

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR****Online**

**Title:** High entropy alloys based on a first-principles study

**Speaker:** Miss Lyu Shuang (PhD candidate)  
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**Date:** 19 April, 2021 (Monday)

**Time:** 10:30 a.m.

**Zoom Link:** 1) Link to join the meeting:

<https://hku.zoom.us/j/92656576847?pwd=MnF5dVNHbWVpcmQ4U05nLzhzU1NsQT09>

2) Meeting ID: 926 5657 6847

3) Password: 497834

**Abstract:**

Traditional alloys are composed of one principal metal with addition of other alloying elements, which limits the improvement for their properties and application in severe conditions. With four or more principal elements in near equal atomic percentage and random distribution, high entropy alloys were found in recent years to possess excellent properties, including high temperature strength, cryogenic toughness, oxidation resistance, and radiation resistance performance. For example, CoCrFeMnNi high entropy alloy has been reported with an excellent balance between strength and ductility, and enhanced radiation tolerance due to the suppression of void formation by two orders magnitude at elevated temperatures with reference to pure metals, which emphasize the potential of applying this kind of alloys as structural materials in some special fields. To investigate the internal microstructure evolution mechanism for the excellent performances of high entropy alloys, especially at severe environment, density functional theory and molecular dynamics simulations will be adopted in this study. This seminar will present a summary of the major accomplishments on high entropy alloys in recent years, and identify scientific issues need further investigation.

**ALL INTERESTED ARE WELCOME**

For further information, please contact Dr. Y. Chen at 3917 7095.

**Research area: Advanced Materials**