



## **Numerical study of the polarization effect of GPR systems on the detection of buried objects**

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This work is in line with the studies carried out in our department over the last few years on object detection in civil engineering structures and soils. In parallel to building of the second version of the Sense-City test site where several pipeline networks will be buried [1], we are developing numerical models using the FIT and the FDTD approaches to study more precisely the contribution of the polarization diversity in the detection of conductive and dielectric buried objects using the GPR technique. The simulations developed are based on a ultra-wide band SFCW GPR system that have been designed and evaluated in our laboratory. A parametric study is proposed to evaluate the influence of the antenna configurations and the antenna geometry when considering the polarization diversity in the detection and characterization of canonical objects.

[1] <http://www.sense-city.univ-paris-est.fr/index.php>