



紙コプタの自宅実験によるパラメータ設計 の遠隔授業（第2報）

*Teaching Parameter Design through Remote Lectures
Using a Paper Helicopter Model (2nd Report)*

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In a series of remote lectures, the authors taught parameter design to fourteen graduate school students by having them perform experiments on paper helicopters at home. The students performed an L_{18} orthogonal array experiment aimed at increasing the flying time of a paper helicopter made public by NASA for use by educational instructors, and carried out parameter design using the S/N ratio of this time, which they treated as a biggest-is-best characteristic. All of the students improved on the flying time and S/N ratio of the NASA model, but encountered an increased noise factor contribution ratio in the analysis of variance. Having made the students aware of experimental error, as a further example we presented a dynamic-characteristic experiment in which the input was the initial altitude and the output was the flying time, showed that while the mean value achieved by the NASA model was small, the variation was also small, and pointed out that without a dynamic-characteristic experiment this feature would not be revealed. The last lecture addressed goals, issues, and difficulties in the students' MS or PhD thesis work, relating these topics to the series of paper helicopter experiments, and had the students state factors lurking in the experimental equipment and procedures that had caused scatter in their data.

Key words : parameter design, paper helicopter, remote lecture, quality engineering, Taguchi methods, S/N ratio, sensitivity, ANOVA, ideal function

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1. 緒言

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