Fractal Interpretations of the *Classic of Changes*: A Perspective of Mathematical Humanities

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The mathematical significances of the fractal interpretative traditions of the *Classic of Changes* have been neglected for millennia. While China's leading mathematical logician Shen Youding (1908-1989) "started the real scientific research on the hexagram order of the *Classic of Changes*"(*Zhexue yanjiu*1989.5, back cover), he limited his work on the "Principle of Architectonic". From the perspective of Mathematical Humanities, we see fractal interpretations of the *Classic of Changes* have remarkable representations in both the excavated texts and the transmitted canonical traditions. As the excavated Mawangdui silk manuscript version of the *Classic of Changes* illustrates, the iterations of all the Eight Trigrams serving as the inner trigrams of the eight sets of the hexagrams generate the sixty-four hexagrams, which demonstrate a typical mathematical interpretation of the original *Classic of Changes*. As for examples in the transmitted textual tradition, similar examples can be found from a wide range of divinatory and philosophical texts, such as Jing Fang's (77 BCE – 37 BCE) *bagong* hexagrams and Shao Yong's (1011-1077) diagram combining both square and circular hexagram charts, the later of which was closely related to German philosopher and mathematician Gottfried Wilhelm Leibniz's (1646-1716) development of the binary system that further defined the birth of Fractal Geometry in 1970s. This paper argues that the fractal interpretations of the *Classic of Changes* were well established far before the modern development of the idea -- and even the specific word -- of "fractal", and that the Western theory and understanding of the fractals contributed and will continue to contribute positively to the cross-cultural philosophical interpretations of the *Classic of Changes.*