

## FMfI2023 Poster Session

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Poster title	<b>Dynamical Systems in Origami/Kirigami Tessellations</b>
Abstract	<p>Many origami/kirigami-based engineering applications have developed based on the periodic-folding of periodic patterns. Though nonperiodic-folding of periodic patterns paves the way to nonlinear phenomena that cannot be feasible through periodic-folding, its high complexity makes it challenging to capture the phenomena mathematically. In this presentation, we propose a novel mathematical model for the analysis of nonperiodic-folding, which we call the dynamical system of origami/kirigami tessellations induced by the coupled folding motion of unit cells. Using the model, we introduce some phenomena, including the undulation of tubular origami tessellations and the solitons with the propagation of the localized deformation.</p>
Short Bio	<p>Rinki Imada is a Ph.D. student in the Graduate School of Arts and Sciences at the University of Tokyo. He studied computer sciences and mathematics and received his M.S. in multidisciplinary sciences from the University of Tokyo. His research interests lie in the kinematics of geometric objects such as origami, kirigami, and linkages. He is now trying to understand the hidden mathematical structure behind phenomena that arose in such geometric objects and create novel characteristics using the theory of dynamical systems.</p>