



MECHANICAL ENGINEERING STUDENT SEMINAR

Wednesday, June 21 2022 at 14:00, Betty and Dan Khan Building, Auditorium 1.

Online: <https://technion.zoom.us/j/97909814784>

Microstructural and Tensile Properties of AlCrFe₂Ni₂ High Entropy Alloy

Eyal Eshed

Adviser: Prof. Shmuel Osovski

In recent decades, many researchers have gravitated towards exploring the properties of a unique class of alloys, termed "high entropy alloys" (HEAs). These metallic alloys ideally constitute of four to five elements in equimolar ratios. The synergistic effect of this blend of elements is utilized to design alloys with improved mechanical properties, especially at high temperatures.

One of the most promising HEAs is the Al-Cr-Fe-Ni-Co system. However, the rapid increase in cobalt prices and demand has led the scientific community to pursue cobalt alternatives and study the effect of removing it altogether. In this talk, the microstructure and tensile properties of AlCrFe₂Ni₂ HEA will be presented, along with their dependence on both thermal history, and additions of small volume fractions of alloying elements, such as molybdenum and carbon.

The experimentally observed variations in mechanical properties will be discussed with respect to the underlying microstructure, and correlated with the fractographic analysis and in-situ observations.

Note: seminar will be given in Hebrew