

Description of Additional Supplementary Files

Supplementary Movie 1 (.mp4 format). Principle for reprogrammable mechanical computing.

Supplementary Movie 2 (.mp4 format). Mechanical analog computing with robotic crawling.

Supplementary Movie 3 (.mp4 format). Solving calculus equations with serial mechanical computing.

Supplementary Movie 4 (.mp4 format). Binary digital logic based on parallel mechanical computing.

Supplementary Movie 5 (.mp4 format). Mechanical Hadamard operations with experiments.

Supplementary Movie 6 (.mp4 format). Robotic crawling with nonlinear band gap property.

Supplementary Movie 7 (.mp4 format). Velocity responses during robotic crawling.

Supplementary Movie 8 (.mp4 format). Crawling performance and multi-gait locomotion.

Supplementary Movie 9 (.mp4 format). Multi-functional performance during robotic crawling.