

INTERNATIONAL CONFERENCE
KRASNOYARSK, RUSSIA
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Science & Technology City Hall

Krasnoyarsk

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**«Conference on Applied Physics,
Information Technologies and Engineering»
APITECH-2019**
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**«Automatic control system development and implementation for
melting in electric arc furnaces»**

E. S. Martynova and V. Yu. Bazhin

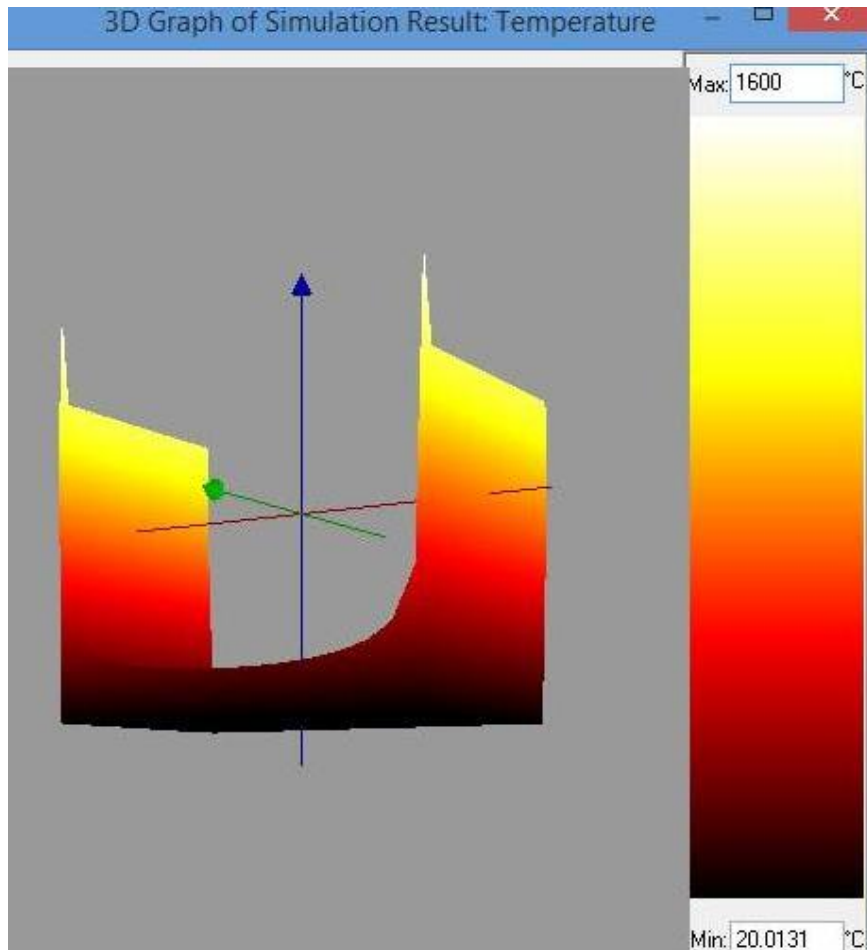
The furnace thermal state control during the melting process and the effective control of arc steel-melting furnace are the urgent tasks for the metallurgical industry, since these issues are not resolved in full at present

- Perform studies of factor changes in the main technological parameters of ASMF-90
- To substantiate the need for the introduction of automated control of the melting process of arc steel-smelting furnaces
- Based on the study of the process, to propose a method for monitoring the thermal state of arc steelmaking furnaces



