

To the Graduate Council:

I am submitting herewith a thesis written by Patrick J. Steffanic entitled "Hadron Yields and Ratios in Jet-Hadron Correlations." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Physics.

Christine Nattrass, Major Professor

We have read this thesis
and recommend its acceptance:

Christine Nattrass

Nadia Fomin

Miguel Madurga

Hairong Xi

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

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(Original signatures are on file with official student records.)

Hadron Yields and Ratios in Jet-Hadron Correlations

A Thesis Presented for
The Doctor of Philosophy
Degree

The University of Tennessee, Knoxville

Patrick J. Steffanic

May 2024

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Dedication ...

Acknowledgements

I would like to thank...

Sometimes you eat the bear, and sometimes, well, he eats you.

—*The Stranger, The Big Lebowski*

Abstract

Abstract goes here ...

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Chapter 1

Introduction

This is a very short guide to an unofficial thesis/dissertation template for the University of Tennessee. It has been updated to meet the specifications as of 2023 but can be easily altered as the guidelines are changed. This template requires a basic knowledge of L^AT_EX and should cover the basic requirements in terms of required packages and functionality.

1.1 Disclaimer

This template is distributed AS IS WITH NO WARRANTY. It serves as a guideline and constitutes a basic structure for a thesis/dissertation. The user assumes full responsibility for formatting and typesetting their document and for verifying that all the thesis requirements set by the University of Tennessee are met. Please refer to the most recent UT thesis guide or contact the thesis consultant to whom you should also report bugs.

1.2 Getting started

The general structure of this template is based on the tree shown in Figure 1.1. The titles of the folders are self descriptive and should guide you to proper file placement. Note that this is only a suggested model that could be modified to fit your own organizational structure. You will find the mentioned figure on the next page. This is in accordance with Graduate School policy which states that so-called floats should not appear alongside with text.

1.2.1 Important Files

There are two important files in this template: `utthesis.cls` and `my-dissertation.tex`.

- `utthesis.cls`: Based on the report class, this file contains customized settings, definitions, packages, and macros. The file is located in the root directory. One or more of the packages included may conflict with a package that you want to add. If so, you must resolve the conflict either by removing the unused package or by modifying settings for either package. Preloaded packages include `amsmath`, `amsthm`, `amssymb`, `setspace`, `geometry`, `hyperref`, and `color`.
- `my-dissertation.tex`: This is the main file for your thesis/dissertation that brings everything together. Each individual section of your dissertation should be its own `.tex` file saved in the proper place. For example, a chapter for your dissertation should be saved in the `chapters` directory while your acknowledgments should be saved in the `front-matter` directory. You compile `my-dissertation.tex` to create a complete pdf that can be printed/shared. You may want to change the name of the file to `my-name-dissertation.tex`. The `utthesis` document class takes all the options for the report class in addition to `thesis/dissertation` and `monochrome` options. If you are writing a thesis, you must use `"thesis"` otherwise, use `"dissertation"` or omit that option because `dissertation` is the default setting. The `monochrome` option converts all your

document to monochrome - except figures. This may be useful when printing your document since this dissertation has colored hyperlinks which tend to look washed out when printed on a monochrome printer.

1.2.2 Updating Information

Your next step is to update information in my-dissertation.tex such as the document title, your name, degree, etc. This can be done as follows.

```
%%%%%  
% TO DO: FILL IN YOUR INFORMATION BELOW - READ THIS SECTION CAREFULLY  
%%%%%  
%  
% \title{Thesis or Dissertation Title} % title  
% \author{My Name} % your name  
% \copyrightYear{20XX} % copyright year  
% \graduationMonth{Month} % month of graduation  
% \degree{Degree} % degree: Doctor of Philosophy, Master of ...  
% \university{The University of Tennessee, Knoxville} % school  
%%%%%
```

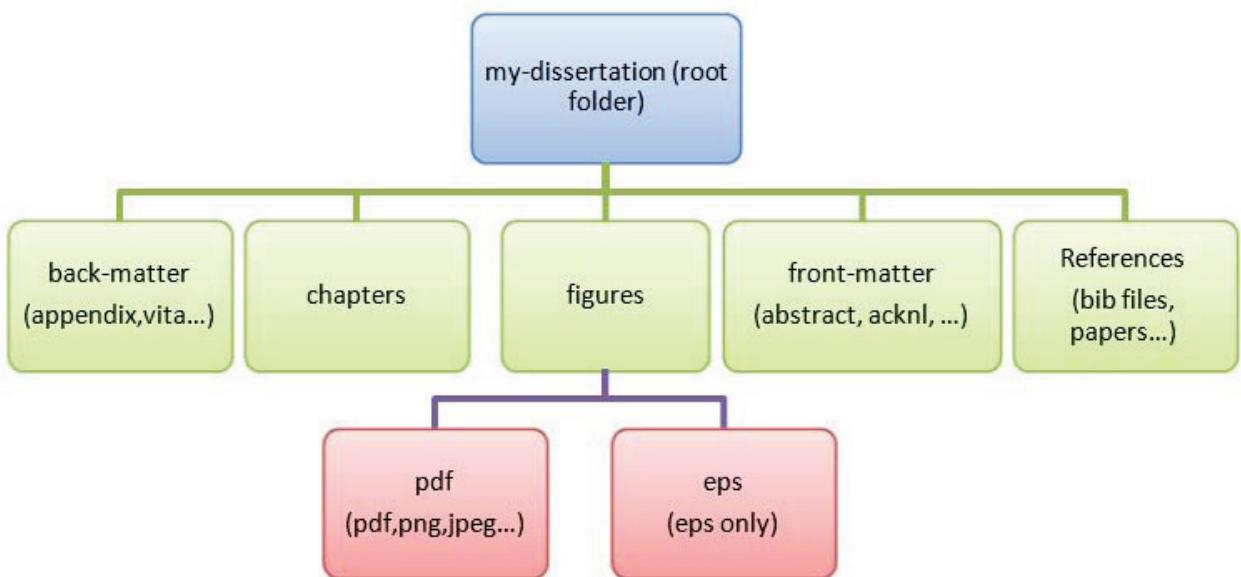


Figure 1.1: UT thesis template folder structure.

1.3 References

The bibliography style used in this template is "apalike". It is an author-year style based on the APA specification. Here is example (Fermi, 1956; Iznogood, 2000). Many other bibliography style exist. See documentation elsewhere.

```
\bibliographystyle{apalike}  
\bibliography{references-dissertation}
```

The second line specifies the .bib file that lists your references. Remember to run BibTeX in order to compile the bibliography.

1.4 Theorem environments

This template contains predefined theorem, lemma, proposition, corollary, and definition environments. Numbering and other style matters can be changed in the "utthesis.clc" file.

Definition 1.1. *This is an example of a definition.*

Proposition 1.1. *This is an example of a proposition.*

Theorem 1.1 (First theorem). *This is an example theorem.*

Proof for theorem. This is the proof for this theorem. □

Lemma 1.1.1 (First lemma). *This is the first lemma.*

Proof. This is the proof for this lemma that requires Theorem 1.1. □

Corollary 1.1.1. *This is the first corollary.*

1.5 Figures and Tables

1.5.1 General Rules

To comply with Graduate School formatting rules, figure captions should be placed below the figure and table captions should be placed above the table. Also, figures and tables should appear on pages of their own with no text (except for the caption of course). You must allow figures and table to float. DO NOT HARD CODE POSITIONS. In addition, no figure or table should spill into the margins. Should that happen, either resize it so that it or put it on its own landscape oriented page. See Figure 1.2 for an example of the latter. Note the page number location in the example. The code for this is given by:

```
\begin{landscape}
\begin{figure}[h]
    \centering
    \fbox{\rule{8in}{0pt}\rule{0pt}{5in}}
    \caption{This figure is too wide for a portrait page.}
    \label{fig:wide-pic}
\end{figure}
\end{landscape}
```

Be careful about where you place this landscape page, as well as all figures and tables. These objects are not considered part of the text, and thus their placement should not be assigned to a precise location. The general rule to follow is that no text page should have significant white space, with the exception being the last page of a chapter. So if you mention a figure in some paragraph but the figure will not fit on the remainder of the page, continue the text (even if it's a new section) to fill the current page with text and then place the figure on the next page.

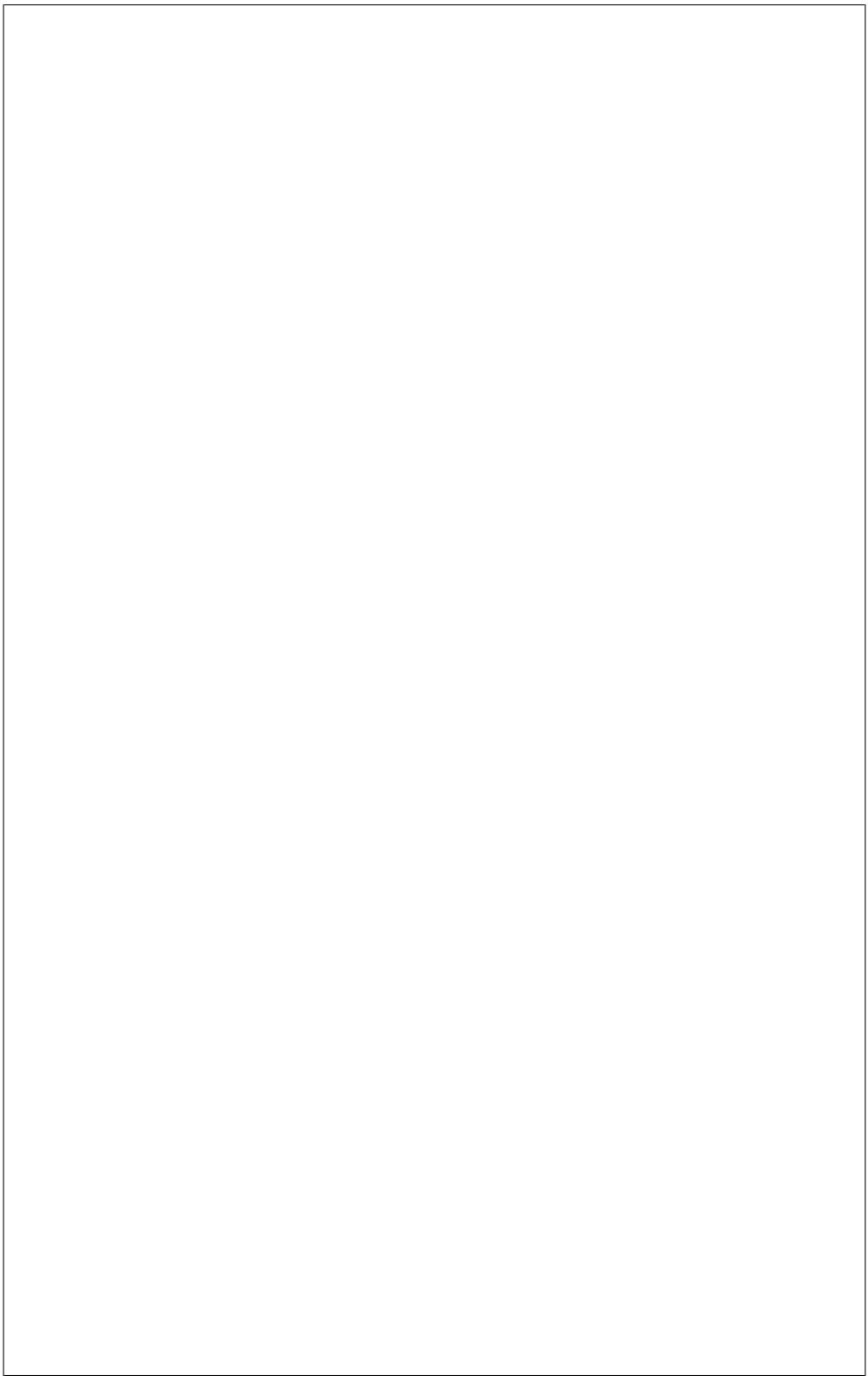


Figure 1.2: This figure is too wide for a portrait page.

1.5.2 Single figures

Single figures can be created as shown below. For more information, see http://en.wikibooks.org/wiki/TeX/Floats,_Figures_and_Captions.

```
\begin{figure}[t for top, b for bottom, h for here,  
           p for page with float(s) but no text]  
    % Requires \usepackage{graphicx}  
    \centering % center the figure  
    \includegraphics[width=5in or 127mm etc...]{figure-name}\  
    \caption{figure caption}\label{figure label}  
\end{figure}
```

1.5.3 Multipart figures

For multipart figures, use the package "subfig". You can add space between the figures using spacing commands such as "\quad". For example,

```
\begin{figure}[p]  
    \centering  
    \subfloat[Circle]{\label{fig:fig-a-space}\includegraphics[width=1in]  
                  {fig02a-circle}} \quad  
    \subfloat[Rectangle]{\label{fig:fig-b-space}\includegraphics[width=1in]  
                      {fig02b-rectangle}}\quad  
    \subfloat[Cube]{\label{fig:fig-c-space}\includegraphics[width=1in]  
                  {fig02c-cube}}\quad  
    \caption{Geometric shapes with space between images.}  
    \label{fig:multipart-figure-space}  
\end{figure}
```

1.5.4 Tables

Again, table captions should be placed above the table. See Table 1.1 for an example.

For more information about tables, see <https://en.wikibooks.org/wiki/TeX/Tables>.

Be aware that LaTeX may decide to group multiple floats together on the no-text page. If you don't like the resulting layout, try different placement options or move one or more floats before or after a large body of text to break the flow. An alternative to the [p] option is `\clearpage` which flushes any remaining floats before continuing on a new page. The command `\newpage` breaks to a new page without flushing floats.

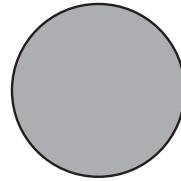


Figure 1.3: Simple figure example.

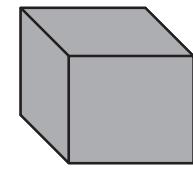
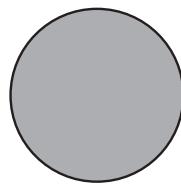


Figure 1.4: Example showing multiple subfigures.

