**Prepared for**

**Abstract:**

Detection and identification of objects by using radio frequency signals is one of the most important tasks of microwave systems. Some systems are an active, which are transmitting a known signal and receiving the reflected signals from metallic objects.

Some other systems are passive, which are operating in receiving mode only and relies on direct or indirect signals from external sources. The resolution of the system is very important because of the ability not only to detect signals, but to identify and classify objects which caused the reflected waves. This work presents two novel researches which dealing with:

* 2D mono detection spatially super resolved imaging for Radar applications
* Radio frequency echo mapping based on cellular signals

The solution based on phased array technique.

The results are strongly reconstructed the object's form and location.