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**TMS 2017**  
146<sup>th</sup> Annual Meeting & Exhibition



**February 26 – March 2, 2017**  
**San Diego, California, USA**

## **GAMMA (FCC)/GAMMA-PRIME ( $L1_2$ ) CO-BASED SUPERALLOYS II**

The first report of a stable  $\gamma'$ - $L1_2$  phase in the ternary Co-Al-W system in 2006 has given rise to significant research on a new class of precipitation-strengthened alloys, analogous to Ni-based superalloys, which are most often utilized in high-temperature turbine engine components. These materials exhibit a yield stress anomaly similar to their Ni-based counterparts, where the yield strength increases with temperature, and demonstrate promising high-temperature flow stress behavior and creep resistance, outstanding wear resistance, and potentially better castability. However, some challenges still exist in the development of future industrially relevant Co-based  $\gamma'$ -strengthened alloys, including increasing  $\gamma'$  solvus temperature, improving environmental resistance, and decreasing component weight critical to many turbine engine applications.

This symposium continues in the tradition of the first TMS symposium on  $\gamma$  -  $\gamma'$  Co-based superalloys held in 2014 and will bring together the growing community of researchers involved with further understanding and developing  $\gamma'$  strengthened Co-based superalloys for high temperature and other applications. Experimental and computational investigations on Co- and Co-Ni-based alloys that focus on understanding materials response, use ICME-based approaches, and aid in rapid alloy development will be highlighted. Topics of interest include strategies for increasing the  $\gamma'$  solvus temperature, improving environmental resistance, evaluating high-temperature mechanical performance, assessing phase stability and phase transformation mechanisms, and advancing processing methods of these promising new materials.

### **ORGANIZERS**

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