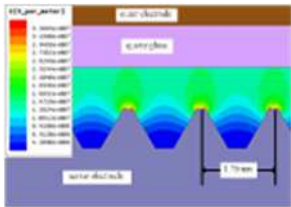


Name FUJISHIMA Tomoyuki	Job Title Associate Professor	Area of Expertise Lightning Protection, Electrical Discharge
1. Main Research Topics ① Development of Simple Lightning Protection System for Electrical and Electronic Equipment Installed Outdoors My laboratory is attempting to develop a low-cost, simple method of lightning protection to minimize damage from lightning to electrical and electronic equipment installed outdoors. Lightning protection cages and simplified lightning rods are devised and prototyped, and are currently conducting field tests to verify their effectiveness. Furthermore, we are working to improve communication performance by improving the cage shape and reducing the cost of simple lightning rods and grounding resistance.  Simulated lightning strike test on lightning protection cage  ② Simplification and IoT integration of soil moisture measurement using the principle of ground resistance measurement By applying the three-electrode method for measuring ground resistance, we have devised, prototyped, IoT-enabled, and implemented a system that can easily and with low power consumption monitor changes in soil moisture. By making it easier to obtain soil moisture data, we aim to contribute to smart agriculture. ③ Generation of ozone using a screw electrode ozonizer and environmental applications of ozone generated by electrical discharge We are developing a system that efficiently generates ozone at concentrations and yields sufficient for practical use at a relatively low cost using dielectric barrier discharge (DBD). The generated ozone has strong oxidizing power and no residual toxicity, so we aim to apply it to environmental issues such as soil sterilization.  Electric field calculation  Discharge in ozonizer  Cultivation results of soil bacteria		
2. Keywords Simple lightning protection, Offshore wind power generation, Smart aquaculture system, Soil moisture measurement, Ozone, Dielectric barrier discharge		
3. Remarks and Websites We are primarily engaged in research and development of systems (lightning protection cages and simple lightning rods) that protect electrical and electronic equipment installed outdoors from damage caused by lightning strikes at the lowest possible cost. Applying the knowledge gained from previous research on lightning protection, we are also considering measures to protect smart aquaculture systems and offshore wind power generation systems from lightning damage. researchmap: https://researchmap.jp/read0185025		