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 ה' 18.01.2018 (ב' בשבט, תשע"ח), בניין דן-קאהן, אודיטוריום 1 , 13:30.

מרצה: בני טבלוביץ'

מנחה: פרופ'/ח ראובן כץ

מנחה שותף: ד"ר אמנון שיריזלי, רפא"ל

על הנושא:

EBW and LBW of Additive Manufactured Ti6Al4V Products

The seminar will be given in Hebrew

להלן תקציר ההרצאה:

This study investigated the weld joint properties of additive manufactured (AM) titanium parts. The welding experiments were performed using 4 kW fiber laser beam welding (LBW) and 30 kW, 80 kV electron beam welding (EBW). Conventionally manufactured welded parts were compared to AM welded parts. In addition, the combination of welding AM parts to conventionally manufactured parts was examined. The welds were analyzed and compared in terms of weld bead profile, tensile strength, microhardness, macro examination, and nondestructive testing. The results revealed certain differences between the welds of AM parts and the welds of conventionally manufactured parts. Significant differences were found in the weld fusion zone (FZ) and in the material's thermal conductivity. The FZ in the AM material was wider and had a straight shape versus the neck shaped fusion line in conventionally manufactured material. A thermal finite element model was used to simulate the LBW. The simulation supported the experimental observations. The results indicate that it is possible to achieve good quality welds of AM to AM, and of AM to conventional Ti6Al4V, for aerospace applications using both EBW and LBW.

בברכה,

פרופ"א מתי סאס
מרכז הסמינרים