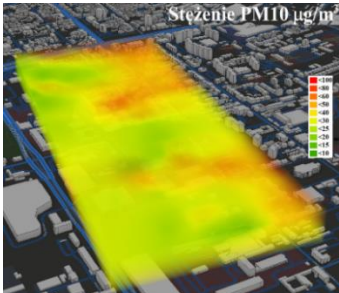






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<p>name of the unit:</p> <h2 style="text-align: center;">DIVISION OF HEATING, VENTILATION AND AIR PROTECTION TECHNOLOGY</h2> <p style="text-align: center;">Institute of Environmental Engineering and Building Services, Lodz University of Technology</p>		<p>symbol:</p> <h2 style="text-align: center;">I-62</h2> <p>http://http://bais.p.lodz.pl/index.php/ko-ntakt-i62</p>
<p>head of the unit:</p> <p style="text-align: center;">Robert Artur Cichowicz PhD, DSc, TUL Prof.</p>	<p>potential promoters:</p> <p style="text-align: center;">Robert Artur Cichowicz, PhD, DSc, TUL Prof. Tomasz Jerominko, PhD, TUL Prof. Maciej Grzywacz, PhD, TUL Prof. Tomasz Adamiak, PhD, Eng. Maciej Dobrzański, PhD, Eng.</p>	<p>contact person:</p> <p style="text-align: center;">Robert Artur Cichowicz PhD, DSc, TUL Prof phone: 48-42-631-20-20 robert.cichowicz@p.lodz.pl</p>
<p>scope of activities:</p> <p>The Division is engaged in scientific and research work related to ventilation, air conditioning, heating installations and district heating networks, air protection, including the analysis of atmospheric/external and internal air quality in premises where ventilation and air conditioning systems operate.</p> <p>The Division makes opinions, expert opinions and judgements, as well as research related to new heating technologies and to obtaining energy from renewable sources. Research is also conducted on energy recovery and storage, accounting for its consumption. Large-scale experiments are conducted in the field of atmospheric protection techniques and air quality analysis, as well as new technologies applied in them. In addition, research is also carried out for and on behalf of industry in the field of drives and mechanical structures.</p>		<p>graphic material</p>   
<p>present activities:</p> <p>The current activities of the Divisions staff are primarily focused around the spatial analysis of the dispersion of atmospheric air pollutants using the latest techniques associated with unmanned aerial vehicles together with mobile measurement equipment. The studies are conducted both at the local scale as well as at the large-area scale of the city. Intensive research on indoor air quality in various types of buildings, taking into account the correlation with outdoor air quality are also done.</p> <p>Tests are carried out on the performance of ventilation system components (air handling units, end and control components). Using state-of-the-art instruments, the correctness of execution is assessed: insulation of partitions, dampness of partitions and leaks in networks and installations laid in the ground or under the floors of buildings and the correctness of energy cost accounting systems.</p>		
<p>Future activities:</p> <p>Development of pollution dispersion models taking into account wind direction and speed and weather conditions for the local scale. Analysis of the impact of the type of ventilation system in a building on indoor air quality in terms of physical and bacteriological parameters.</p>		
<p>Publications/patents, awards, projects:</p> <p>In 2018-2020, the Division implemented as an applicant and main contractor a research project financed in about 80% by the Provincial Fund for Environmental Protection and Water Management in Łódź and in about 20% by the Institute of Environmental Engineering and Building Installations of the Technical University of Łódź, entitled: Spatial analysis of changes in the state of air pollution in the Łódź agglomeration.</p> <p>The most important publications from the current scientific activity:</p>		



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- Cichowicz, R.; Dobrzański, M. 2022. Analysis of Air Pollution around a CHP Plant: Real Measurements vs. Computer Simulations. *Energies* 2022, 15, 553. <https://doi.org/10.3390/en15020553>
- Cichowicz, R.; Dobrzański, M. 2021. Modeling Pollutant Emissions: Influence of Two Heat and Power Plants on Urban Air Quality. *Energies* 2021, 14, 5218. <https://doi.org/10.3390/en14175218>
- Adamiak T, Grzywacz M, Jerominko T, Wpływ obciążeń cieplno-mechanicznych na wytrzymałość rur z polipropylenu statystycznego PP-R. *Instal* 12/2010
- Adamiak T, Grzywacz M, Szantka J, Ocena wykorzystania energii odnawialnej do przygotowania c.w.u. na przykładzie istniejącego systemu zaopatrywania w ciepło budynków mieszkalnych wielorodzinnych. *Instal* nr 5/2017

Keywords:

dispersion of air pollutants, numerical simulations, 3D spatial analysis of pollutant concentrations, indoor and outdoor air quality, heat sources, district heating networks, HVAC systems

List of internship proposal in this research team:

multi-parameter conduct of indoor and outdoor air quality studies