

## **The thermodynamic stability of statistical models in the supercritical region**

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The conclusion of variety of critical state manifestations is based on combination of limit properties of subcritical and supercritical states. Such a consideration is carried out on the basis of examination of stability requirements.

The basic stability characteristics of a system are the determinant of stability  $D$  and the stability coefficients (the SC's). These quantities are inversely proportional to fluctuations of external parameters of the system. At the continuous transitions  $D$  and the SC's pass finite minima, that corresponds to the growth of fluctuations. The locus of these minimum is curve of supercritical transition (the lowered stability curve or quasispinodal). The limit case of these continuous transitions, when fluctuations in the system are at the high and  $D$  and the SC's pass zero minima, is the critical state. The critical point is also the limit point of some first-kind transition (the limit point of phase equilibrium curve).

In the paper the exactly solvable models of statistical mechanics are considered. Their equations of quasispinodal are derived and the conditions of its passage into phase equilibrium curve are examined.