1049-05-187 **Mahshid Atapour*** (atapour@mathstat.yorku.ca), Department of Mathematics, 4700-Keele Street, Toronto, Ontario M3J 1P3, Canada. *Exponential Growth of the Number of n-edge Linked Clusters in $\mathbb{Z}^3$ and the Consequences in Entanglement Percolation.*

An animal in the simple cubic lattice is a finite connected subgraph of $\mathbb{Z}^3$. Let a_n be the number (up to translation) of n-edge animals in $\mathbb{Z}^3$. In 1967, Klarner proved that a_n grows exponentially. Let e_n be the number (up to translation) of all n-edge linked clusters, i.e. subgraphs of $\mathbb{Z}^3$ in which the connected components (animals) are (topologically) non-splittable. In this presentation, I will briefly explain how it can be proved that e_n also has a finite exponential growth rate. I will then mention some of the important consequences of this result in entanglement percolation.

This is a joint work with my postdoc supervisor N. Madras. (Received March 03, 2009)