1. **G.A. Kosnikov, A.S. Eldarkhanov, A.V. Kalmykov, E.N. Bespalov.** Alloys with increased neutron-absorbing properties».

The basic presently used element to provide the neu-tron-absorbing properties of aluminum-matrix composite alloys is boron. Gadolinium is more efficient than boron, as an element that ensures the absorption of thermal (slow) neutrons. Aluminum-gadolinium alloy and composite aluminum-matrix alloy containing aluminium oxide were developed and studied. According to neutron-absorbing properties, the developed alloys exceed boron-contain-ing aluminum-matrix composites.
A technology for introducing «heavy» particles into alu-minum melts, based on combining methods of liquid-phase technologies and powder metallurgy, has been developed.

Key words. Aluminum, boron, gadolinium, composite, gadolinium oxide, «heavy» particles, liquid-phase tech-nologies, powder metallurgy, structure, properties.

2. **ADEL NOFAL CMRDI**. Metallurgical aspects of High-Chromium White Irons.

The article contains materials about use of high-chromium irons for wide range of castings for different industrial sectors. Contains: chemical composition, mechanical and operational properties of cast irons.

Key words: high-chromium iron, white iron, abrasion resistant cast irons.

3. **D.A. Volkov, A.D. Volkov, A.P. Melnikov, A.V.** Efimenko. Die casting development prospects for production of shaped castings and milling balls in coated dies.

The article provides the results of carrying out of ex-perimental researches on production of castings in the coated dies. The advantages of producing a wide range of castings according to this technology are presented. The equipment based on this technology is developed and mastered in production.

Key words. Coated die, shuttle-type machine, wear parts.

4. **E.B. Ten, P.V. Petrovskiy, G.E. Ionova.** Features of the formation of component sections
in composites «steel—aluminum» and «steel—bronze».

The paper presents the results of a study of the physi-cal and chemical compatibility of components in the production of cast composites «steel—aluminum» and «steel—bronze» by liquid-phase alignment. It is shown that the physical compatibility of composites can be achieved by preliminary special preparation of the sur-face of the reinforcing component and by the evalu-ation of the chemical interaction of the components.

Key words. Composites, physical compatibility, compo-nents.

5. **V.A. Kurganov, A.A. Tretyak.** Modified blast-furnace cast iron for foundry.

A special blast-furnace modified cast iron is proposed as a charge material for the smelting of cast iron in foundries. The production of this material in metallurgy and consumption in the foundry industry are economically rational in both industries.

Key words. Pig-iron, modification, graphitizing and refining effect.

6. **R.D. Farisov, M.R. Hairullin**. Cast iron chaplet for cast iron parts operating at wide temperature range.

It is proposed to produce chaplets made of cast iron, which are recommended for use in the production of cast iron castings operating at wide temperature range. Application of cast-iron chaplets instead of steel ones makes it possible to maintain the homogeneity of the structure of the cast-iron casting, which is of no small importance in the operation of critical parts.

Key words: Chaplet, cylinder block, microstructure.

7. XIII International Foundry Congress and International Exhibition «Lityo-2017».