SEMINAR - סמינר

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 19.02.2018 (ד' באדר, תשע"ח), בבניין דן קאהן, אודיטוריום 1, 14:30.

מרצה:

Dr. Anya Jones
Associate Professor
Department of Aerospace Engineering
University of Maryland

על הנושא:

Modeling reverse flow dynamic stall for high advance ratio rotorcraft

The seminar will be given in English

להלן תקציר ההרצאה:

A 1.7 m-diameter Mach-scaled slowed rotor was tested at advance ratios up to $\mu = 0.9$ and three shaft tilt angles. Two-component time-resolved particle image velocimetry was used to characterize the flow field around a blade element in the reverse flow region, nominally positioned at $\psi = 270^\circ$ and $y/R = 0.4$. Four dominant flow structures were observed: the reverse flow starting vortex, the blunt trailing edge wake sheet, the reverse flow dynamic stall vortex, and the tip vortex. As advance ratio increases, the duration of reduced time that the blade element spends in the reverse flow region also increases. This affects the strength, trajectory, and predicted vortex-induced pitching moment of the reverse flow dynamic stall vortex. Shaft tilt angle also has a strong effect on the evolution of the reverse flow dynamic stall vortex with forward shaft tilt resulting in dramatically increased strength and size. The results of this characterization and sensitivity study are compared to canonical models of flow reversal and separation. The complex three-dimensional rotor flows are shown to have many similarities to canonical two-dimensional models.

מארח: פרופ'/ח דוד גרינבלט

בברכה,

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