The CEP’s location and critical exponents are used to obtain the non-singular scaling functions

\[ L^{-\gamma/\nu} \chi(\tau_s, L) = f_2^s(\tau_s L^{1/\nu}) \]

\[ \tau_s = (\sqrt{s} - \sqrt{s_{CEP}})/\sqrt{s_{CEP}} \]

\[ \nu \sim 0.63 \quad \gamma \sim 1.237 \]

\[ \sqrt{s_{NN}}(\infty) \sim 45.0 \text{ GeV} \]

Data collapse onto a single curve, confirms the expected non-singular scaling function.
Data collapse onto a single curve, confirms the expected non-singular scaling functions

Susceptibility Scaling Functions – Fluctuations driven

\[ L^{-\beta \delta/\nu} \chi(\tau_s, L) = f_1^\mu(\tau_s L^{1/\nu}) \]

\[ \frac{1}{\langle N \rangle} \left( \frac{\partial \langle N \rangle}{\partial \mu} \right) = \frac{\langle N^2 \rangle - \langle N \rangle^2}{\langle N \rangle} \]

\[ \kappa_T \propto \frac{\langle N^2 \rangle - \langle N \rangle^2}{\langle N \rangle} = \frac{C_2}{C_1} \]

\[ L^{-\beta \delta/\nu} \chi(\tau_s, L) = f_1^\mu(\tau_s L^{1/\nu}) \]
Dynamic Finite – Size Scaling

- 2\textsuperscript{nd} order phase transition
  \[ \nu \sim 0.63 \quad \gamma \sim 1.2 \]
  \[ \sqrt{S_{NN}}(\infty) \sim 45.0 \text{GeV} \]

DFSS ansatz

at time \( t \) when \( \sqrt{s} \) is near \( \sqrt{s_{\text{cep}}} \)

\[ \chi(L, \sqrt{s}, t) = L^{\gamma/\nu} f(\tau_s L^{1/\nu}, t L^{-z}) \]

For

\[ \sqrt{s} = \sqrt{s_{\text{cep}}} \]

\[ \chi(L, \sqrt{s_{\text{cep}}}, t) = L^{\gamma/\nu} f(t L^{-z}) \]

M. Suzuki,
Prog. Theor. Phys. 58, 1142, 1977

Experimental estimate of the dynamic critical exponents

\[ \nu \sim 0.63 \]
\[ \gamma \sim 1.2 \]

\[ z \sim 0.785 \]