304-156 Effect of the vanadium and niobium in the structure of 0.7 % C steel used in railway wheels
Solange Tamara da Fonseca
Fonseca, S. T. (1); Jr Lucredi, H. J. (1); Finamor, F. P. (1); Ramirez, A. J. (2); Afonso, C. R. M. (3); Sinatora, A. (4); Mei, P. R. (1)/(1) Unicamp; (2) CNPEM/LNNano; (3) UFSCar; (4) Poli-USP
Countries with large dimension territorial should use the railway modal for the load transportation, due to the good relation cost-benefits. To increase the railroad car capacity it is also necessary to improve the mechanical strength and wear resistance of the wheels without losing ductility. This work studied the influence of vanadium and niobium microadditions on the microstructure of 0.7 % C steels used in railway wheels. Through of a Gleeble thermomechanical simulator it was possible to obtain the continuous cooling transformation (CCT) curves for the steels with and without Nb or V addition. It was also analyzed the microstructure of steels by optical and SEM and the hardness was measured at different cooling rates. The precipitation of the carbides was characterized by TEM. The addition of V and Nb reduced the temperature for pearlite formation which reduced its interlamellar spacing and increased the hardness.