



## EVOLUTIONARY WIENER–MASK RECEIVER FOR MULTIUSER DIRECT SEQUENCE SPREAD SPECTRUM (TueAmOR10)

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### \* Abstract :

In this paper, we propose a channel estimation procedure that together with a time–frequency Wiener mask permits the design of coherent receivers for direct sequence spread spectrum (DSSS) communication systems. Such a receiver excises intentional or non–intentional jamming signals while detecting the sent bit. Transmission channels spread the message signals in time and frequency and are typically modeled as random, time–varying systems. The estimation of the parameters of the channel model for one of the users, in uplink transmission, is possible by means of the spreading function obtained from the discrete time–frequency evolutionary (DET) kernel of the received signal and the pseudo–noise code corresponding to the user. Excision of arbitrary jamming signals, present in the received signal, is done by means of a Wiener mask implemented with the DET. The performance of the proposed receiver is illustrated by means of simulations, with different levels of channel noise, Doppler frequency shifts, jamming signals and different number of users.