for modeling and simulation of smart cities environment. The adoption of GPGPU significantly speeds up the fading effect calculation. To the best of authors' knowledge, similar analysis has not been presented in literature which signifies the contribution of this paper.

ACKNOWLEDGMENT

This work has been supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

REFERENCES

[1] David M.Jimenez and Jose F. Paris ,"Outage Probability Analysis for *η-μ* Fading Channels", IEEE Communications letters, vol.14, no. 6, 2010.

[2] P. Spalević, S. Panić,"Analysis of wireless transmission Improvement in specific propagation environments: Monograph", Kosovska Mitrovica, ISBN 978-86-80893-52-5, 2014.

[3] Yacoub, M. D. (2007). The k-μ distribution and the η-μ distribution. *IEEE Communications Letters,* vol.9, no. 10, pp. 871-873.

[4] W .C. Y. Lee, Mobile communications engineering: New York, Mc Graw-Hill, 2001.

[5] M. Pätzold, Mobile Fading Channels Modelling, Analysis and Simulation. New York: John Wiley & Sons, 2nd ed. 2005.

[6] B. Sunil and Nandana B. T., "Performance analysis and comparison of AF and DF relaying systems in Rayleigh fading channel considering poisson interference field," Inter. Conference on Innovations in Inf., Embedded and Communication Systems (ICIIECS), Coimbatore, *ICIIECS*, pp. 1-5, 2015, doi: 10.1109/ICIIECS.2015.7192915.

[7] J. Hu and N. C. Beaulieu, "Performance Analysis of Decode-and-Forward Relaying with Selection Combining", IEEE Commun. Lett, Vol. 11, No. 6, pp. 489-491, Jun. 2007.

[8] K. Wannatrong, M. A. Hayat, Performance analysis of OSTBC with Hybrid Decode-Amplify and Forward relay network: Department of Electrical Engineering, Blekinge Institute of Technology Karlskrona, Sweden, September 2012.

[9] S. N. Suljović, "Analysis of performance improvement in relay communication systems from the aspect of diversity combining techniques", Ph.D. dissertation, University of Niš, Faculty of Electronic Engineering, 2019.

[10] M. Alouini and A. Goldsmith, "Area Spectral Efficiency of Cellular Mobile Radio Systems", IEEE Transactions on Vehicular Technology, ISSN: 0018-9545, vol. 48, no. 4, pp. 1047-1065, 1999.

[11] G. V. Milovanović, S. Suljović, S. R. Panić, I. Kalčo, and M. H. Stefanović, "Efficient Numerical Methods for Analysis of Square Ratio of κ-μ and η-μ Random Processes with Their Applications in Telecommunications", Mathematical Problems in Engineering, vol. 2018, Article ID 4967613, 9 pages, 2018.

[12] I. S. Gradshteyn and I. M. Ryzhik, Tables of Integrals, Series and Products Academic. New York: 1980.

[13] S. Panić, M. Stefanović, J. Anastasov and P. Spalevič: Fading and Interference Mitigation in Wireless Communications, Taylor & Francis Publishing group, CRC Press, New York, USA, ISBN 978-14665-0841-5, 2013.

[14] N. Petrović, Đ. Kocić, "Data-driven Framework for Energy-Efficient Smart Cities", Serbian Journal of Electrical Engineering, Vol. 17, No. 1, Feb. 2020, pp. 41-63, 2020. https://doi.org/10.2298/SJEE2001041P.

[15] N. Petrović, Đ. Kocić, "Adopting linear optimization to support autonomous vehicles in smart city", TELFOR 2019, pp. 1-4, 2019. https://doi.org/10.1109/TELFOR48224.2019.8971185

[16] N. Petrović, "Approach to Dynamic Adaptivity Simulation in Fog Computing Scenarios", TELSIKS 2019, pp. 58-61, 2019. https://doi.org/10.1109/TELSIKS46999.2019.9002322

[17] N. Petrovic, Dj. Kocic, "Framework for Efficient Resource Planning in Pandemic Crisis", CIIT 2020, pp. 1-6, 2020.

[18] N. Petrović, S. Koničanin, D. Milić, S. Suljović, and S. Panić, "GPU-enabled Framework for Modelling, Simulation and Planning of Mobile Networks in Smart Cities", ZINC 2020, pp. 1-6, 2020, https://doi.org/10.1109/ZINC50678.2020.9161773

[19] N. Petrović, S. Koničanin, D. Milić, S. Suljović, and S. Panić, "GPU-enabled Framework for Modelling, Simulation and Planning of Mobile Networks in Smart Cities", ZINC 2020, pp. 1-6, 2020, https://doi.org/10.1109/ZINC50678.2020.9161773

[20] A. F. Abdelrazek et al., "A Novel Architecture using NVIDIA CUDA Tospeed up Simulation of Multi-Path Fast Fading Channels", pp. 1-5, 2009.

[21] J. Sanders, E. Kandort, CUDA By Example: An Introduction to General-Purpose GPU Programming, Addison-Wesley, 2011.

[22] D. Milić, S. Suljović, N. Petrović, S. Koničanin, and S. Panić, "Software Environment for Performance of Relay Signal by DF Technique Influenced by k-μ Fading", INFOTEH 2020, pp. 1-4, 2020, https://doi.org/10.1109/INFOTEH48170.2020.9066304