

Division of Mechanical Science and Engineering	Research field	Fluid Systems	Lab. ID
			MS29
Laboratory web site	<a href="http://www.me.se.kanazawa-u.ac.jp/e/lab/15.html">http://www.me.se.kanazawa-u.ac.jp/e/lab/15.html</a>		
Research subjects			
<p>Our research and education focus on fire safety engineering of tunnels and other facilities through the fluid and thermal engineering. Safety at the fire accident scene in a road tunnel depends on geometric, climatic, traffic and other conditions. The effective measures to the accidents should be prepared through the quantitative assessment. We have been developed a CFD (Computational Fluid Dynamics) code named <i>Fireles</i> which also deals with smoke behavior. Now we are developing a simulator of evacuee's behavior in which their circumstances are calculated using <i>Fireles</i>. Fire experiments are also conducted using a full scale tunnel collaborated with other organizations or using large scale model tunnel. Computation and experiments of water spray is another project being studied related to tunnel fire safety. As a subject besides fire safety, convective heat transfer using suspension of thermo-sensitive gel particles is studied.</p>			
Master/Doctor course: Education policy, curriculum, typical activity in the laboratory			
<p>Your master's thesis and primary supervisor are determined after joining our group, while doctoral thesis is usually determined in advance. Students have to attend lab meeting where their progress of bibliographic survey, experiments or calculations are reported and discussed. Students may be required to attend and give a presentation about their project at conferences of fire safety and/or fluid engineering.</p>			
Daily life in the laboratory, etc.			
<p>"Facilities to conduct good researches are well prepared: Personal working desk and PC is available for every student. PCs for numerical simulation and a large spaced laboratory where large experimental apparatus can be made are also available. Lab meeting helps my research improve, with comments from the supervisor and other students."</p> <p>"Students in our group are very friendly so that you can discuss your work frankly with any grade students."</p>			
Message or comments by the laboratory faculty staffs			
<p>Since the fluid engineering is one of the bases of interdisciplinary study, our research also covers a variety of fields other than mechanical engineering. Experts from various fields are studying with us as doctoral students. Discussion and collaboration with them will broaden your horizons.</p>			
Recent Master theses in these 3 years (+ more if appropriate)			
year.month	Thesis title (including English translation of Japanese thesis title)		
2017.3	Study on evacuation from the bus in emergency		
2017.3	Research on air cooling by water spray		
2017.3	Experimental research regarding evacuation speed and visibility distance in full-scale tunnel filled with imitation smoke		
2017.3	Behavior of thermo-sensitive gel in various aqueous solution		
2016.3	Verification of effect about evacuation guide lamp assuming tunnel fire and visibility in smoke		
2016.3	Production of monodisperse temperature-sensitive gel particles		
2016.3	Study of numerical simulation method about water spray		
2015.3	A study on measurement of smoke density and visibility in smoke		
2015.3	Behavior of thermo-sensitive gel in aqueous polymer solution		
2014.3	A study on walking speed in smoke in tunnel fire		
2014.3	Evacuation using evacuation tunnel in wide-area disaster		
2014.3	Cooling effect of water spray		
2014.3	A study on drag coefficient in a numerical simulation of firefighting gun		
2013.3	Visualization and numerical simulation of cavity flow of visco-elastic fluid		
2013.3	Characteristics of particles using thermo-sensitive gel		
Recent Doctoral theses in these 3 years (+ more if appropriate)			
year.month	Thesis title (including English translation of Japanese thesis title)		
2017.3	Study on tunnel for refuge for wide area disasters		
2016.3	Study on the potential risks analysis approach for tunnel fires in expressway tunnels		
2015.9	Study on effectiveness of smoke extraction in urban short road tunnel		
2015.3	Study on Quantitative Assessment of Road Tunnel Fire Safety		

2015.3 Transition of Japanese Road Tunnel Ventilation System and Future Issues

Laboratory mail address

Masato Hasegawa <mhase \*at\* se.kanazawa-u.ac.jp>