

# On the possibility of nonuniversal behavior in 3D Ashkin-Teller model

Grzegorz Musiał<sup>a</sup> and Jos Rogiers<sup>b</sup>

<sup>a</sup>Institute of Physics, A. Mickiewicz University, ul. Umultowska 85, 61-614 Poznań, Poland, e-mail: gmusial@amu.edu.pl

<sup>b</sup>Instituut voor Theoretische Fysica, Katholieke Universiteit Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium, e-mail: jos.rogiers@fys.kuleuven.ac.be

The Monte Carlo simulations in 3D Ashkin-Teller model on a cubic lattice are performed. The study is undertaken in the region where the universality class of the phase transitions has not been unambiguously resolved yet [1, 2]. Using the finite-size scaling relation between the magnetization, the temperature and the size of the system, the method of calculation of the critical exponent  $y_h$  is proposed. The results obtained for  $y_h$  suggest such a nonuniversal behavior, because its value seems to change continuously in some interval approaching the Ising value near the tricritical points, similarly as it was observed in the 2D case [1].

## References

- [1] R.V. Ditzian, J.R. Banavar, G.S. Grest, and L.P. Kadanoff, Phys. Rev. **B22**, 2542 (1980)
- [2] G. Musiał, Phys. Rev. **B69**, 024407 (2004)

13.4 cm

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### Corresponding author :

G. Musiał

### Address for correspondence :

Institute of Physics, A. Mickiewicz University, ul. Umultowska 85, 61-614 Poznań, Poland

### Email address :

gmusial@amu.edu.pl

9.7 cm