

Calculating Critical Temperature and Critical Exponents by Self-Similar Approximants

V I YUKALOV¹ AND E P YUKALOVA²

¹*Bogolubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, 141980, Dubna, Russia.
Contact Phone: +74962163947*

²*Laboratory of Information Technologies, Joint Institute for Nuclear Research, Dubna, Russia
Contact Email: yukalov@theor.jinr.ru*

We describe a powerful and simple method for finding effective limits of divergent series. The method is based on self-similar approximation theory [1,2]. For illustration, we present the results of calculations for the critical temperature shift due to particle interactions and for the critical exponents corresponding to this phase transition. These results are in good agreement with Monte Carlo simulations and other numerical methods.

References

- [1] V I Yukalov, Phys. Part. Nucl. **50**, 141 (2019)
- [2] V I Yukalov and E P Yukalova, Phys. Rev. D **103**, 076019 (2021)