

# Problem set 7 – Quark Gluon Plasma Physics – SS 2023

Discussion in the lecture: Friday June 9

## 7.1 Fourier coefficient $v_2$ from two-particle correlations

The file `dndphi_events.csv` contains 100 events with toy data for the azimuthal angles  $\phi$  of the “produced” particles (first column: event number, second column: azimuthal angle  $\phi$ ). The angles were drawn from the distribution

$$\frac{dN}{d\phi} \propto 1 + 2v_2 \cos(2(\phi - \psi_R))$$

where  $\psi_R$  is the reaction plane angle of a given event.

The jupyter notebook `v2_analysis_to_be_completed.ipynb` reads the data and gives a hint on how to loop over all pairs of a given event.

- a) Complete the notebook by adding code at places marked with *your code here*.
- b) Calculate the value of  $v_2$ .