

# **A New Approach for Simple Cooperative Relaying**

**Author(s) - Institution(s):**

Ugljesa Urosevic, UoM-FEE

Zoran Veljovic, UoM-FEE

M. Pejanovic-Djurisic, UoM-FEE

Dina Simunic, UoM-FEE

**Corresponding author email:** milica@ac.me

**Corresponding WG group:** WG1, SWG2.1.1

**Abstract:**

In this paper a new simple cooperative scheme for achieving 4th order diversity is presented. The proposed scheme is compared with simple cooperative schemes with virtual orthogonal space time block coding (OSTBC) and quasi orthogonal space time block coding (QOSTBC). Every of these three schemes includes one base station with two antennas, two relay stations with a single antenna and one mobile station with a single antenna. The aim of the proposed solution is to preserve, as much as it is possible, bit error rate (BER) performance of the cooperative scheme with virtual OSTBC, but with increased code rate. It is shown that the presented scheme obviously outperforms simple cooperative scheme with virtual QOSTBC, while in comparison with simple cooperative scheme with virtual OSTBC has very similar BER performance and greater code rate. At the same time, the proposed scheme enables better energy efficiency, as it needs half of time slots between BS and RSs in comparison with cooperative scheme with OSTBC.