

## **Collaborative data transmission using subgroup modulation**

Authors: Serkan Sayilir and Byunghoo Jung

Abstract: A new technique for collaborative data transmission in a sensor network is presented. A new modulation type called Subgroup Modulation for the collaborative data transmission is defined and elaborated. The technique is illustrated for binary data transmission and extended to M-ary data transmission. The results show that with the proposed technique SNR improves by N-fold where N signifies the number of nodes in the sensor network and major problems of distributed beamforming such as phase and frequency offsets, oscillator drift, data synchronization, and data traffic are significantly relaxed.

### Contact Information:

Serkan Sayilir

Purdue University, ECE

465 Northwestern Ave.

West Lafayette, IN, 47907

ssayilir@purdue.edu