

This presentation includes a concept, by which radio frequency (RF) tags are employed as remotely read dielectric-property sensors to determine qualities of some construction material products (CMPs); e.g., light weight concrete (LWC), mortar specimens and concrete. Using the dependency of the read range of the passive RF identification (RFID) sensor system on the electromagnetic properties of CMPs near or in contact with RFID tags, the qualities of CMPs can be determined through their estimated dielectric properties. Theoretical formulation is provided, and numerical simulations are performed for optimal design of passive RFID tag antennas suitable for RFID sensors and for read-range calculations. In addition, a series of measurements is performed to measure read ranges of the passive RFID sensor system for an LWC as an example of CMPs, and these measured read ranges will be processed appropriately to inversely determine the dielectric constant of the LWC under test, which in turn provides information on its qualities. It is found that the novel RFID sensor can be employed to determine the dielectric properties of the LWC under test with reasonable accuracy.

## **Antenna Design for UHF-RFID Sensor**

---

**Prof. Chuwong Phongcharoenpanich 講演会**

**(King Mongkut's Institute of Technology Ladkrabang)**

**日時 : 平成 26 年 9 月 16 日 (火) 16:30~18:00**

**場所 : 福岡工業大学 D36 講義室 (D 棟 3 階)**

**主催 : 福岡工業大学情報科学研究所**

**協賛 : IEEE AP-S Fukuoka Chapter**

**電子情報通信学会 九州支部**

**聴講無料**

**問合せ先 : 渡辺仰基 (koki@fit.ac.jp)**