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***Title: On chaotic graphs and applications in physics and biology***

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***Abstract:***

El Naschie's  $\varepsilon^\infty$  theory in Quantum space time is given and discussed geometrically and topologically as a category of fuzzy spaces, these fuzzy categories in which lines are fuzzy fractal lines. In this paper, we represent the chaotic graphs as many fuzzy fractal lines up to  $\infty$ . We will describe them by chaotic matrices. Many fuzzy systems (chaotic system) are described and applied in [8-12]. This article introduces some operations on the chaotic graphs such as the union and the intersection; also both of the chaotic incidence matrices and the chaotic adjacency matrices representing the chaotic graphs induced from these operations will be studied. Theorems governing these studies are obtained. Some applications of chaotic graphs are given [8-12, 18-21].