Table 3 Performance test of the fixed-interval boxcar integrator

T_g/s	0.33	0.30	0.26	0.22	0.14
T_r/s	52	55	62	80	115
$\Delta V_{p\text{-}p}$/mV	0.5	5	15	25	26

6 Conclusions

(1) In the low-repetition-rate use, the fixed-interval mode boxcar integrator is of higher time efficiency than the fixed-point mode boxcar integrator. If the gate width is appropriately selected, the third harmonic component can be thoroughly rejected.

(2) By combining trapezium-wave constant current exciting circuit and signal processing circuit whose principal part is the fixed-interval boxcar integrator, low resistance measurement of inductive load coil is realized with relative high accuracy.

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Effect of Pre-deformation on Abnormal Segregation of Grain Boundary during Recrystallization Process

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Abstract: The softening rates of Fe-30%Ni alloy containing boron after 10% and 40% deformation at 1 000℃ have been measured by a method of interrupted compression, the recrystallization process has also been evaluated. The moving velocity of the boundary of new recrystallizing grain which was growing into the deformed grains has been calculated semi-quantitatively. By means of PTA technique , the abnormal segregation phenomenon on the moving boundary during recrystallization and the influence of pre-deformation have been investigated and the amount of B segregation on moving grain boundaries has been measured .Results indicate that the abnormal segregation of boundaries, when the new grains are growing, is concerned with the pre-deformation and the moving velocity of the bourdaries. This phenomenon is discussed by the grain boundary widening mechanism.

Key words: boron; pre-deformation; recrystallization; boundary segregation

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AGC-ASC Decoupled Neural Networks Predictive Control Method

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Abstract: The coupling models for the thickness-crown objects is established. A Dynamic Matrix Controller based on the TH neural networks is given with the convergence property. The computer simulations with the AGC-ASC decoupled neural networks predictive control system is complemented and it shows that the stable states of neural networks are reached with on more that one μs, this has not only satisfied the fast property of rolling process, but also obtained a higher control index.

Key words: control/dynamic matrix control; neural networks; AGC-ASC synthetic system; convergence

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