# Dynamics modeling of a soft arm under the Cosserat theory

Jie Ma, Zhiji Han, Linsen Yang, Gaochen Min, Zhijie Liu, Wei He.
Automation and Electrical Engineering, University of Science and
Technology Beijing, China

- In this paper, inspired by the Lagrangian model of a rigid robot, a Newton-Euler inverse dynamics algorithm for an equivalent continuous manipulator is adopted to compute all matrices of the Lagrangian inverse dynamics model about the soft arm.

- The iterative process is also improved to increase the computational efficiency.

- Eventually, a minimal set of ordinary differential equations is given for later control design.
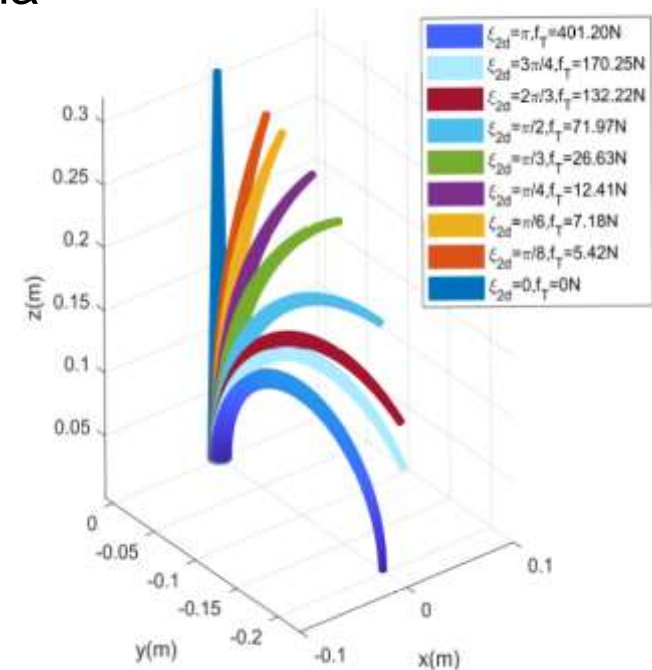
The relationship between the tension and desired angular strain