Table 1.1: A simple table with info on Smokey

Dog	Years	Record	Pct.
Blue Smokey	1953-1954	10-10-1	.500
Smokey II	1955-1963	58-39-5	.597
Smokey III	1964-1977	105-39-5	.729
Smokey IV	1978-1979	12-10-1	.545
Smokey V	1980-1983	28-18-1	.608
Smokey VI	1984-1991	67-23-6	.744
Smokey VII	1992-1994	27-9	.750
Smokey VIII	1995-2003	91-22	.805
Smokey IX	2004-2012	62-53	.539
Smokey X	2013-present	21-17	.552

Chapter 2

Lorem Ipsum

 Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Chapter 3

Ipsum Lorum

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Chapter 4

Conclusions

Bibliography

Fermi, E. (1956). *Thermodynamics*. Dover Publications. 5

Iznogood, A. (2000). *When Up is Down*. Academic Press, New York, NY. 5

.1 PP

.1.1 PP Yields and Ratios

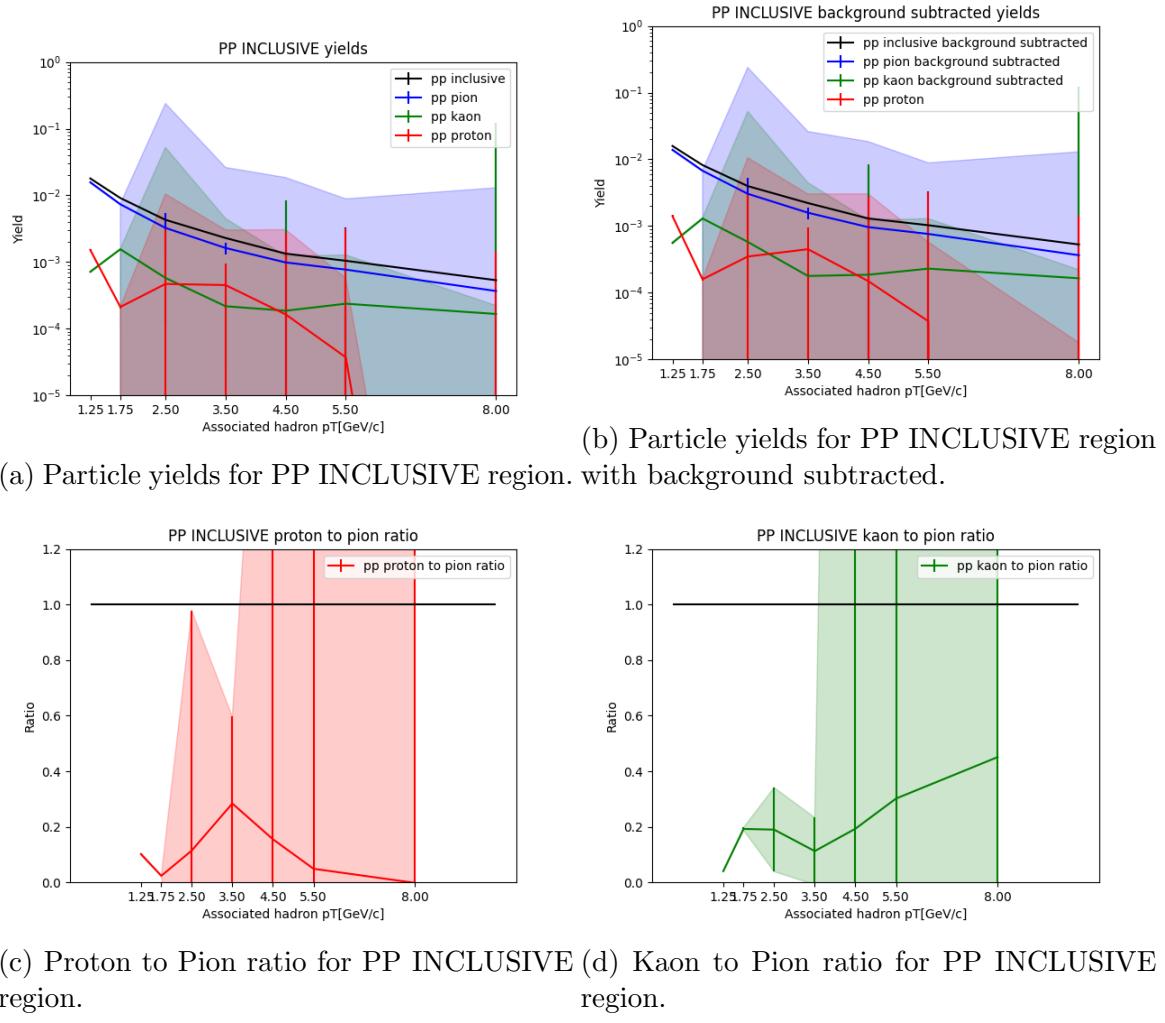


Figure 1: Particle yields and ratios for PP INCLUSIVE region.

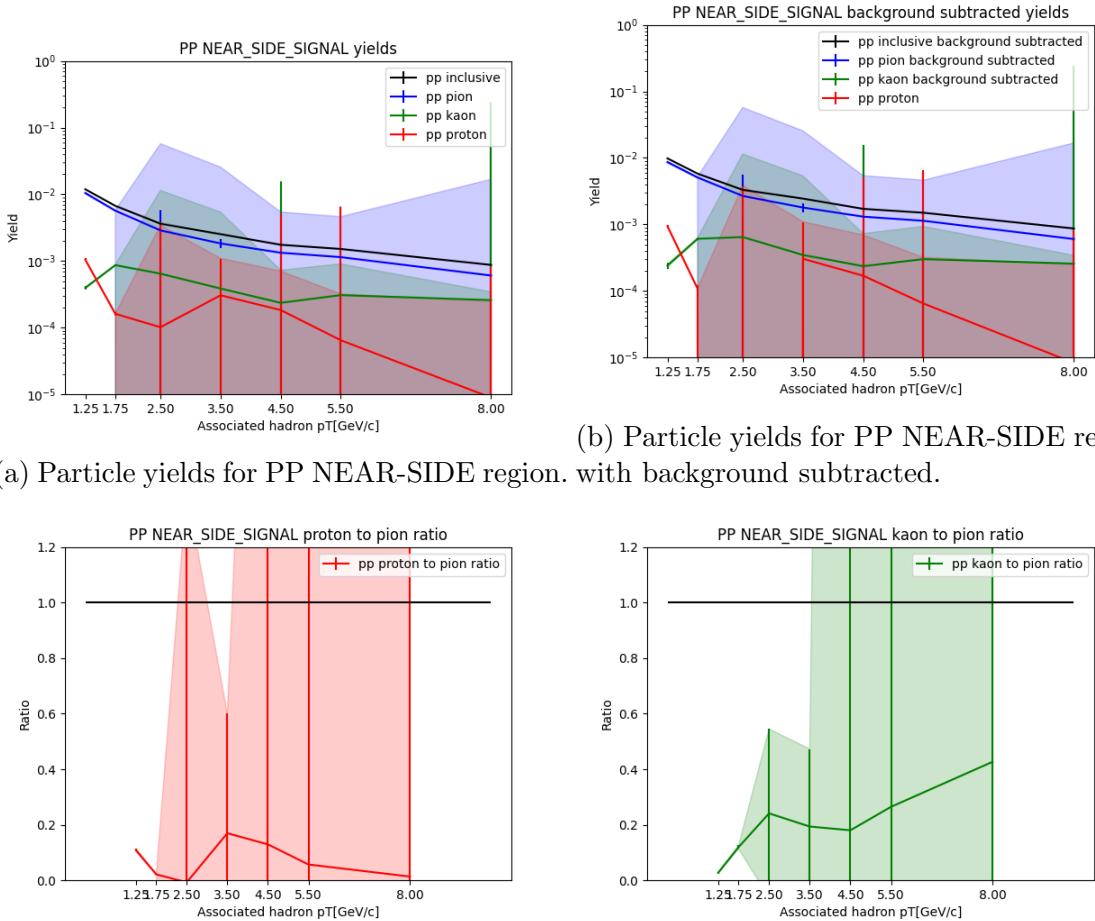


Figure 2: Particle yields and ratios for PP NEAR-SIDE region.

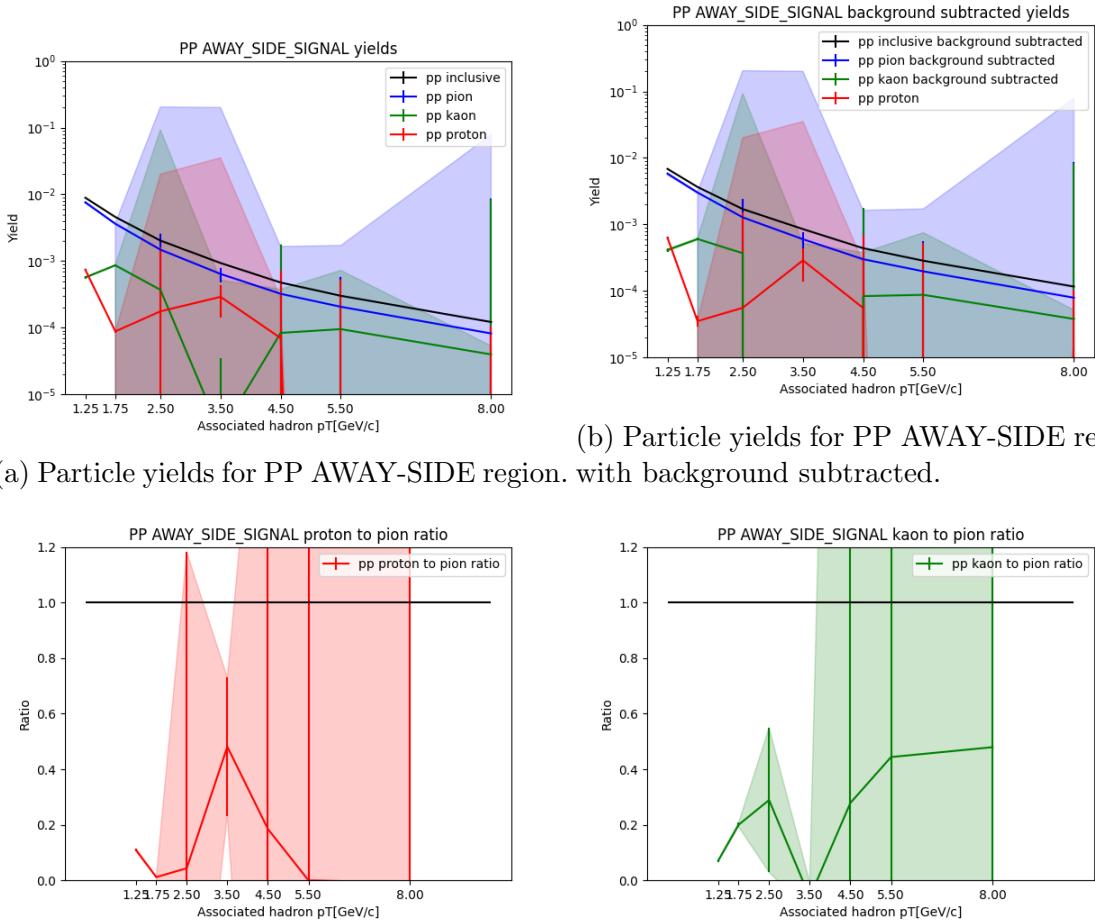
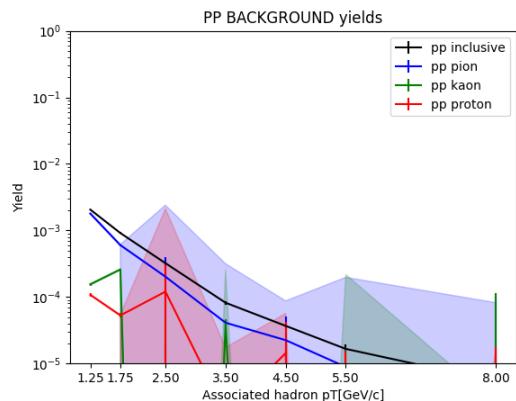


Figure 3: Particle yields and ratios for PP AWAY-SIDE region.



(a) Particle yields for PP BACKGROUND region.

Figure 4: Particle yields for PP BACKGROUND region.

