

## **Structure transition mechanism in undercooled CuNi alloys**

### **ABSTRACT**

Taking a Cu55Ni45 alloy as experimental alloy systems, we systematically studied the method of obtaining deep undercooling of alloy melt. Stable deep undercooling of alloy melt was obtained by the combination of molten glass purification and cyclic overheating. Combined with the nucleation and growth mechanism of undercooled melt, the microstructure evolution and grain refinement mechanism of the alloy were systematically studied in a wide undercooling range. The grain refinement solidification structure under large undercooling was analyzed by EBSD technology. Combined with the typical characteristics of recrystallization in metallographic pictures, it was finally confirmed that the grain refinement was caused by recrystallization.