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



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

## **GAT-2017 (GAMMA ALLOYS TECHNOLOGY - 2017)**

Gamma (TiAl) alloys are emerging as new metallic high-temperature structural materials for replacing superalloys. Their recent applications in aero-engine low-pressure turbine blades for intermediate service temperatures (up to 750°C) and automotive valves and cast turbocharger wheels for higher (metal) temperatures (800-950°C) establish a foundation of gamma alloy materials-processes-manufacturing technology. Despite these exciting developments and their sustained expansion, the temperature capability and property balance of current alloys for the aero-engine blades have remained the same for the last 10 to 25 years. The service temperatures for the automotive components have been slowly raised for the last 15 years through compositional adjustments, however, at the expense of the reliability, which has slowed wide-spread adoption. Both situations are in contrast to the steady advances made in other technologies, such as casting, joining, machining and surface protection.

Presentations will address significant achievements and ongoing efforts/outcomes in all areas. The future of gamma alloy technology cannot rely on the continuation of reporting and working on current materials and related technologies. Correct understanding of current technologies (achievements, issues, and limitations) is the first step for moving gamma alloy technologies forward to the next level.

Discussion sessions are planned to critically assess the issues and limitations of current materials technologies. The needed advancements are best made by adopting application-specific R&D processes that start with figuring out (conventional alloys) or designing (beta gamma alloys) new or modified alloy-microstructure combinations that will yield distinctly greater service temperatures and/or reliability. These processes will be introduced and discussed as accelerated materials exploration ways for advanced materials.

### **ORGANIZERS**

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### **PROCEEDINGS PLANS**

A stand-alone proceedings volume is planned for this symposium. Manuscripts for accepted abstracts are due September 1.

### **SYMPOSIUM SPONSOR**

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