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An amend Implementation on LEACH Protocol based on Modify Energy Hierarchy

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Abstract— **We study the impact of heterogeneity of nodes, in terms of their energy, in wireless sensor networks that are hierarchically clustered. In these networks some of the nodes become cluster heads, aggregate the data of their cluster members and transmit it to the sink. We assume that a percentage of the population of sensor nodes is equipped with additional energy resources—this is a source of heterogeneity which may result from the initial setting or as the operation of the network evolves. We also assume that the sensors are randomly (uniformly) distributed and are not mobile, the coordinates of the sink and the dimensions of the sensor field are known. Classical clustering protocols assume that all the nodes are equipped with the same amount of energy and as a result, they cannot take full advantage of the presence of node heterogeneity. We propose An Amend LEACH, a heterogeneous aware protocol to prolong the time interval before the death of the first node (we refer to as *stability period*), which is crucial for many applications where the feedback from the sensor network must be reliable. A-LEACH is based on weighted election probabilities of each node to become cluster head according to the remaining energy in each node.**

Keywords – **Cluster, heterogeneous, LEACH**