

**THE EFFECT OF DIFFERENT GROUND  
CHARACTERISTIC TO THE SIMILARITY AND  
STABILITY OF TARGET SPECTRA IN FSR MICRO-  
SENSOR NETWORK**

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## ABSTRACT

Forward scattering radar (FSR) is a subclass of bistatic radar happened when the angle of the target called bistatic angle,  $\beta$  is close to  $180^\circ$  to the transmitter receiver baseline. FSR offers a number of advantages that applicable for target detection and classification such as robustness to stealth targets, enhanced targets cross-sections, absence of signal fluctuations and reasonably simple hardware. Moreover, durable assembling and ability to spread in random order position make the sensor easily deployed on hazardous or remote areas. In a real case scenario, the positions and orientation of the sensors and other factors such as target's moving trajectory and environmental effect for example ground reflectivity is uncontrollable. Therefore, the influence of these factors should be investigated.

This thesis present the research results on the effect of different ground characteristic to the target spectra for the performance evaluation of ground base forward scattering radar (FSR) micro-sensor network based on the simulation model. The obtained results show the stability and similarity of target spectra when the conductivity and permittivity of different ground exists. This analysis result gives the idea of which kind database should the system has and at the same time can reduce the misclassification in the FSR micro-sensor network system.

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