$$ResidualEnergy(i) \leq \xi * ResidualEnergy(j)$$

Algorithm 1 Sensor Selection Algorithm

1: Initialize sensor set S, neighbor table N;
2: calculate the distance of every pair of neighbors and sort in ascending order.
3: **for** $i = 1 : \lambda$ **do**
4:
5: **end for**
6: **for** $j = 1 : \mu$ **do**
7:     $R := R \cup (1 + j * \lambda)$;
8: **end for**

Algorithm 2 Sensor Mapping Algorithm

1: ;
2: **for** $i = 1 : \lambda$ **do**
3:     $R := R \cup i$;
4: **end for**
5: **for** $j = 1 : \mu$ **do**
6:     $R := R \cup (1 + j * \lambda)$;
7: **end for**

Algorithm 3 Logical Routing Algorithm

1: ;
2: **for** $i = 1 : \lambda$ **do**
3:     $R := R \cup i$;
4: **end for**
5: **for** $j = 1 : \mu$ **do**
6:     $R := R \cup (1 + j * \lambda)$;
7: **end for**