Insights into a High Temperature Strengthening Mechanism of an Aluminum Alloy

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The fuel efficiency of automobiles can be increased if the operating temperatures can be increased above 250°C. New aluminum alloys are needed for improved performance at these new extremes. In this regard, Al-Cu alloys were investigated with respect mechanical properties, phase content and microstructure using laboratory and synchrotron radiation, metallography and TEM. The challenge becomes preserving the small size of the metastable θ′ (Al_2Cu) precipitates with time at temperature. This talk will summarize progress to date on a new Al-Cu alloy.

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