1.2 PP PT-1-15

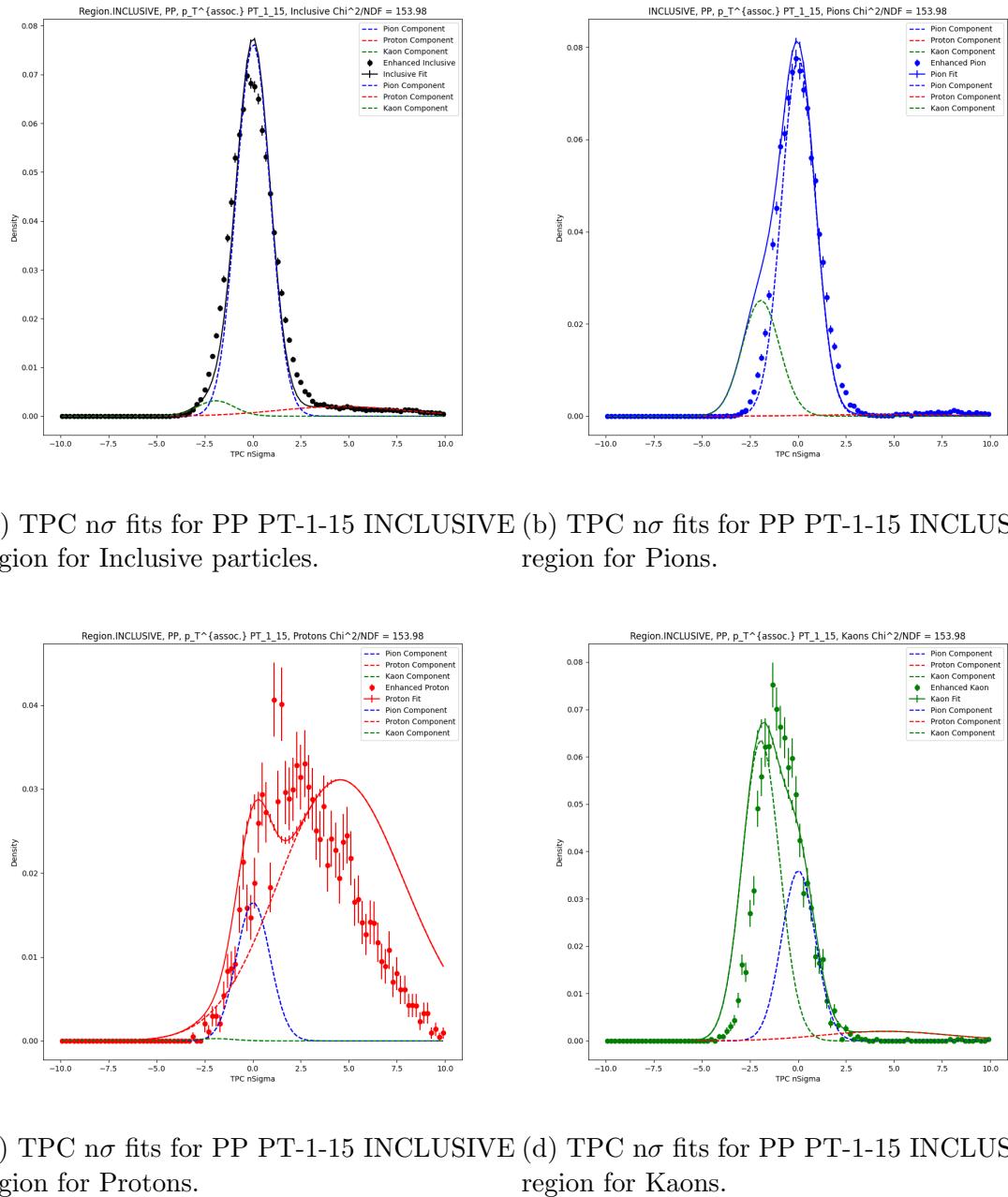
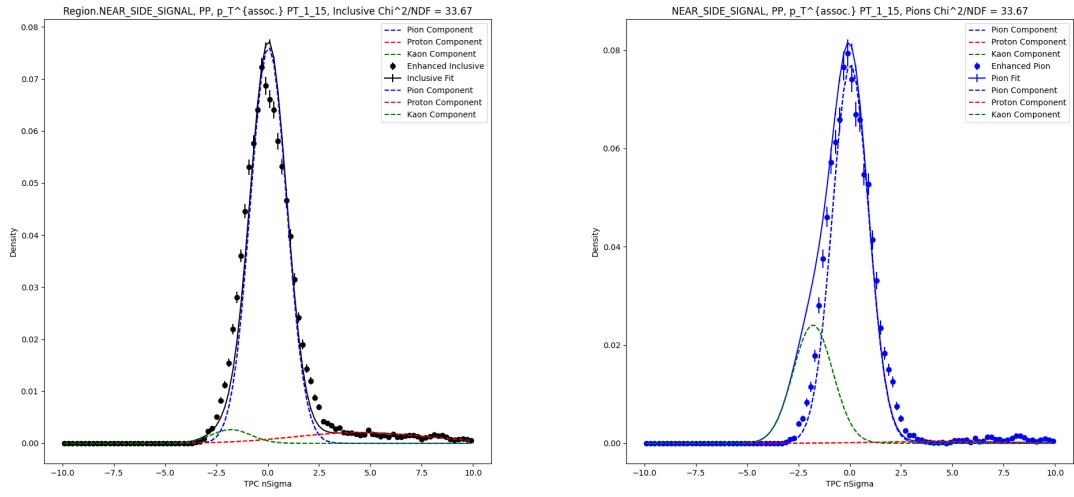
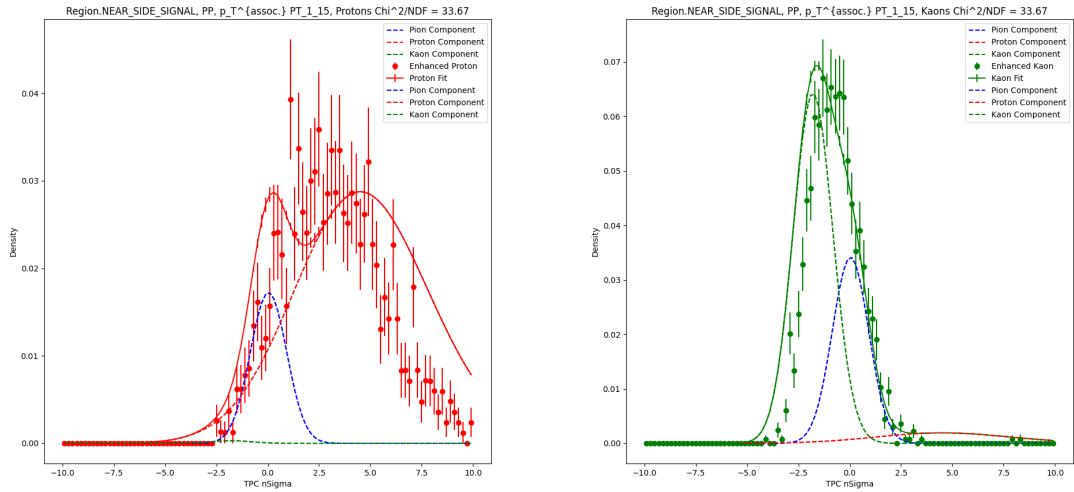


Figure 5: TPC $n\sigma$ fits for PP PT-1-15 INCLUSIVE region.

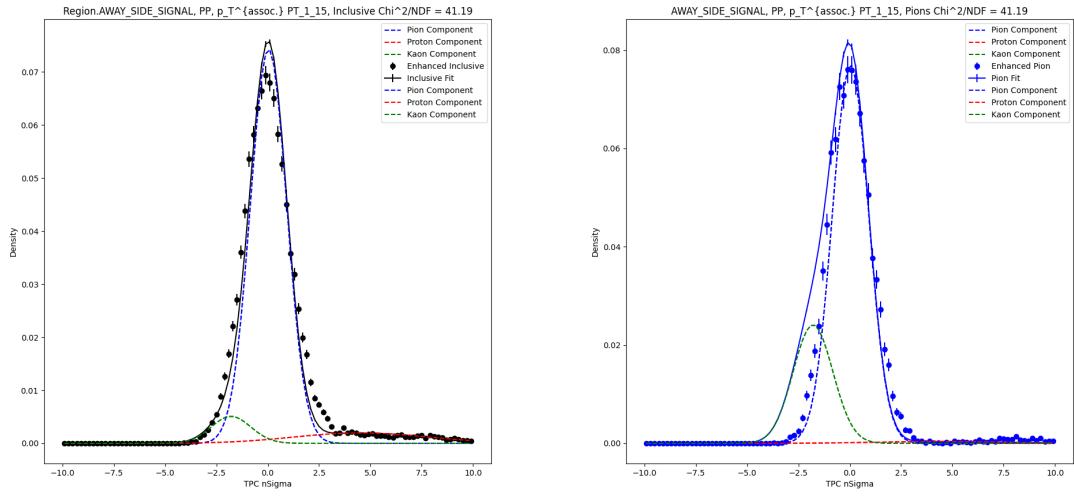


(a) TPC $n\sigma$ fits for PP PT-1-15 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-1-15 NEAR-SIDE region for Pions.

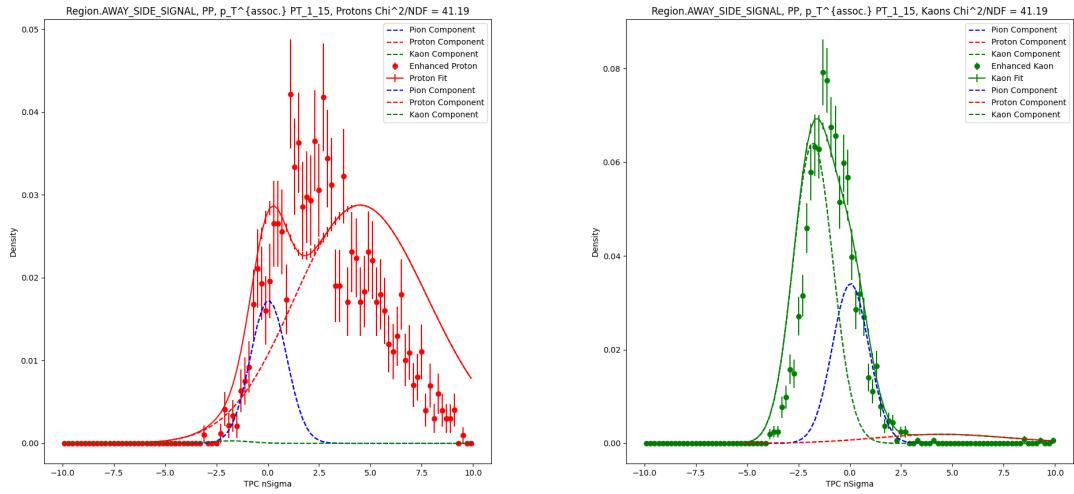


(c) TPC $n\sigma$ fits for PP PT-1-15 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-1-15 NEAR-SIDE region for Kaons.

Figure 6: TPC $n\sigma$ fits for PP PT-1-15 NEAR-SIDE region.

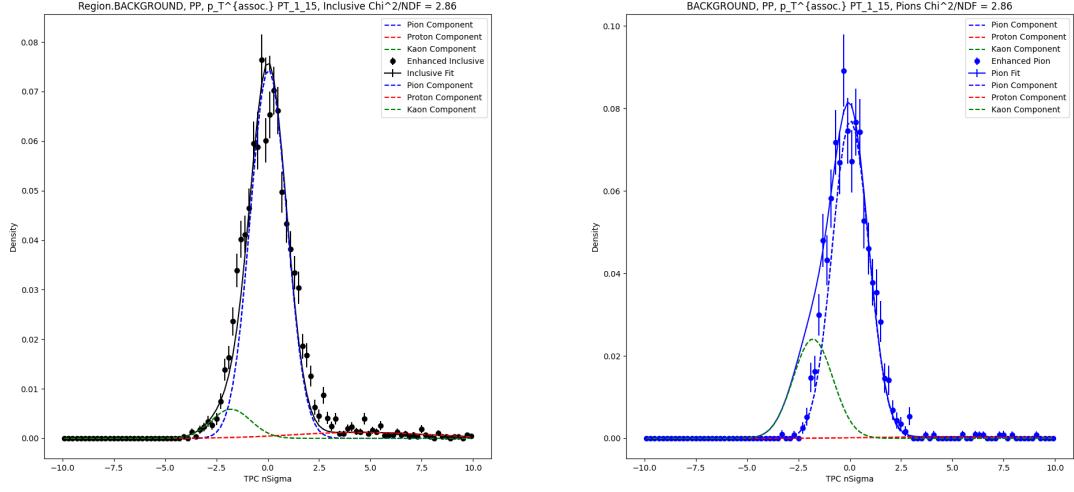


(a) TPC $n\sigma$ fits for PP PT-1-15 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-1-15 AWAY-SIDE region for Pions.

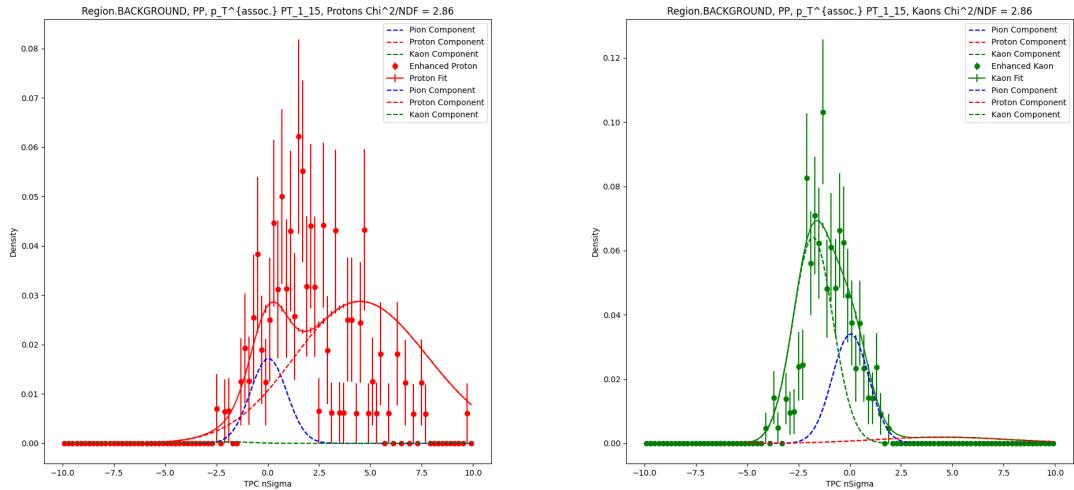


(c) TPC $n\sigma$ fits for PP PT-1-15 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-1-15 AWAY-SIDE region for Kaons.

Figure 7: TPC $n\sigma$ fits for PP PT-1-15 AWAY-SIDE region.



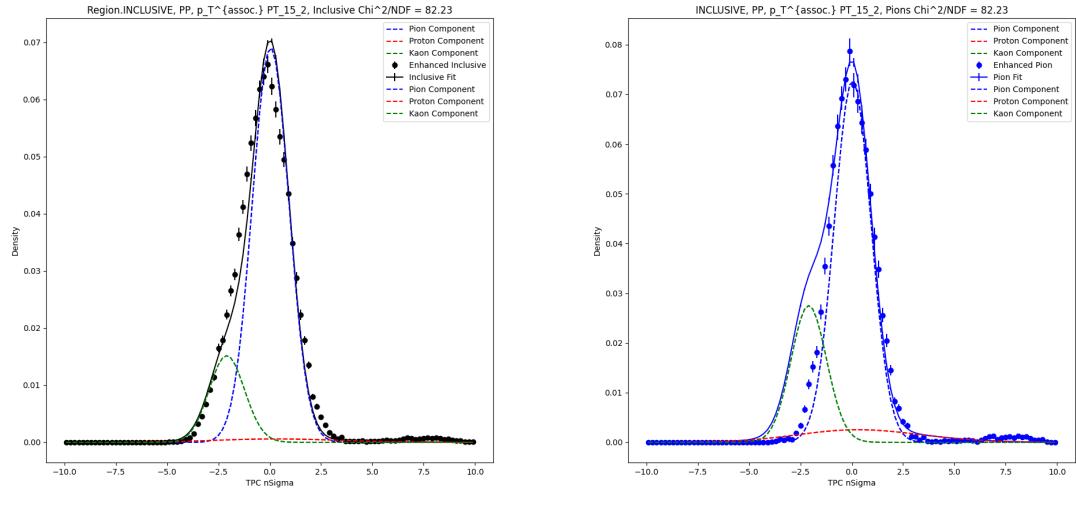
(a) TPC $n\sigma$ fits for PP PT-1-15 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-1-15 BACKGROUND region for Pions.



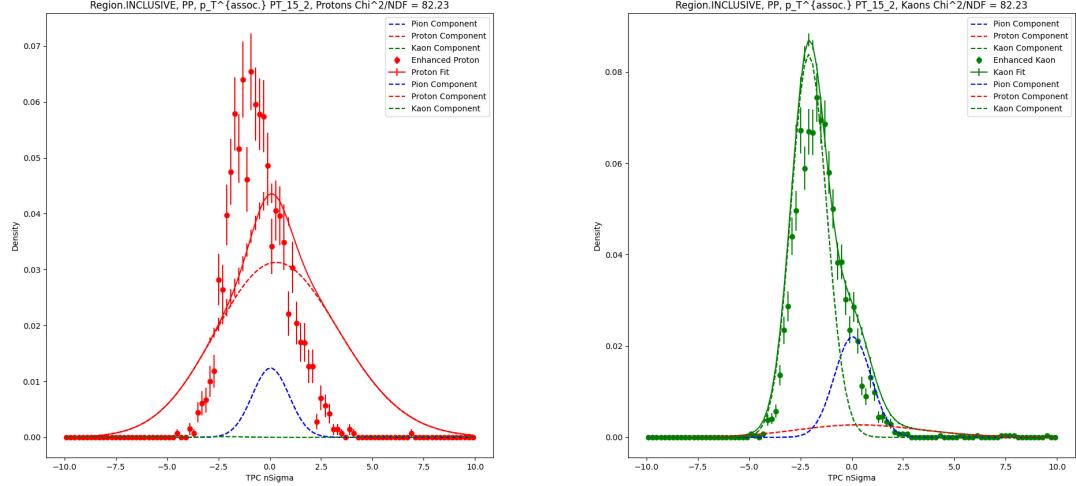
(c) TPC $n\sigma$ fits for PP PT-1-15 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-1-15 BACKGROUND region for Kaons.

