

# Alloy development and mechanical properties of low density high-temperature alloys based on high-entropy effect

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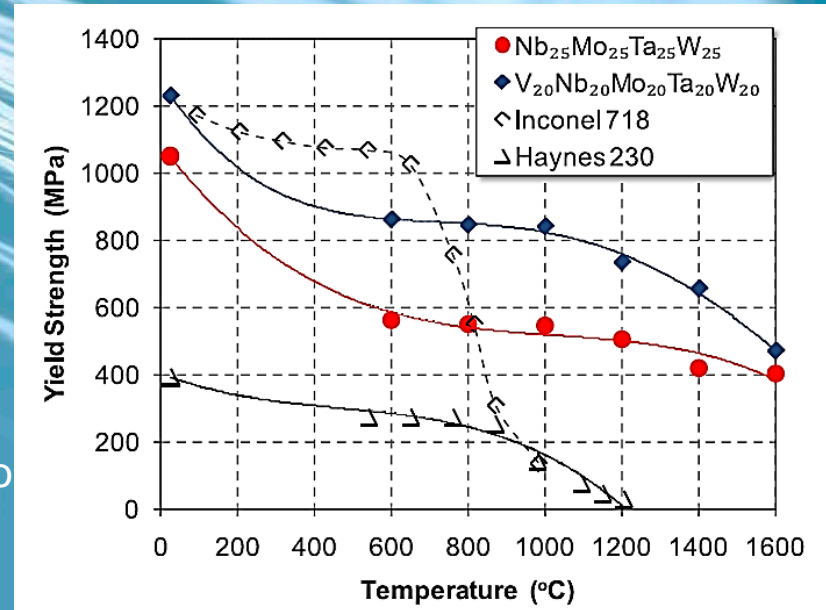
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Advisor: Dr. Sheng Guo

Research Scope:

- Achieving simultaneously both high strength and high tensile ductility, and preferably also high wear resistance and thermal stability, through alloy design (New Materials)
- Carrying out thermomechanical treatments to further refine the microstructure and hence mechanical properties
- Developing new materials based on the high-entropy effect, for potential industrial applications where light weight and high temperature properties are demanding (New Applications)



The temperature dependence of the yield stress of two representative high-entropy alloys,  $Nb_{25}Mo_{25}Ta_{25}W_{25}$  and  $V_{20}Nb_{20}Mo_{20}Ta_{20}W_{20}$ , versus two superalloys, Inconel 718 and Haynes 230

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