

KAMITA LAB.

Towards the realization of low-cost space transportation systems



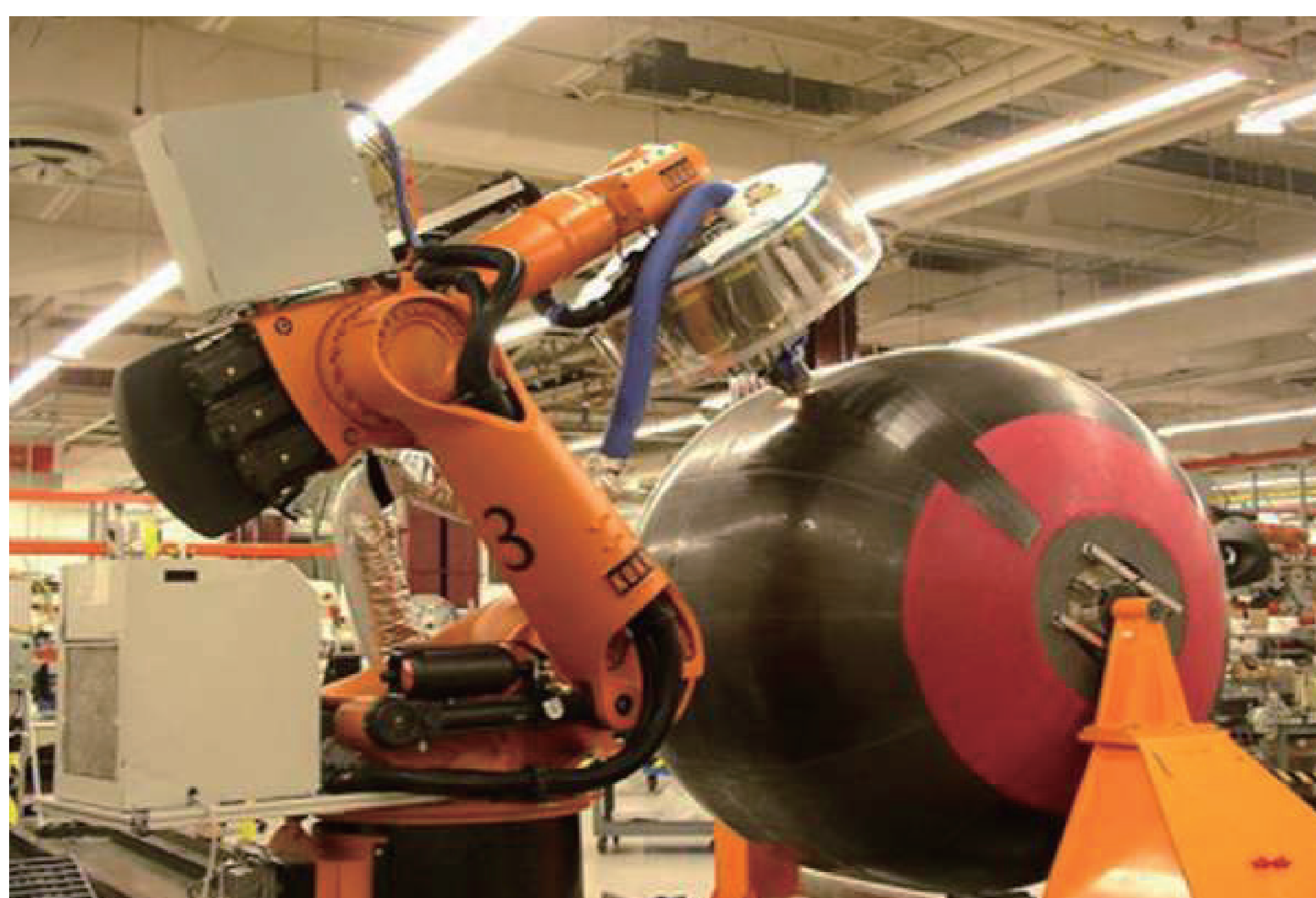
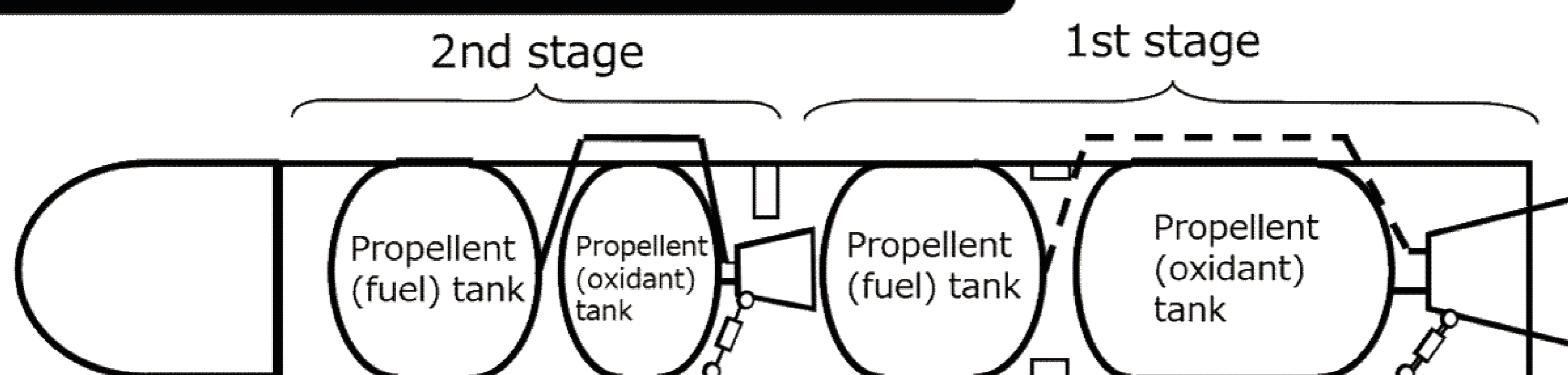
Guest Chair for Advanced Interdisciplinary Modeling

