

SUMMARY

In this project, we investigate and propose novel narrow band interference cancellation algorithms in MIMO-OFDM systems. New algorithms based on sparse phenomena representation and compressed sensing are proposed. The methodology used is based on the fact that narrow band interference in the frequency domain is sparse. Therefore, compressed sensing techniques can be applied to estimate and cancel the interference without the need to know exactly the location of the interference. The study focuses first on single jammer over single antenna OFDM. After that, we will extend the algorithms to MIMO-OFDM and consider the case with multiple jammers. The application is widespread to new high data rate physical layers such as WiFi and WiMAX. The proposed algorithms will benefit the communication industry and make the kingdom one of the leaders in this new technology.