Figure 8: TPC $n\sigma$ fits for PP PT-1-15 BACKGROUND region.

1.3 PP PT-15-2

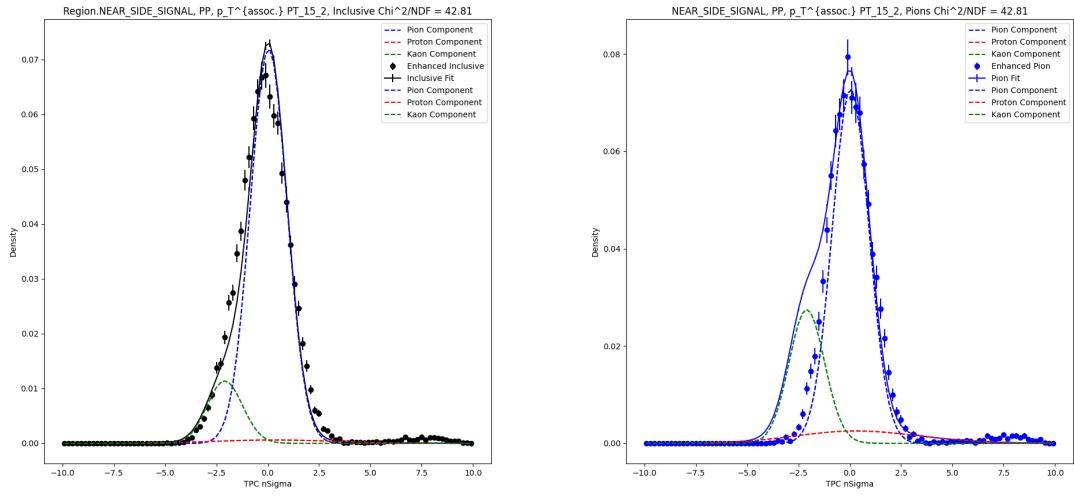


(a) TPC $n\sigma$ fits for PP PT-15-2 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-15-2 INCLUSIVE region for Pions.

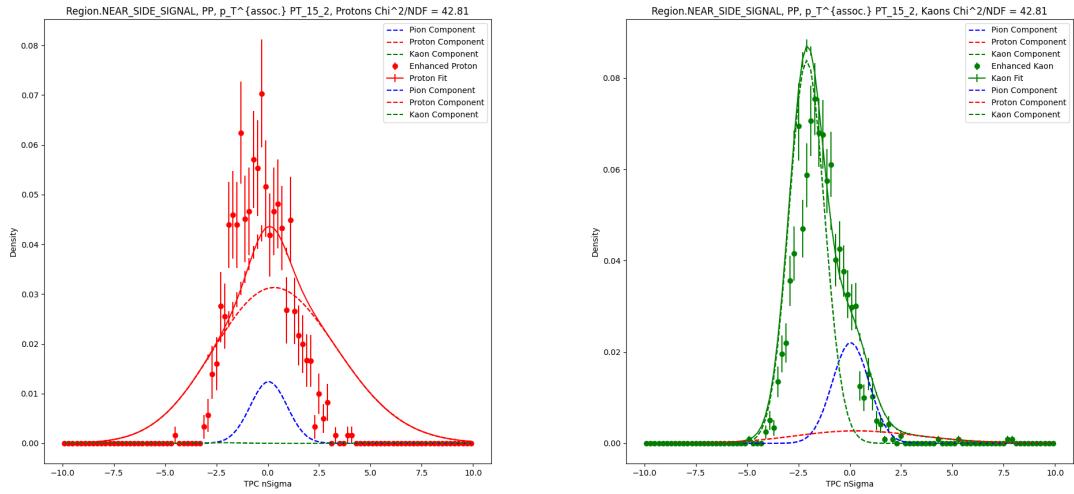


(c) TPC $n\sigma$ fits for PP PT-15-2 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-15-2 INCLUSIVE region for Kaons.

Figure 9: TPC $n\sigma$ fits for PP PT-15-2 INCLUSIVE region.

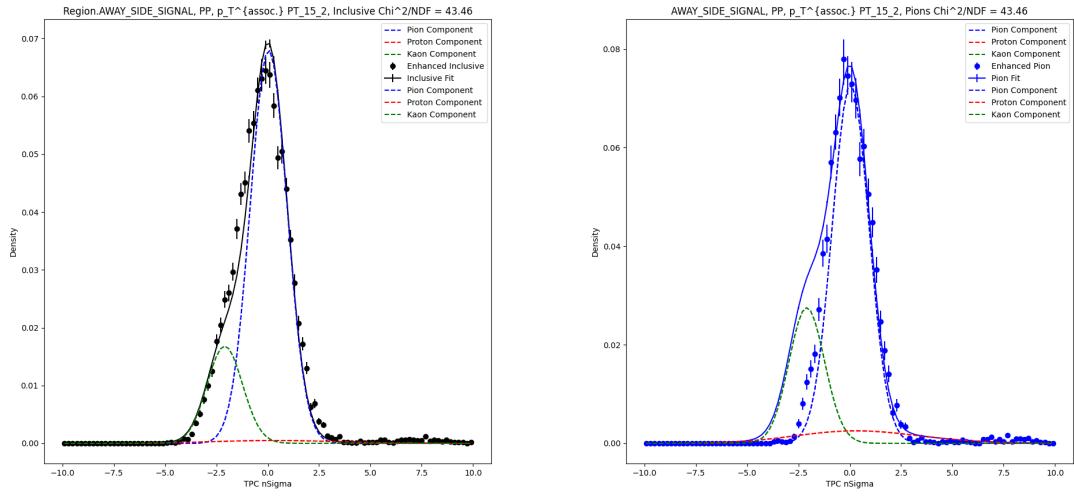


(a) TPC $n\sigma$ fits for PP PT-15-2 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-15-2 NEAR-SIDE region for Pions.

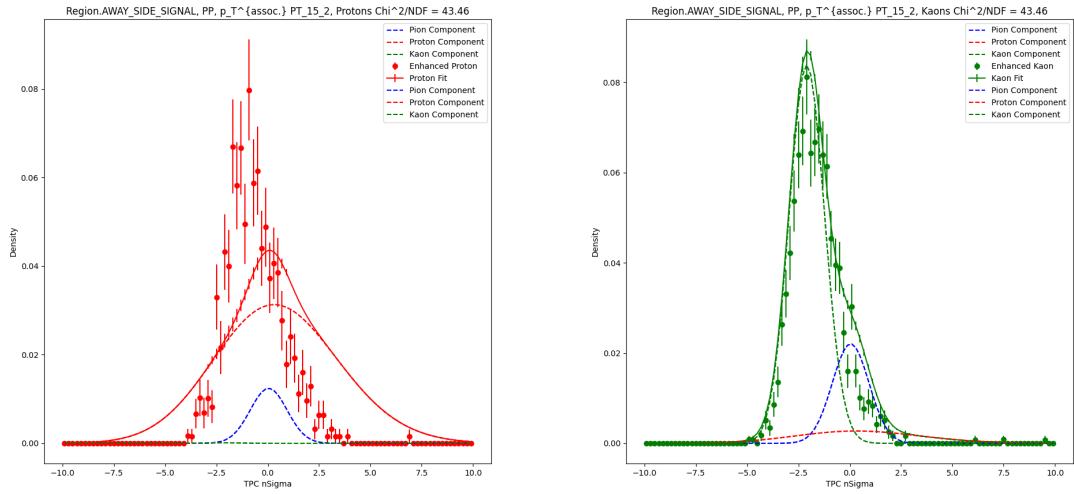


(c) TPC $n\sigma$ fits for PP PT-15-2 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-15-2 NEAR-SIDE region for Kaons.

Figure 10: TPC $n\sigma$ fits for PP PT-15-2 NEAR-SIDE region.

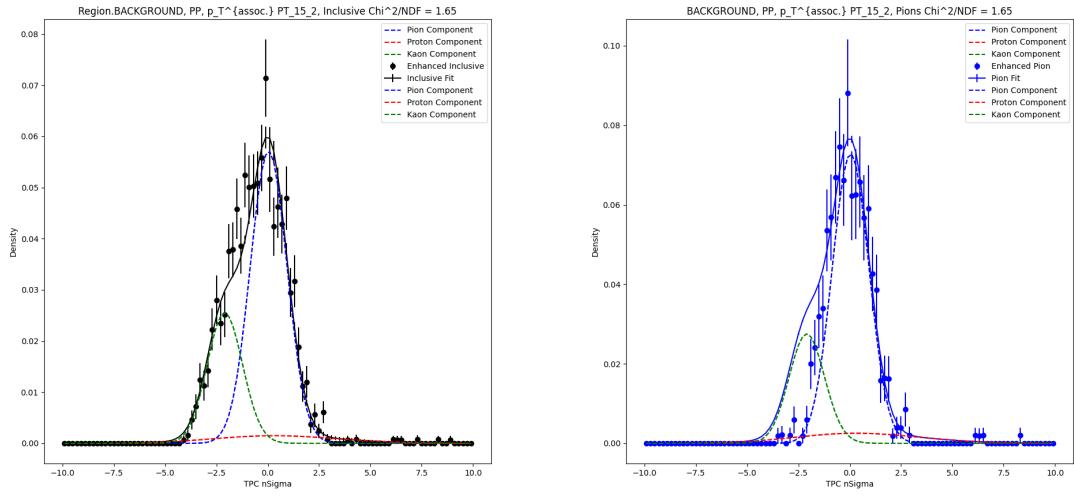


(a) TPC $n\sigma$ fits for PP PT-15-2 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-15-2 AWAY-SIDE region for Pions.

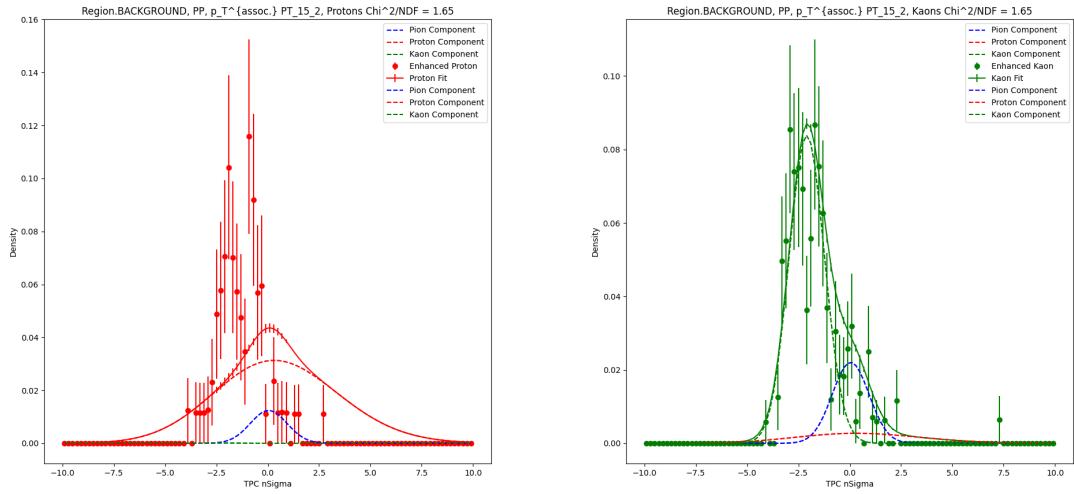


(c) TPC $n\sigma$ fits for PP PT-15-2 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-15-2 AWAY-SIDE region for Kaons.

Figure 11: TPC $n\sigma$ fits for PP PT-15-2 AWAY-SIDE region.



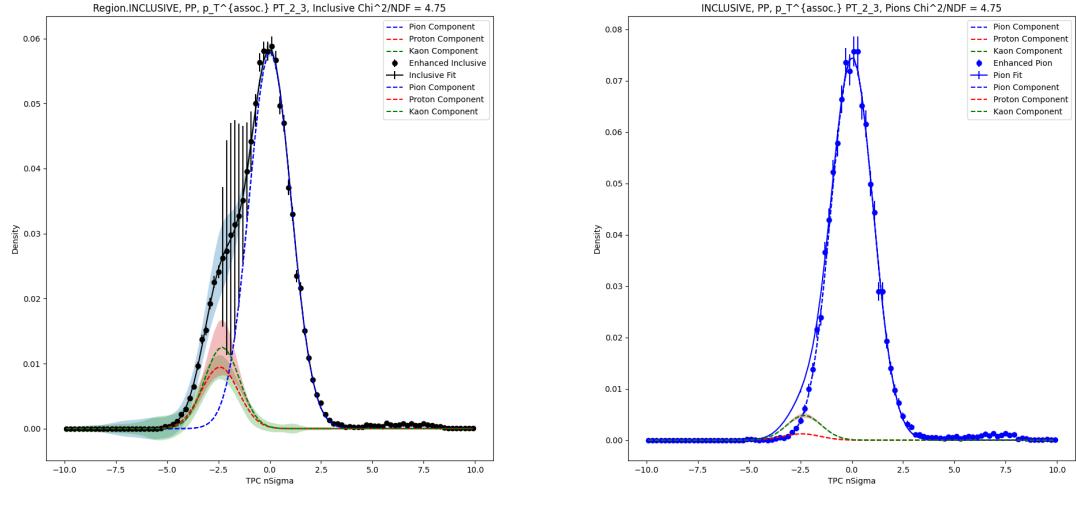
(a) TPC $n\sigma$ fits for PP PT-15-2 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-15-2 BACKGROUND region for Pions.



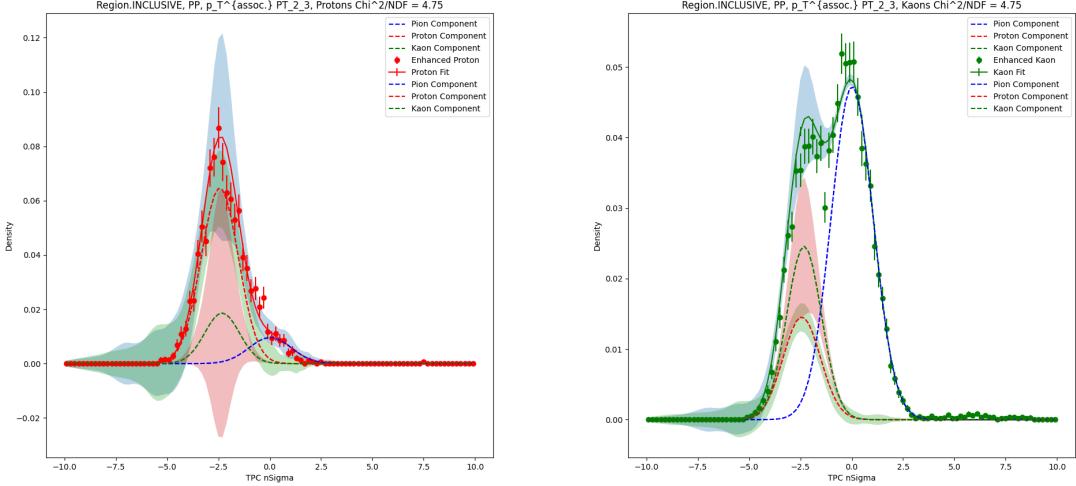
(c) TPC $n\sigma$ fits for PP PT-15-2 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-15-2 BACKGROUND region for Kaons.

