# Game control problem for a system of distributed equations under complete and incomplete information

## V. Maximov

Institute of Mathematics and Mechanics,
Ural Branch of the Russian Acad. Sci.

maksimov@imm.uran.ru

**Abstract:** Two complementary game problems of guaranteed positional control for a dynamical distributed system described by phase field equation under complete and incomplete information on system's phase states are considered. The equations characterize the process of solidification of a liquid medium in the bounded spatial domain. The problems are investigated both from the viewpoint of the first player (the partner) and of the second player (the opponent). For both players, their own procedures for forming feedback controls are specified. These procedures are stable with respect to informational noises and computational errors. It is established that solutions of the problems under complete and incomplete information are equivalent in the sense of asymptotically guaranteed results. The solutions are based on the method of extremal shift and the method of stable sets from the theory of guaranteed positional control and use procedures of the stable dynamical inversion of controlled systems.