Preface for the English Edition

In 2001, I was given the opportunity to talk about ORIGAMI and ORIGAMICS in the plenary lecture at the Third International Meeting of Origami Science, Mathematics and Education in Asilomar Conference Center, California.

"ORIGAMI" has become an international word at present, such as in Origami Science, which is originally derived from the Japanese word "origami". They differ somewhat in meaning as well as pronunciation. The accent of the former falls on the third syllable (ga) while the latter on the second one (ri), that is, ori[ga]mi and o[ri]gami. Most Japanese pronounce it with a nasal sound. In Japan, origami is usually a handicraft hobby designed mainly for children. Thus almost all the origami books are in the juvenile sections of bookstores, even though some are for enthusiasts and origami scientists. I felt the necessity to give a new name for describing the genre of scientific origami, hence I proposed the term "ORIGAMICS" at the Second Origami Science Meeting in 1994.

The term origamics is composed of the stem "origami" and the suffix "ics", which is often used to indicate science or technology, as in mathematics. Another definite difference between origami and origamics is their end product. The former produces paper models of animals, flowers, fruits, vehicles and so forth; while the latter often does not create beautiful or skillful products, but rather some paper with a lot of wrinkles, furrows or creases.

My first mathematical findings on origami were done in 1978. At that time I was a biologist majoring in arthropodan morphology, and

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observing tiny insect embryos under a microscope, however, there was no relation between origami mathematics and insect egg study. As the microscopic study needed much time with mental fatigue and eye-strain, I often had a recess and folded a piece of paper torn off from a small notebook for refreshment. Then I discovered some interesting phenomena in the folded paper, and corresponded about them with Professor Koji Fushimi, who was a famous theoretical physicist and also known as origami geometrician. He introduced my findings in the monthly magazine 'Sugaku (Mathematics) Seminar' 18(1):40-41, 1979, titled "Origami Geometry, Haga Theorem" (in Japanese). The theorem was named by him using my surname.

In the subsequent years I discovered several more phenomena on the square and rectangular sheets of paper one after another. The detailed explanations were published in Japanese magazines such as 'Sugaku Seminar' (Nihon-Hyoron-Sha), 'Sugaku Kyoiku' (Meiji Tosho-Shuppan), 'ORU' (Soju-Sha) and 'Origami Tanteidan' (Nihon Origami Gakkai).

I published three books on Origamics, namely: 'Origamics niyoru Sugaku Jugyo' (Meiji Tosho-Shuppan), 1996, 'Origamics Part 1. Geometrical Origami' (Nihonhyoron-sha), 1998 and 'Origamics Part 2. Fold Paper and Do Math' (ditto), 2005. My colleagues recommended me to write an English version of these books. Prof. Josefina C. Fonacier of University of Philippines and Mr. Mikio Masuda of University of Tsukuba (see "Until the Publication of the English Edition") showed special interest and they eagerly drove to translate one of those books into English and to publish it. I responded them and started translation. However, due to my retirement and changing circumstances, I did not managed to complete it. I greatly appreciated and in debt to their kindness and encouragements.

Fortunately, after 10 years of interruption, Associate Professor Masami Isoda of the University of Tsukuba proposed to make a newly edited English version of Origamics as a part of his CRICED activities. I naturally agreed and added new chapters to the original plan. I gave my hearty thanks to Professor Isoda for his proposal and collaboration with Professor Fonanier.

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