Technion-Israel Institute of Technology
Faculty of Mechanical Engineering

הטכניון-מכון טכנולוגי לישראל
הפקולטה להנדסת מכונות

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ד׳ 20.03.2019 (י״ג באדר ב׳, תשע״ט), בניין דן קאהן, אודיטוריום 1, 13:00.

מרצה: ענבל פריד

מנחה: פרופ״מ שלי צליל

על הנושא:

השפעת כוחות מכניים על גדילה מואצת של תאי עצב סנסוריים

Stretch-induced accelerated growth in the sensory nervous system

The seminar will be given in Hebrew

תקציר ההרצאה :

Mechanical signals are important for growth and development of the nervous system. Recently, it was shown that mechanical signals can regulate axon guidance and growth in the developing brain and that the application of moderate stretch to axons promotes rapid rates of growth at the direction of applied stretch. The phenomenon of stretch-induced accelerated growth was suggested to mimic the rapid growth of neurons that elongate under mechanical tension in growing nerves after axons are connected to their targets. The mechanisms underlying stretch-mediated neuron growth acceleration are currently unknown.

To study the mechanism of stretch-induced accelerated growth, we used a home-made device to apply 10% strain to sensory neurons isolated from dorsal root ganglia, cultured on an elastic substrate. We followed axonal growth and intracellular vesicle transport. Our data indicate that upon stretch, there is increased level of anterograde transport (from the cell body to the axon tip) relative to retrograde transport (from the axon tip to the cell body) and that axonal growth rate increased by 3 fold. Our results are consistent with a recent model of transport-mediated length sensing in axons.

בברכה,

פרופ"א אתי סאס
מרכז הסמינרים