Nanostructured stainless and carbon steels with super strength and good ductility

Peiqing La, Yuehong Zheng and **Min Zhu**

Lanzhou University of Technology, China

The 304 and 316L stainless steels and 1020 and 1045 carbon steels with nano/micro-crystalline structure were prepared by an aluminothermic reaction casting method. The microstructural evolution of the stainless steel after annealed with different time and temperature, rolled with different thickness reduction and temperature, first cogged and followed rolled with different thickness reduction and temperature were studied. The microstructural evolution of the carbon steel after annealed with different time and temperature, rolled with different thickness reduction at 600°C. By analysis the grain size of nanocrystalline austenite, submicrocrystalline austenite and ferrite, and their volume fraction in stainless steels; the volume fraction and lamellar spacing of the pearlite, the shape of the cementite in pearlite in carbon steels. We raised the mechanisms of microstructure evolution.

Speaker Biography

Peiqing La is currently working as a chair professor in College of Materials Science and Engineering at Lanzhou University of Technology, China. He has published more than 10 papers in the international journals. His research areas mainly focus on fabrication, characterization and properties of nanocrystalline materials.

e: pqla@lut.cn

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