Figure 12: TPC $n\sigma$ fits for PP PT-15-2 BACKGROUND region.

1.4 PP PT-2-3

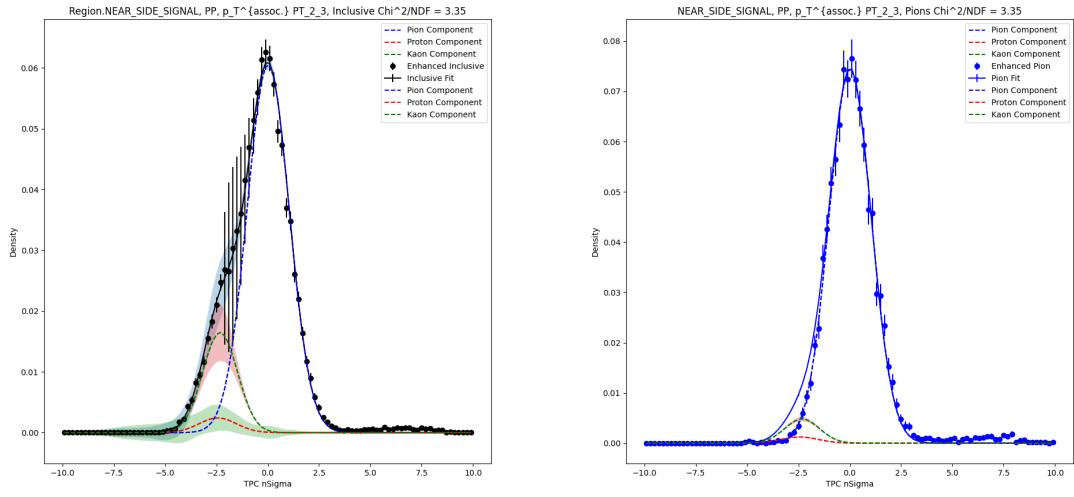


(a) TPC $n\sigma$ fits for PP PT-2-3 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-2-3 INCLUSIVE region for Pions.

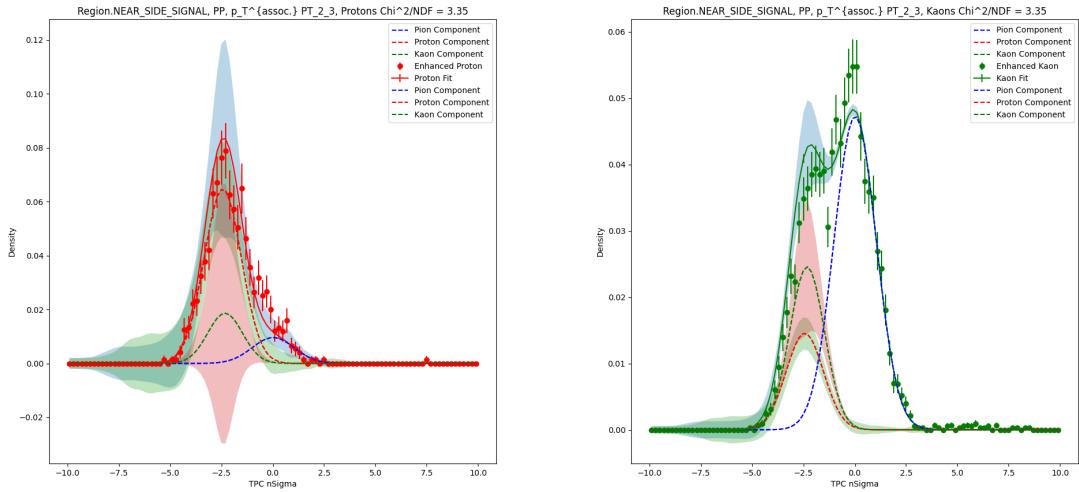


(c) TPC $n\sigma$ fits for PP PT-2-3 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-2-3 INCLUSIVE region for Kaons.

Figure 13: TPC $n\sigma$ fits for PP PT-2-3 INCLUSIVE region.

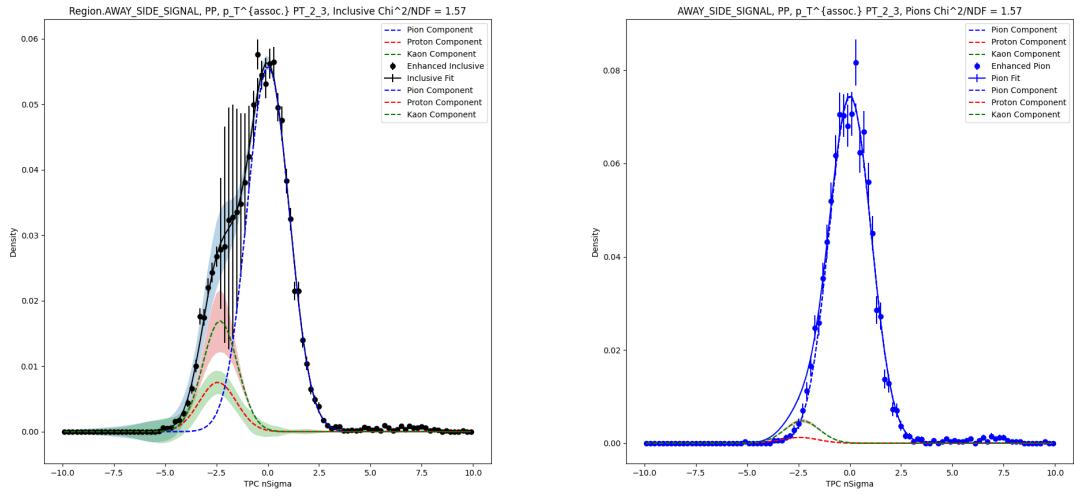


(a) TPC $n\sigma$ fits for PP PT-2-3 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-2-3 NEAR-SIDE region for Pions.

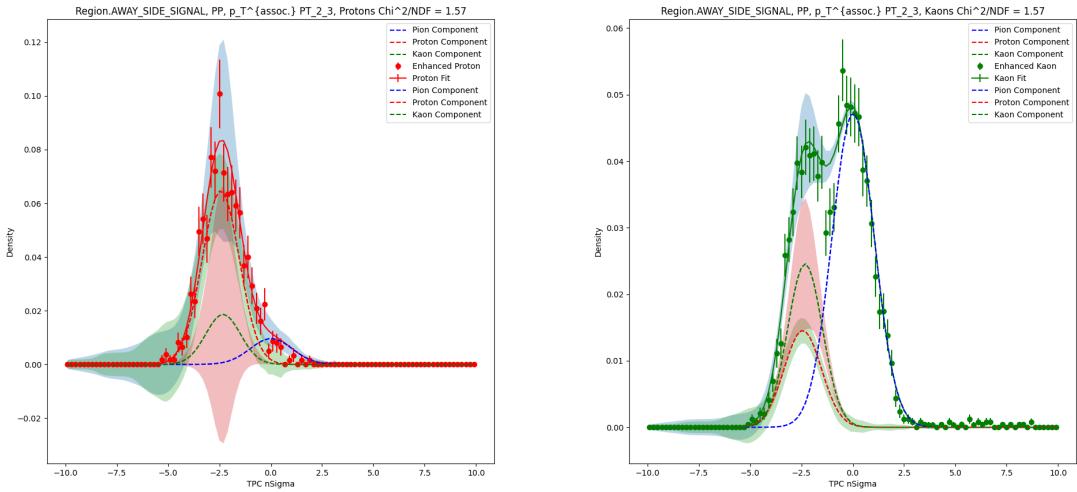


(c) TPC $n\sigma$ fits for PP PT-2-3 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-2-3 NEAR-SIDE region for Kaons.

Figure 14: TPC $n\sigma$ fits for PP PT-2-3 NEAR-SIDE region.

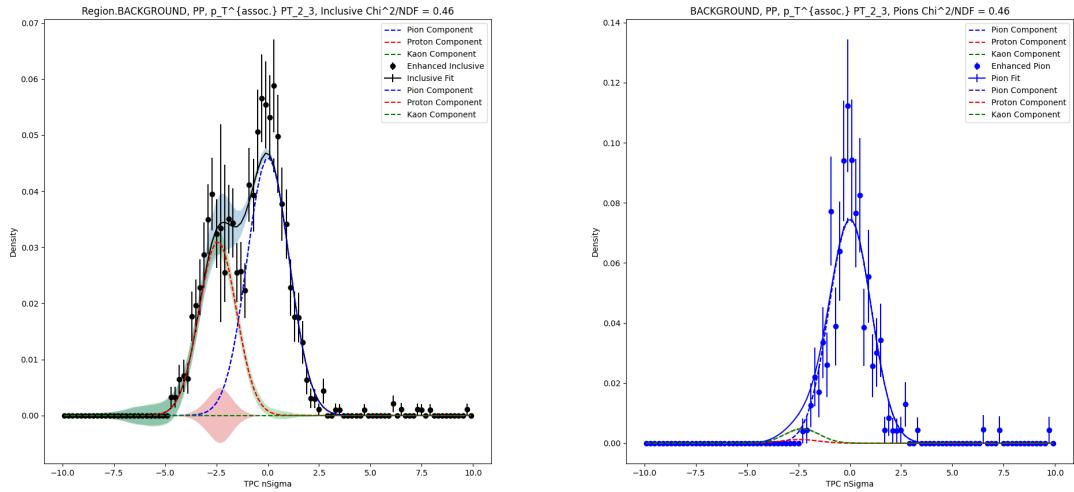


(a) TPC $n\sigma$ fits for PP PT-2-3 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-2-3 AWAY-SIDE region for Pions.

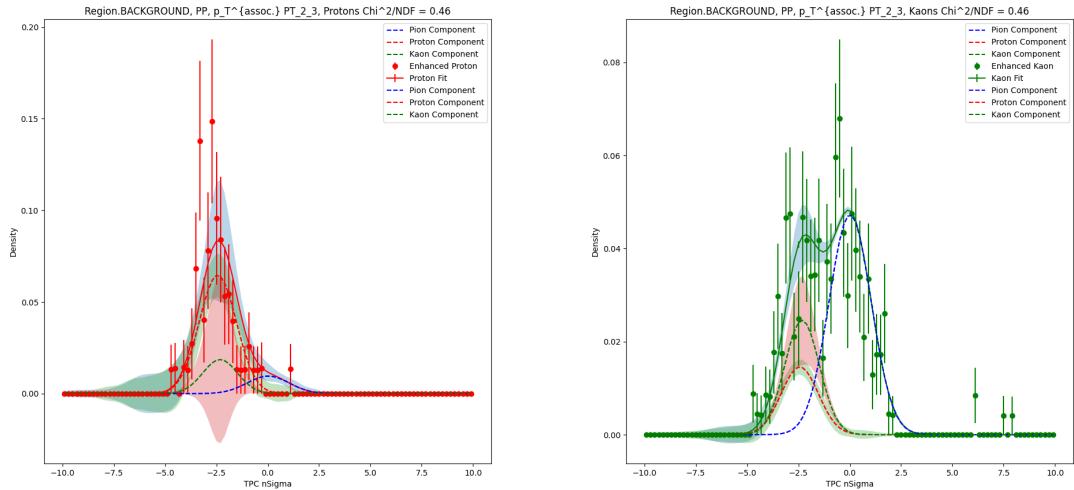


(c) TPC $n\sigma$ fits for PP PT-2-3 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-2-3 AWAY-SIDE region for Kaons.

Figure 15: TPC $n\sigma$ fits for PP PT-2-3 AWAY-SIDE region.



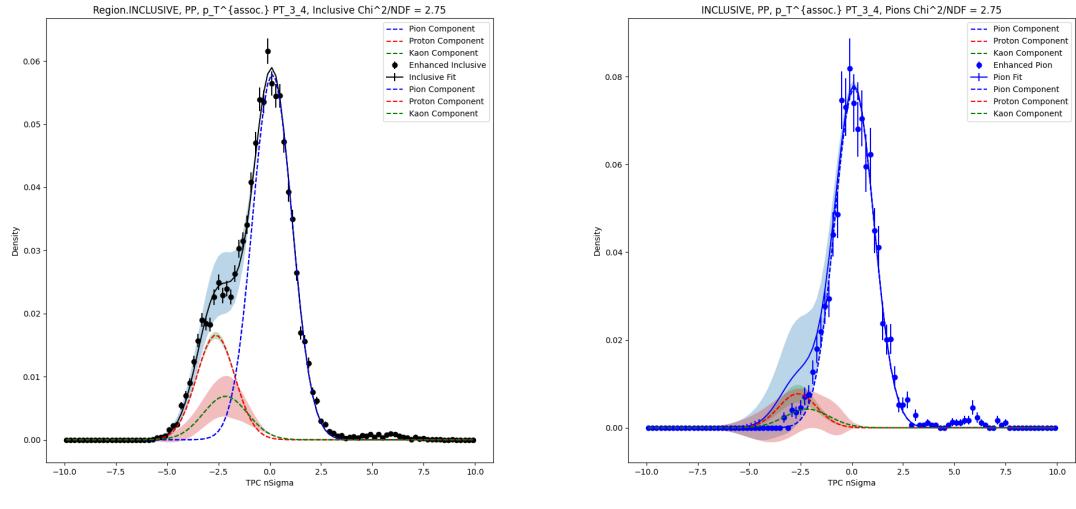
(a) TPC $n\sigma$ fits for PP PT-2-3 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-2-3 BACKGROUND region for Pions.