Aerospace Structural Mechanics

In order to realize the low-cost space transportation system, we are conducting research aimed at applying carbon fiber reinforced plastic (CFRP) materials to reduce the weight and cost of propellant tanks, which account for many parts of the rocket structure.

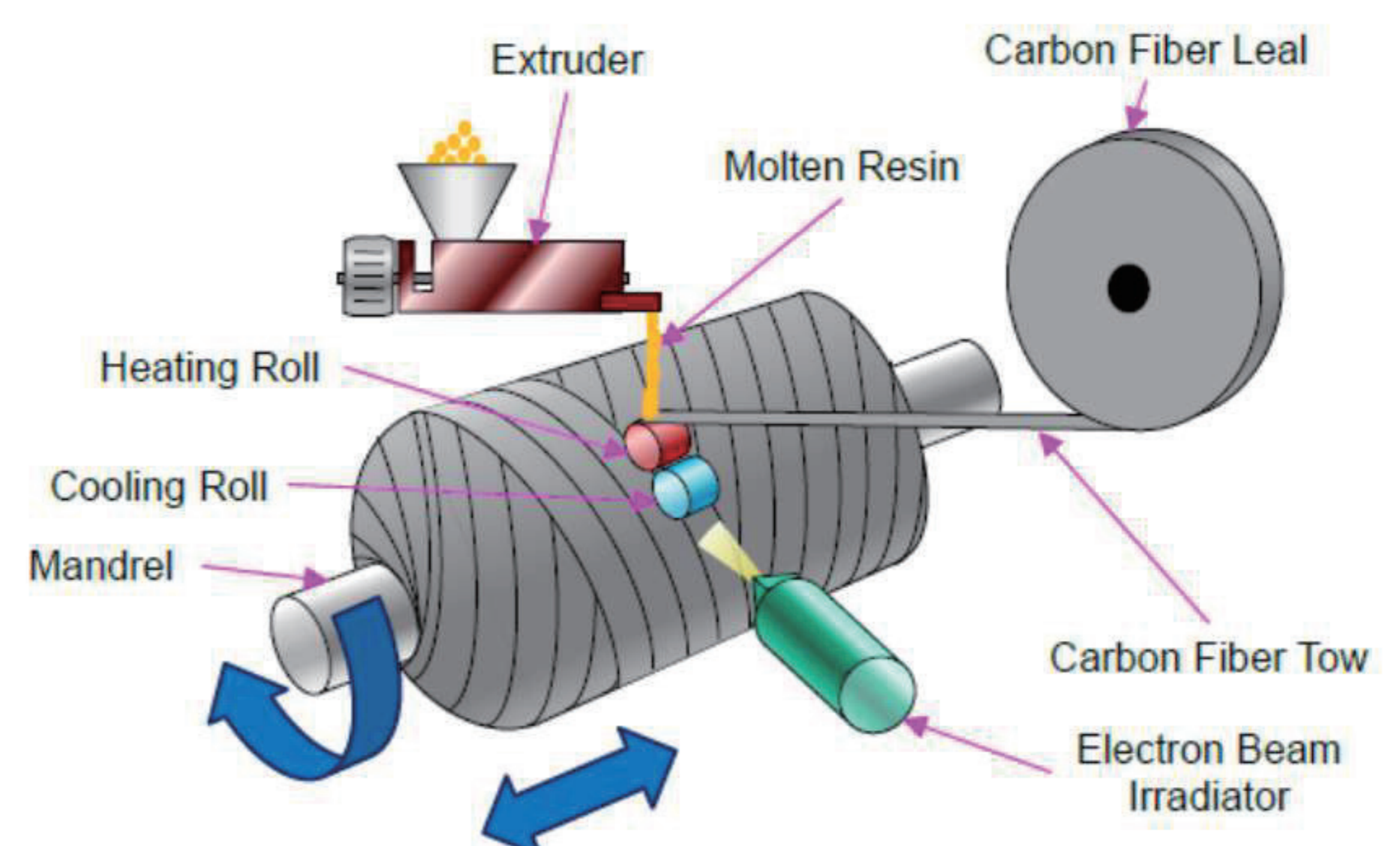
- Application of the automated fiber/tape placement (AFP/ATP) technology that can reduce manufacturing costs
- Matrix resin suitable for AFP/ATP
- Predicting the incidence of micro cracks in matrix resin

Schematic diagram of a Rocket



D. A. McCarville et al., Comprehensive Composite Materials II, Vol.3, Elsevier, 2018, pp.153-179.

Examples of Automated Fiber Placement



T. Kamita, Journal of the Japan Society of Mechanical Engineer (in Japanese), Vol.125, No.1242, 2022, pp.18-22.

Modification of matrix resins and optimization of automatic tape placement processes for low-cost fabrication.