סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ד׳ 26.02.2020
(א׳ באדר, תש״פ), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: אחמד קבהא

מנחה: פרופ׳ איל זוסמן

על הנושא:

A Biodegradable Drug-Eluting Device for Localized Treatment of Bladder Cancer

The seminar will be given in Hebrew

תקציר ההרצאה :

The conventional treatment of bladder cancer via the systemic administration of chemotherapeutic agents is highly ineffective since only a small fraction of the drug reaches the affected site. Alternatively, direct delivery into the bladder through a catheter can ensure the maximal delivery of therapeutic agents at the site. However, the majority of the instilled drug is easily eliminated via urination or diluted by urine production, which lowers drug availability, while several numbers of intravesical instillations are required. To resolve the problems of conventional therapies, we developed a drug-eluting biodegradable, expandable device targeted to the renal pelvis. The device consists of poly(lactic-co-glycolic acid) (PLGA) nanofibers sheet loaded with cisplatin and rolled into a tube. The central part of the tube is axially cut and divided into equal parallel segments. Under axial compression of the tube, the thin elastic segments buckle to arches and create an ellipsoidal shell. The deflection of the arch can be predicted and controlled using a one-dimensional blister model. The urine flow rate from the renal pelvis to the bladder, across the expanded device, is then controlled by coupling the elastic deformation of the arches to the gap within the renal pelvis, and the results compared well with numerical simulations. In-vitro experimental results demonstrated sustained release profile of cisplatin from the expanded device as a function of the urine composition, and flow rate for ten days.

בברכה,

פרופ"א מתי סאס
מרכז הסמינרים