



## ANALYSIS OF THE MULTI-CHANNEL THREE-DIMENSIONAL PROBABILITY CSMA PROTOCOL WITH MONITORING FUNCTION FOR WSN

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*Abstract- For the wireless sensor networks (WSNs), MAC layer protocol, relating to system throughput, involving functions of system, concerning the consumption of system energy efficiency, etc. other system indicators, is very important. With the development of WSN, involving vary businesses, the amount and style of data which the sensor nodes detecting is large and divertive. Based on three-dimensional probability CSMA protocol, the proposed protocol, multi-channel three-dimensional probability CSMA protocol with monitoring function (MATP-CSMA), is providing the sensor nodes owning different task with diversified throughput, meeting the quality of services (QoS) of diversiform business. The paper analyses the protocol from three aspects: the system throughput, system delay and energy efficiency. Through rigorous mathematical derivation, get the exact expression of relevant indicators; with the use of simulation tools, verify the accuracy of the model and expressions.*

**Index terms:** Throughput, priority, multi-channel, three-dimensional probability CSMA, energy efficiency.