

New Collaboration on Modular Origami and LED

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We have developed modular origami models with a light-emitting diode (LED) inside. The LEDs are high power white-light LED chips that are brighter than other types of LED. It is very small and cooler than a regular lamp, and it doesn't crack. It is powered by low energy, so it doesn't need a large battery. These features are very good for use with paper models. We can use many kinds of paper, even very thin and delicate sheets, without worrying about fire hazards.

The irradiation angle of one LED chip is about 120 degrees. Moriwaki made a connected chip from two LEDs that irradiates in almost all directions. Kawamura designed some modular models for this LED. Sheets of paper are overlapped with each other inside the model and we can see these geometrical patterns as a shadowgraph on top of the model's surfaces.

For example, "Checkered Lantern" (Fig.1) is an easy model for beginners designed by Kawamura. The model is made of six modules. Each square on the surface looks like one sheet layer forms it. However they have another two layers inside and make a checkered pattern when the LED is turned on. We made an Origami-LED kit that includes papers, diagrams, LED and a battery module. This kit is a very good tool for modular origami workshops. This easy-model kit is for all people, not only for beginners but also for advanced folders of modular works. They can complete the model within half an hour or one hour, and the model becomes a nice small lamp.

Harder model kits are for advanced folders who like challenges; they can complete shining large cool polyhedra. I will show photos of examples of these (Fig. 2). For professional people, they can design their own origami model.



Fig. 1 Checkered Lantern

Fig. 2 Example of a polyhedra