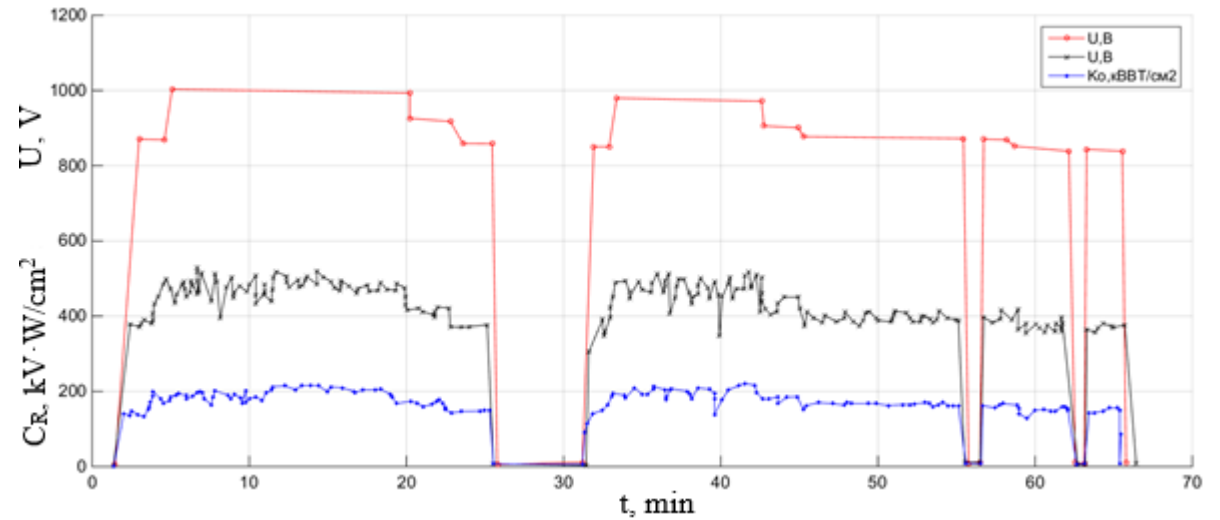
Solution methods

ASMF lining temperature profiles

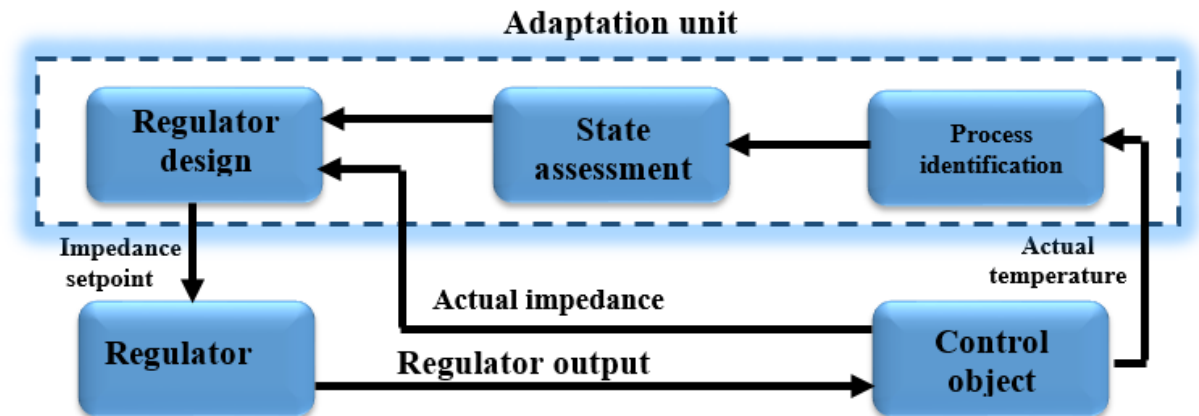


Graph of refractoriness coefficient dependence on voltage changing when switching steps of transformer

03



Structural diagram of adaptive process control system for ASMF temperature monitoring



Conclusions

Results, implementation

- The issues of steel-melting control are analyzed by the example of the Russian metallurgical plant.
- Studies were carried out and the necessary experimental data were obtained for further work.
- A plan for a stepped resolution of the existing automation issues has been developed.
- An algorithm for controlling ASMF-90 arc steel-melting furnace thermal state is presented. On the base of this algorithm, a modernized automatic process control system was developed and proposed.

Contacts

Martynova Elizaveta

Saint-Petersburg Mining University, 21 lines d.2, Vasilyevsky Island, St.
Petersburg,
199106, Russia

E-mail: : lisochnka-solnce@mail.ru

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