



國立清華大學  
NATIONAL TSING HUA UNIVERSITY

**Colloquium**  
**Department of Engineering**  
**and System Science,**  
**Institute of Nuclear Engineering**  
**and Science,**  
**National Tsing Hua University**

**Atomic Structure on Metal and  
Semiconductor Materials**

Investigations on atomic structure evolutions play an essential role in further correlating the properties of metal and semiconductor materials. In this work, we employ Cs-corrected scanning transmission electron microscopy (STEM) to reveal the microstructure evolutions of different types of nanoscale  $\eta$ -MgZn<sub>2</sub> precipitates in the aged 7000 series aluminum alloys. Furthermore, the hierarchical structure evolutions of the annealing twins and deformation twins in the FeCoNiCrMn high-entropy alloys presumably correlate to the improvement in mechanical strength and ductility simultaneously. On the other hand, the atomic fine structures in between different interfaces of the semiconductor materials further provide detailed information with respect to the processing.

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