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A teaching material for orthogonal transformations using rotation of cuboids

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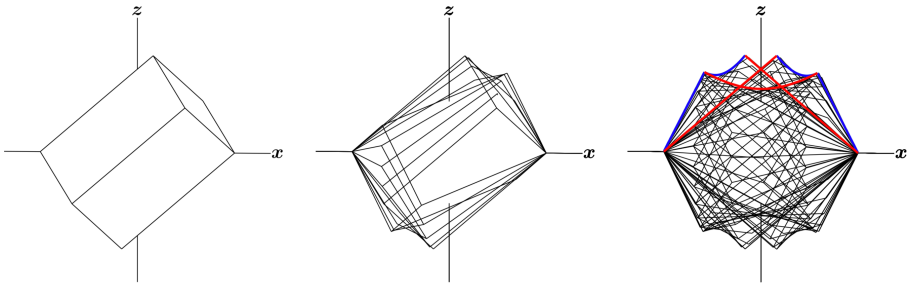
In mathematics classes at collegiate level, teachers often use materials for spatial figures such as graphs of two-variable functions or surfaces of revolution. Recently, these are presented in various ways as follows.

1. Handouts to be distributed.
2. Slides to be presented on the screen.
3. Figures to be manipulated by students on tablets.
4. Physical models to be displayed or passed around.

The data of these teaching materials can be generated by KeTCindy[1]. KeTCindy also has functionality to easily make PDF slides. Slides are useful in class plans when combined with handouts, tablets, and physical models.



In this talk, we treat rotation of some types of cuboids. Each of them is rotated around an axis through two opposite corners, which can be related to orthogonal transformations in three-dimensional Euclidean space. We also show some examples of teaching materials in various ways about this theme.

Keywords
KeTCindy, 3D models, spatial figures

References

[1] N. HAMAGUCHI; S. TAKATO, Producing teaching materials for spatial figures with KeTCindy and the educational benefits of combining materials. In *Computational Science and Its Applications – ICCSA 2017, Part IV*, 262–272. Trieste, Italy, 2017.