Effect of bioplastics on biotic part of terrestrial ecosystems</p>                                                                                                                                                                               |                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                            |
| <p>Future activities:</p> <p>Conducting research in the field of quantitative and qualitative modeling of urban drainage systems, pollutant emissions forecasting, methods of sustainable stormwater management.</p> <p>Toxicity of plastics and bioplastics. Plastic waste management with particular attention to bioplastic waste</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                            |
| <p>Publications/patents, awards, projects:</p> <ul style="list-style-type: none"> <li>Sakson G., Brzezinska A., Bandzierz D., Olejnik D., Jedrzejczak M., Gryglik D., Badowska E., 2021, Monitoring of wastewater quality in Lodz sewage system (Poland)—do the current solutions enable the protection of WWTP and receiving water?, International Journal of Energy and Environmental Engineering, <a href="https://doi.org/10.1007/s40095-021-00455-4">https://doi.org/10.1007/s40095-021-00455-4</a></li> <li>Sakson G., Brzezińska A., Kowalski K., 2020. Threats to Wastewater Treatment Plant in Combined Sewer System – Analysis of Problems and Possible Solutions on the Example of Lodz. Rocznik Ochrona Środowiska, ISSN: 1506-218X, vol. 22, no. 2</li> </ul>                                                                                              |                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                            |



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- Liwarska-Bizukoja E. (2021) Effect of (bio)plastics on soil environment: a review. Science of the Total Environment 795, 148889, <https://doi.org/10.1016/j.scitotenv.2021.148889>

Research projects:

- Developing and Implementing Sustainability-Based Solutions for Bio-Based Plastic Production and Use to Preserve Land and Sea Environmental Quality in Europe (BIO-PLASTICS EUROPE) no. 860407, Horizon 2020, 2019-2023
- Development of a monitoring, early warning and sustainable management system for wastewater treatment plant minimizing pollutant emission to aquatic environment from urbanized area, National Centre for Research and Development, POIR.04.01.02-00-0060/17. The project is carried out by the Faculty of Civil Engineering, Architecture and Environmental Engineering TUL and the Group Wastewater Treatment Plant in Łódź

Keywords:

urban hydrology, sewage systems, water supply, modelling, pollutant emissions, sustainable stormwater management, bioplastics, biotechnology, ecotoxicity, wastewater treatment

List of internship proposal in this research team:

Cooperation in the field of monitoring and modelling of sewage systems