

## STICK-SLIP MODE OF BOUNDARY FRICTION AS THE FIRST-ORDER PHASE TRANSITION

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### S u m m a r y

A tribological system consisting of two contacting blocks has been considered. One of them is arranged between two springs, the other is driven periodically. The kinetics of the system has been studied in the boundary friction mode, when an ultrathin lubricant film is contained between the atomically smooth surfaces. In order to describe the film state, the expression for the free energy density is used in the form of an expansion in a power series in the order parameter, the latter being reduced to the shear modulus of a lubricant. The stick-slip mode is shown to be realized in a wide range of parameters, being a result of the periodic first-order phase transitions between kinetic friction regimes. The behavior of the system governed by internal and external parameters has been predicted.