

Cooperative Non-Orthogonal Multiple Access for Two-Way Relay Networks

Zhaoxi Fang, Jun Li, Yingzhi Lu

PII: S1434-8411(19)32218-6

DOI: <https://doi.org/10.1016/j.aeue.2019.153021>

Reference: AEUE 153021

To appear in: *International Journal of Electronics and Communications*

Received Date: 2 September 2019

Accepted Date: 28 November 2019

Please cite this article as: Z. Fang, J. Li, Y. Lu, Cooperative Non-Orthogonal Multiple Access for Two-Way Relay Networks, *International Journal of Electronics and Communications* (2019), doi: <https://doi.org/10.1016/j.aeue.2019.153021>



This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Cooperative Non-Orthogonal Multiple Access for Two-Way Relay Networks

Zhaoxi Fang^a, Jun Li^{a,*}, Yingzhi Lu^b

^a*College of Information and Intelligent Engineering, Zhejiang Wanli University, Ningbo, 315100, China.*

^b*Literature and Information Center, Zhejiang Wanli University, Ningbo, 315100, China.*

Abstract

In this paper, we propose a cooperative non-orthogonal multiple access (NO-MA) based relaying scheme for a two-way relay network (TWRN) where one user communicates with the base station (BS) directly while the other indirect-link user exchanges message with the BS via the help of a decode-and-forward (DF) relay station. We analyze the sum-rate performance of the proposed scheme, and derive a closed-form expression for the ergodic capacity. Furthermore, we analyze the asymptotic performance in the high signal-to-noise ratio (SNR) region. Simulation results show that the proposed DF based cooperative NOMA TWR transmission scheme achieves a much higher sum-rate than its AF counterpart and conventional time-division multiple access (TDMA) based scheme.

Keywords: Cooperative NOMA, two-way relay network, decode-and-forward, asymptotic analysis

*Corresponding author

Email addresses: zhaoxifang@gmail.com (Zhaoxi Fang), xx11j@zwu.edu.cn (Jun Li), luyingzhi@zwu.edu.cn (Yingzhi Lu)

Download English Version:

<https://daneshyari.com/en/article/13432052>

Download Persian Version:

<https://daneshyari.com/article/13432052>

[Daneshyari.com](https://daneshyari.com)