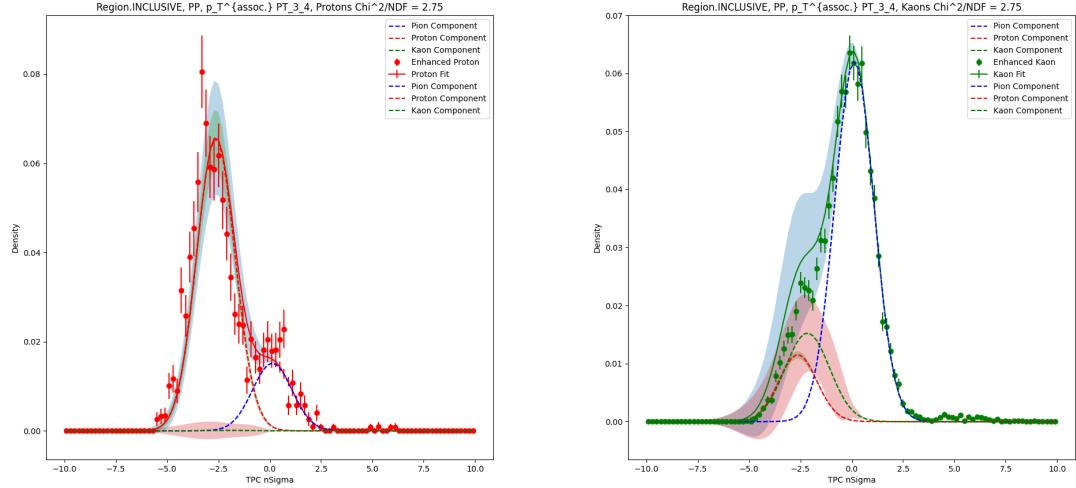
(c) TPC $n\sigma$ fits for PP PT-2-3 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-2-3 BACKGROUND region for Kaons.

Figure 16: TPC $n\sigma$ fits for PP PT-2-3 BACKGROUND region.

1.5 PP PT-3-4

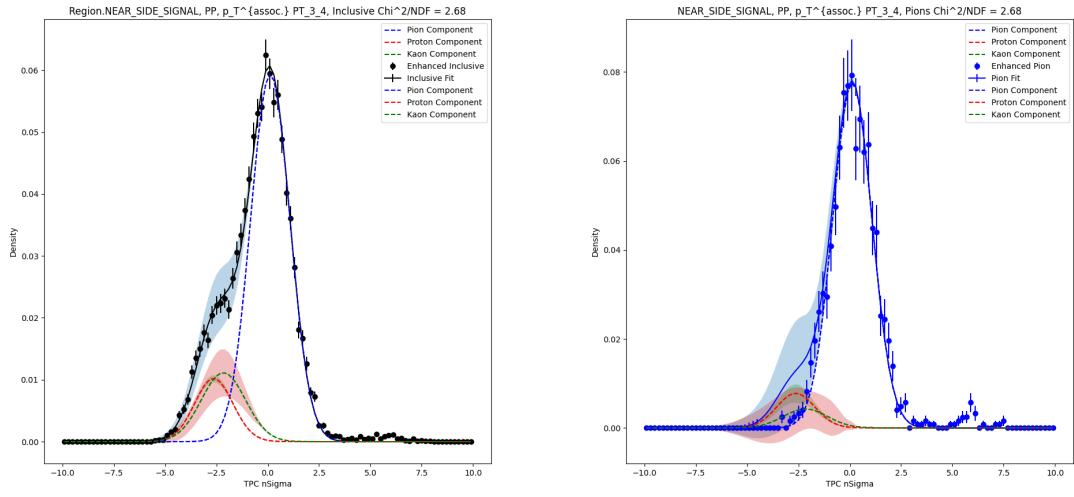


(a) TPC $n\sigma$ fits for PP PT-3-4 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-3-4 INCLUSIVE region for Pions.

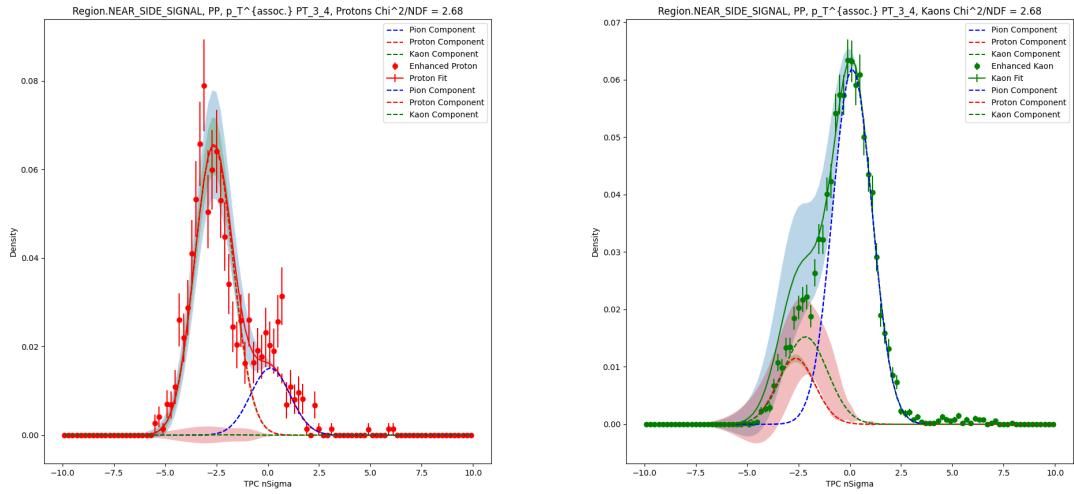


(c) TPC $n\sigma$ fits for PP PT-3-4 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-3-4 INCLUSIVE region for Kaons.

Figure 17: TPC $n\sigma$ fits for PP PT-3-4 INCLUSIVE region.

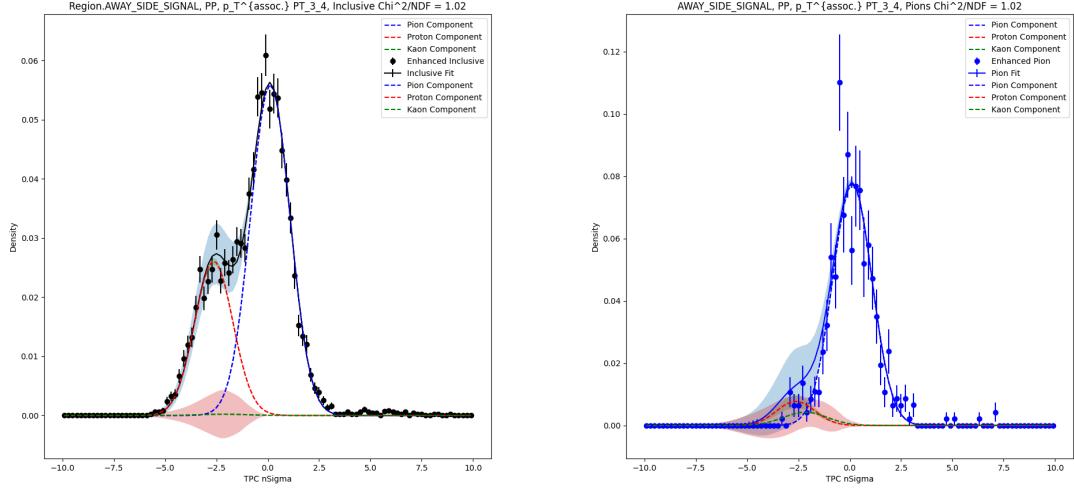


(a) TPC $n\sigma$ fits for PP PT-3-4 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-3-4 NEAR-SIDE region for Pions.

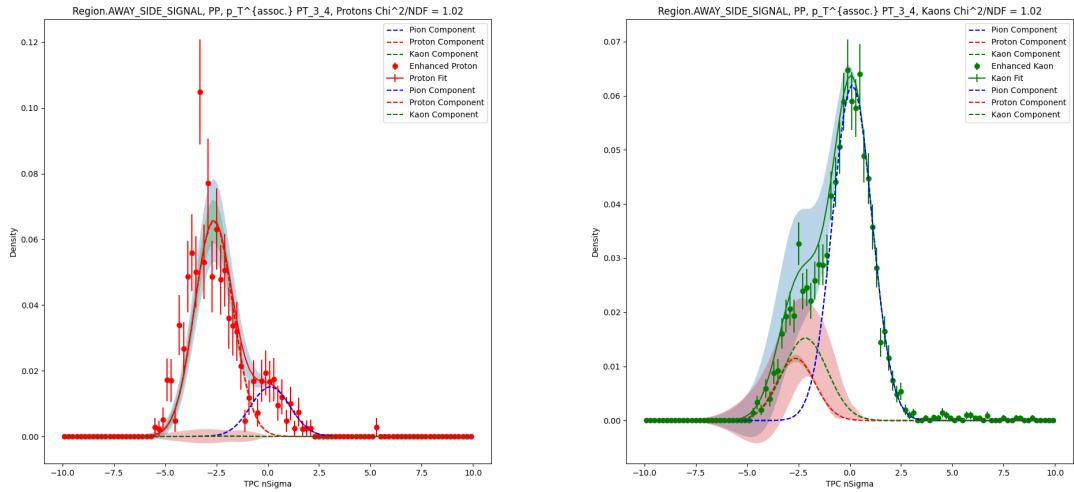


(c) TPC $n\sigma$ fits for PP PT-3-4 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-3-4 NEAR-SIDE region for Kaons.

Figure 18: TPC $n\sigma$ fits for PP PT-3-4 NEAR-SIDE region.

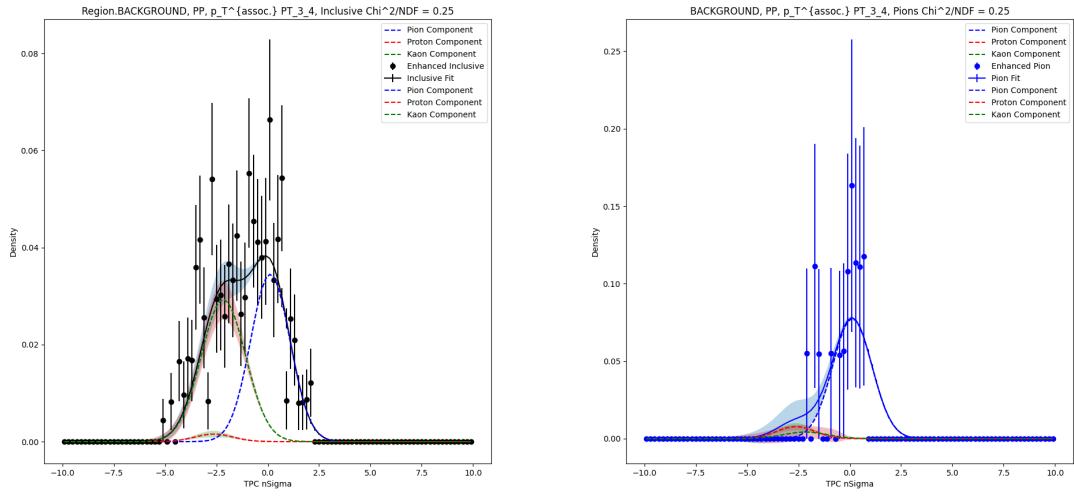


(a) TPC $n\sigma$ fits for PP PT-3-4 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-3-4 AWAY-SIDE region for Pions.

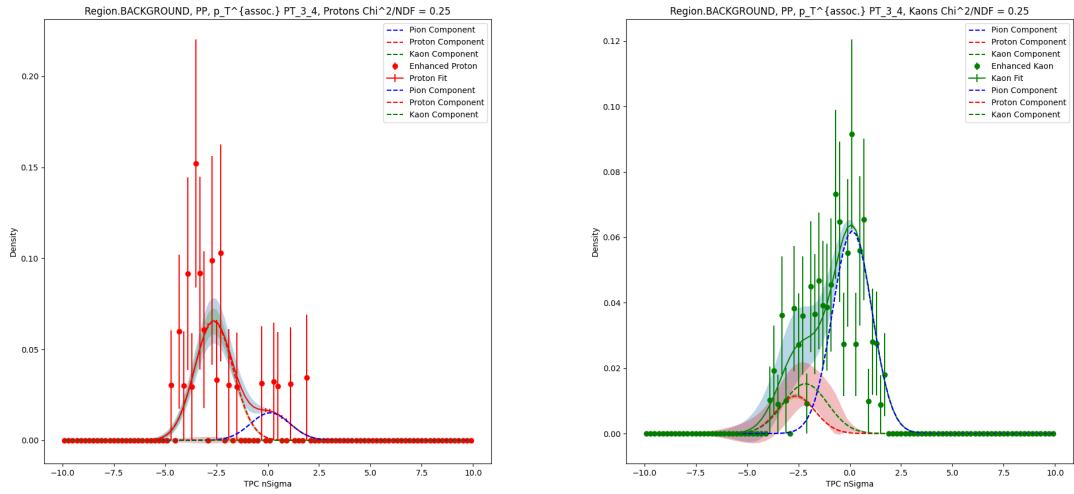


(c) TPC $n\sigma$ fits for PP PT-3-4 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-3-4 AWAY-SIDE region for Kaons.

Figure 19: TPC $n\sigma$ fits for PP PT-3-4 AWAY-SIDE region.



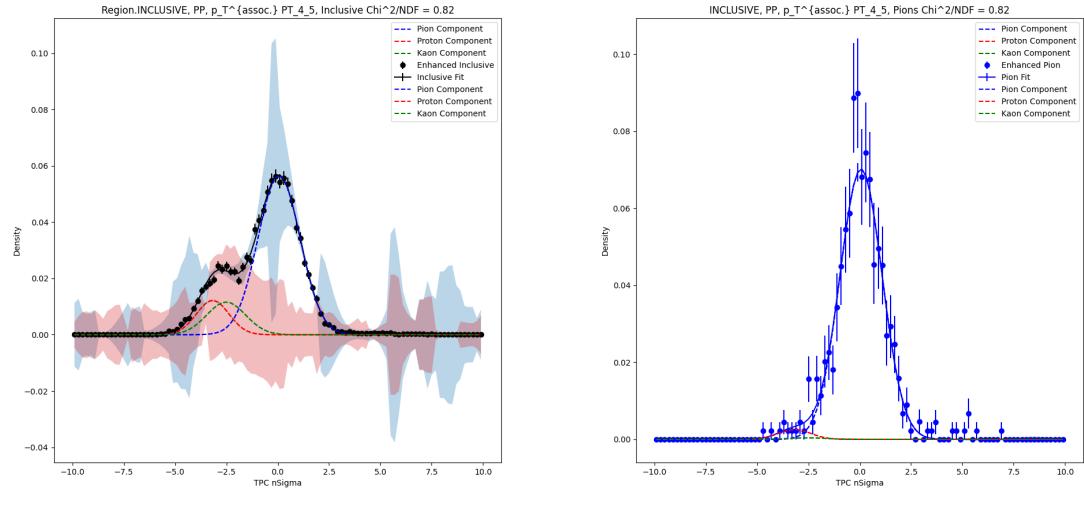
(a) TPC $n\sigma$ fits for PP PT-3-4 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-3-4 BACKGROUND region for Pions.



