

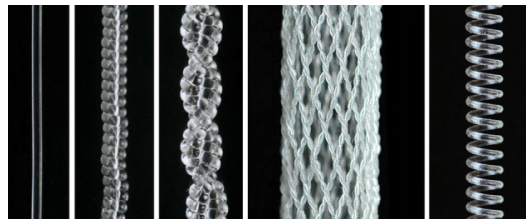
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INGENIEURPRAXIS

Artificial muscles based on coiled nylon structures

Problem description:

The high cost of powerful, large-stroke, high-stress artificial muscles in combination with performance limitations such as low cycle life, hysteresis, and low efficiency is restricting applications. It has been demonstrated in [?] that inexpensive high-strength polymer fibers used for fishing line and sewing thread can be easily transformed by twist insertion to provide fast, scalable, non-hysteretic, long-life tensile and torsional muscles. The task in this project is to build monofilament muscle prototypes according to the proposed technique in [?] and identify their dynamic properties. Special attention should be dedicated to a workflow / setup to achieve reliable and repeatable results.



Work schedule:

Figure 1: Artificial muscle configurations, AAAS

- Literature research
- Development of monofilament coils / muscles
- System identification
- Evaluation

Supervisor: Dr.-Ing. Stefan Sosnowski

Start:

Delivery:

(S. Hirche)
 Univ.-Professor