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Heat capacity and level density of ^{94}Mo nuclei using modified Ginzburg-Landau theory

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A modified version of Ginzburg-Landau theory of phase transitions is presented, which seems to be applicable to small systems, such as a nuclei. The effect of statistical fluctuations are taken into account. The changes in the results are compared with the standard Ginzburg-Landau theory. We have used this modified version + Fermi gas model in order to calculate the heat capacity and the level density of the ^{94}Mo nuclei. Our results show that this theory reproduces the experimental data qualitatively. Since we take the effect of the statistical fluctuations into account we expect that the order parameter does not vanish at a specific temperature, as in the small systems, which is in a good agreement with our results.

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