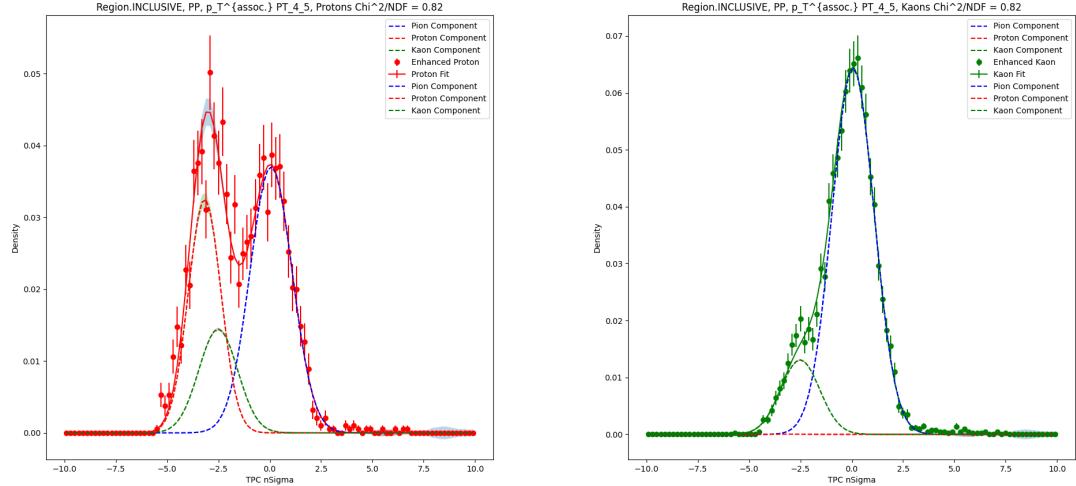
(c) TPC $n\sigma$ fits for PP PT-3-4 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-3-4 BACKGROUND region for Kaons.

Figure 20: TPC $n\sigma$ fits for PP PT-3-4 BACKGROUND region.

1.6 PP PT-4-5

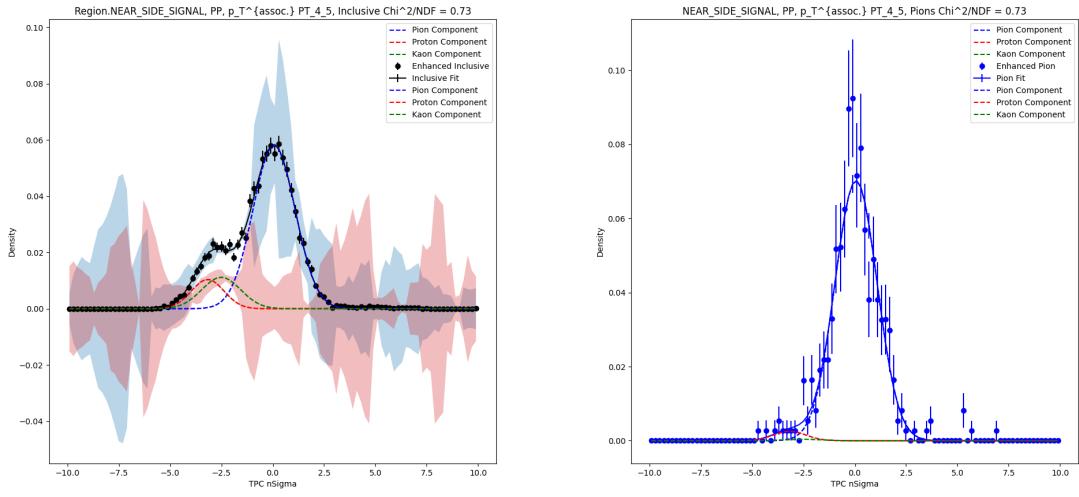


(a) TPC $n\sigma$ fits for PP PT-4-5 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-4-5 INCLUSIVE region for Pions.

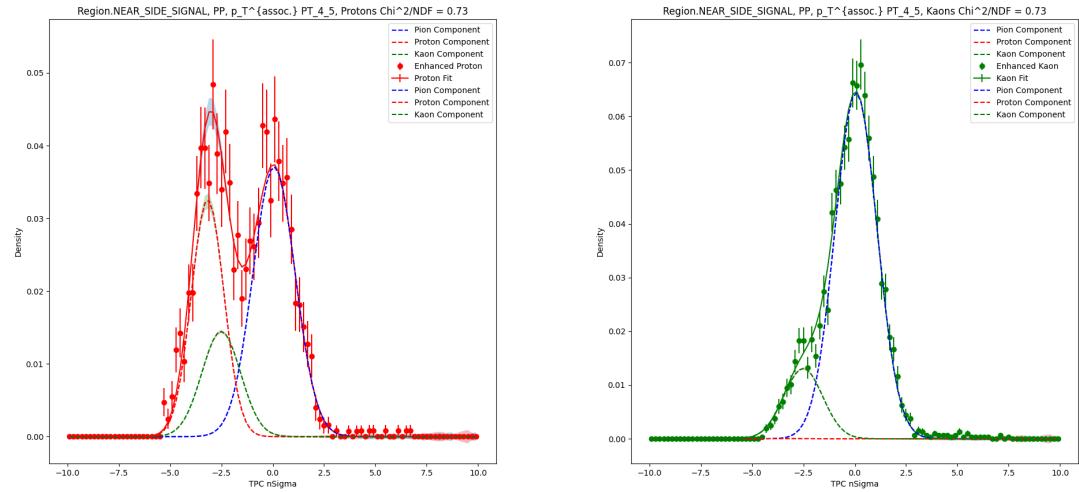


(c) TPC $n\sigma$ fits for PP PT-4-5 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-4-5 INCLUSIVE region for Kaons.

Figure 21: TPC $n\sigma$ fits for PP PT-4-5 INCLUSIVE region.

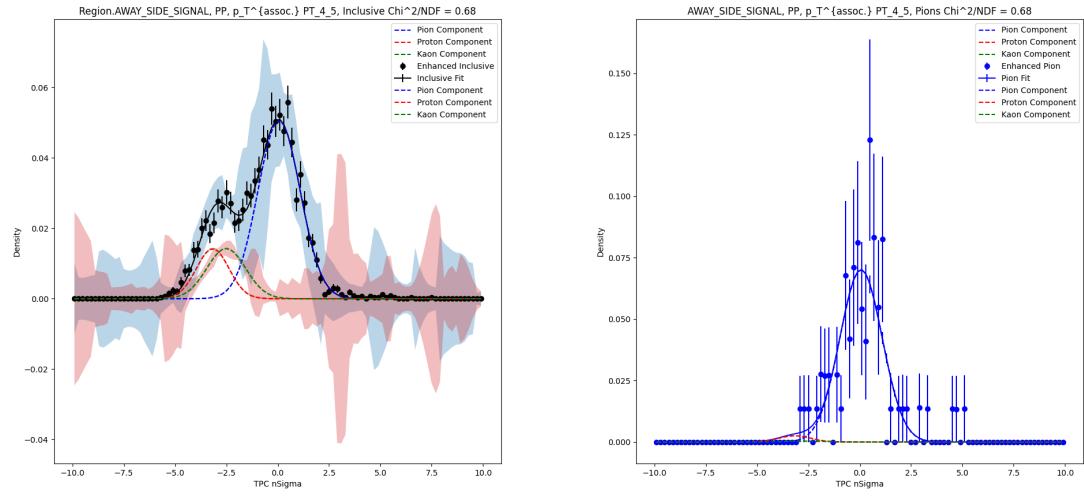


(a) TPC $n\sigma$ fits for PP PT-4-5 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-4-5 NEAR-SIDE region for Pions.

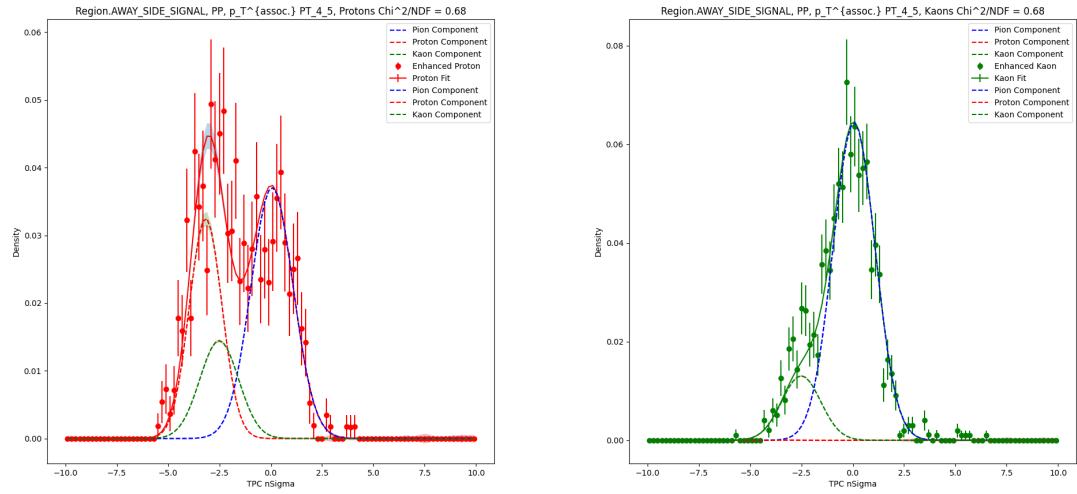


(c) TPC $n\sigma$ fits for PP PT-4-5 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-4-5 NEAR-SIDE region for Kaons.

Figure 22: TPC $n\sigma$ fits for PP PT-4-5 NEAR-SIDE region.

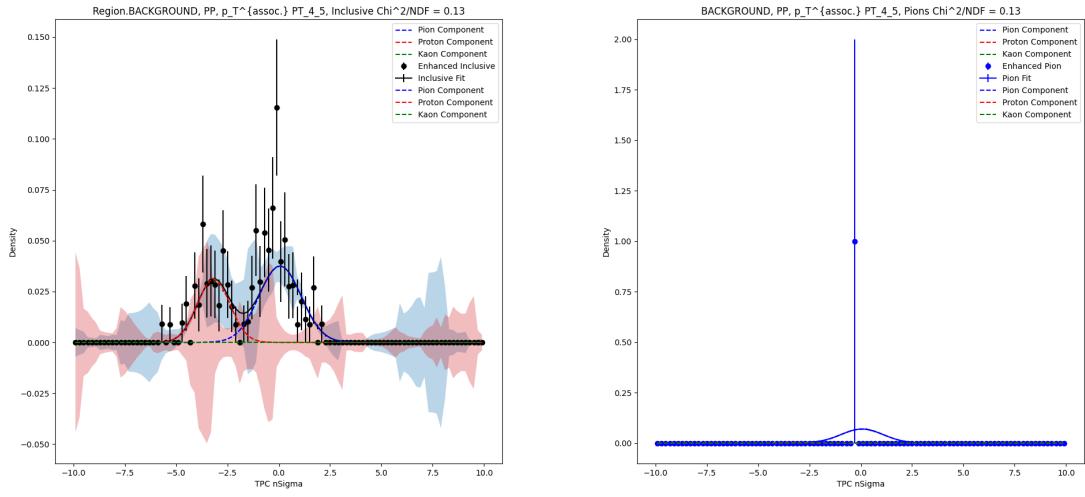


(a) TPC $n\sigma$ fits for PP PT-4-5 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-4-5 AWAY-SIDE region for Pions.

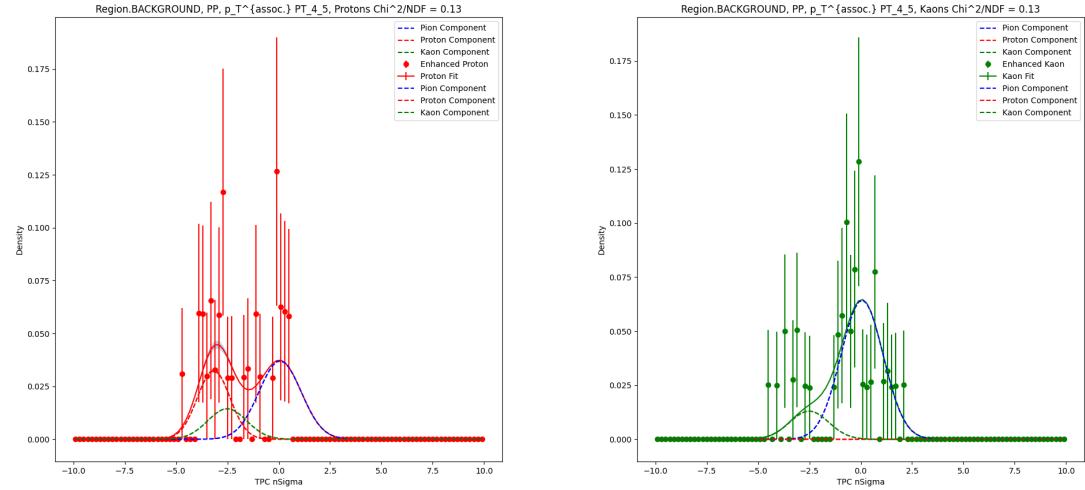


(c) TPC $n\sigma$ fits for PP PT-4-5 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-4-5 AWAY-SIDE region for Kaons.

Figure 23: TPC $n\sigma$ fits for PP PT-4-5 AWAY-SIDE region.



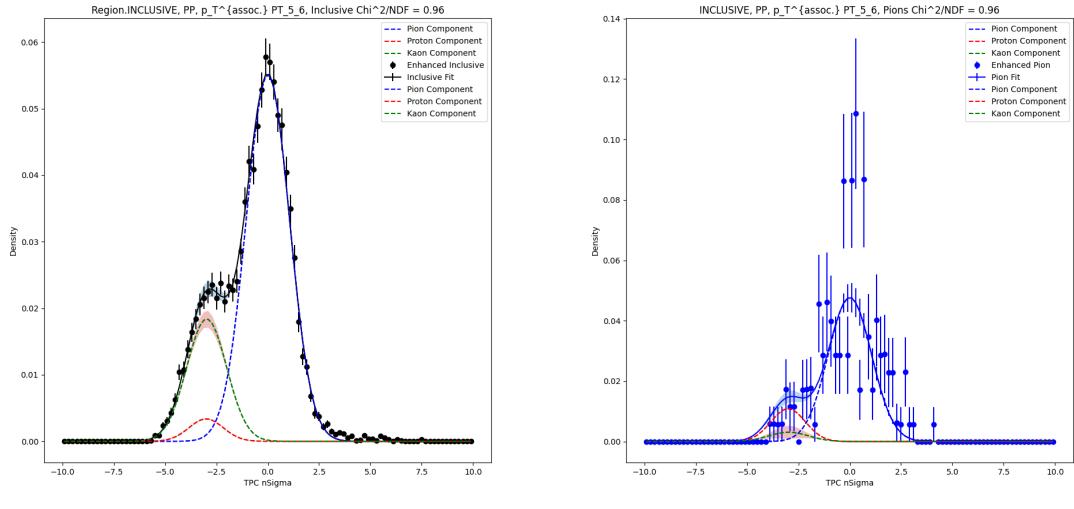
(a) TPC $n\sigma$ fits for PP PT-4-5 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-4-5 BACKGROUND region for Pions.



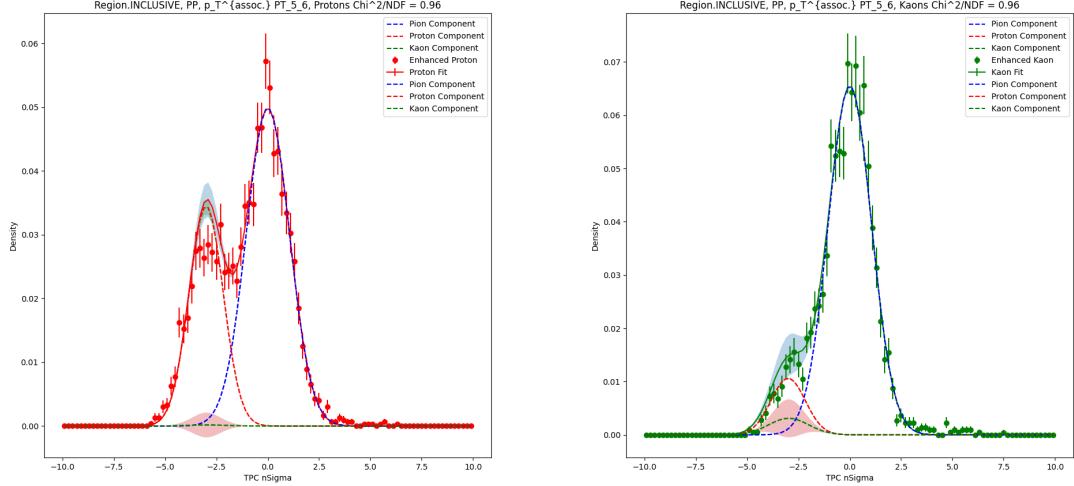
(c) TPC $n\sigma$ fits for PP PT-4-5 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-4-5 BACKGROUND region for Kaons.

Figure 24: TPC $n\sigma$ fits for PP PT-4-5 BACKGROUND region.

1.7 PP PT-5-6

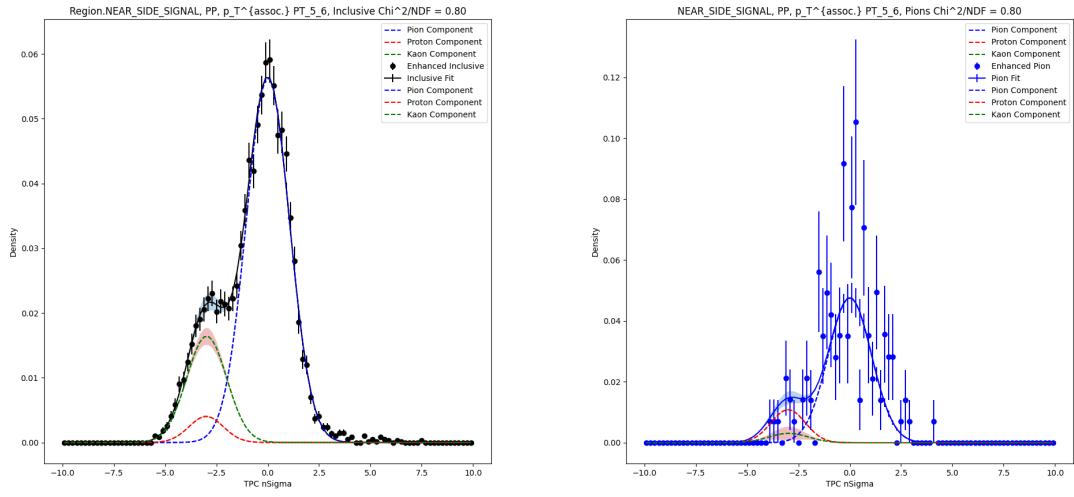


(a) TPC $n\sigma$ fits for PP PT-5-6 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-5-6 INCLUSIVE region for Pions.

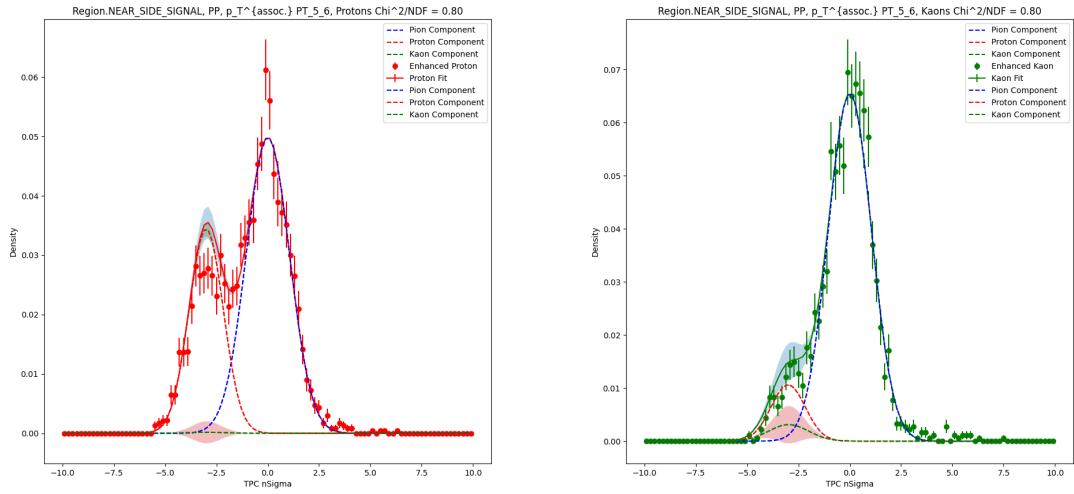


(c) TPC $n\sigma$ fits for PP PT-5-6 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-5-6 INCLUSIVE region for Kaons.

Figure 25: TPC $n\sigma$ fits for PP PT-5-6 INCLUSIVE region.

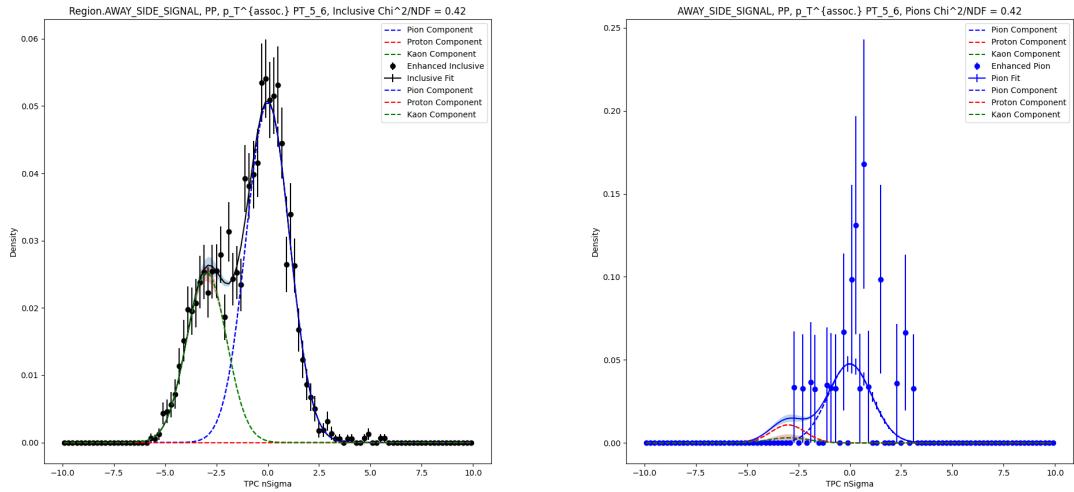


(a) TPC $n\sigma$ fits for PP PT-5-6 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-5-6 NEAR-SIDE region for Pions.

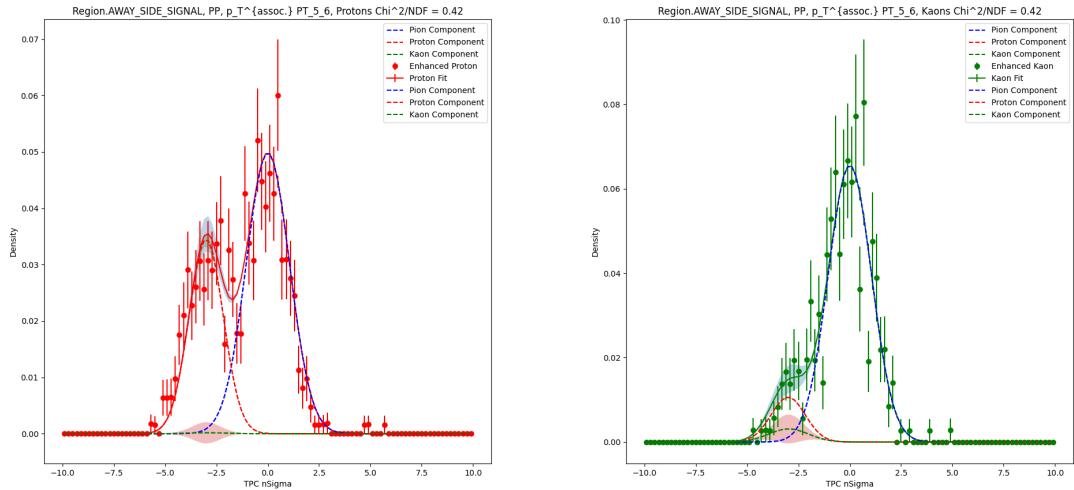


(c) TPC $n\sigma$ fits for PP PT-5-6 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-5-6 NEAR-SIDE region for Kaons.

Figure 26: TPC $n\sigma$ fits for PP PT-5-6 NEAR-SIDE region.

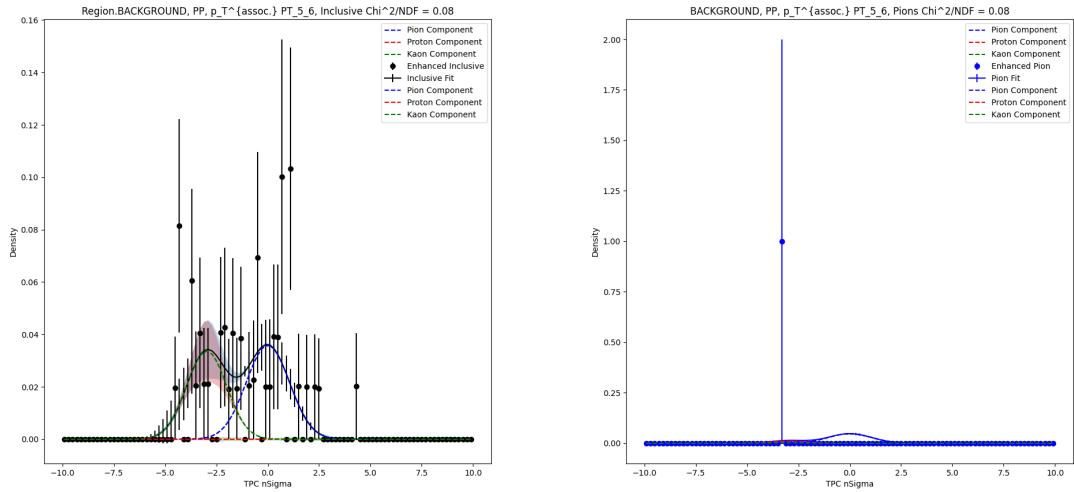


(a) TPC $n\sigma$ fits for PP PT-5-6 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-5-6 AWAY-SIDE region for Pions.

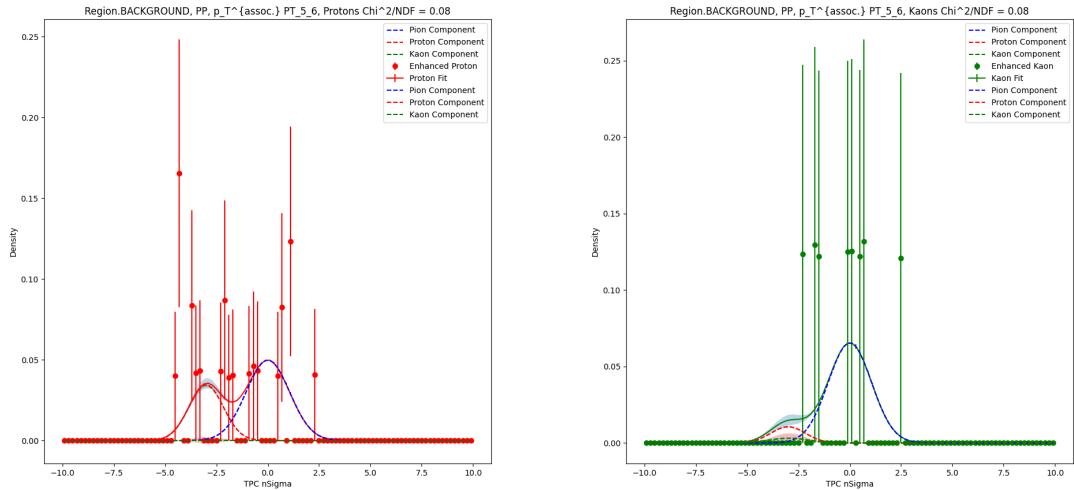


(c) TPC $n\sigma$ fits for PP PT-5-6 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-5-6 AWAY-SIDE region for Kaons.

Figure 27: TPC $n\sigma$ fits for PP PT-5-6 AWAY-SIDE region.



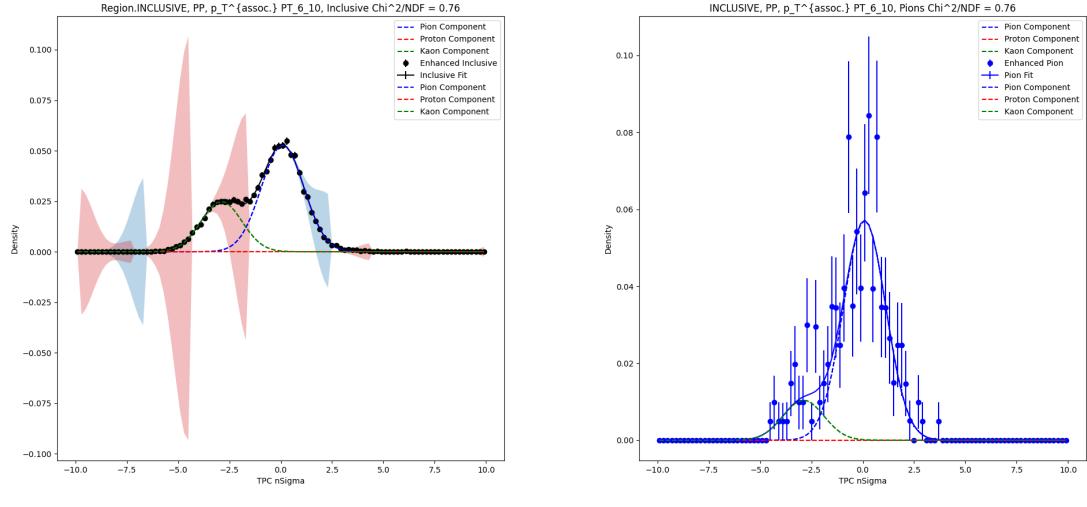
(a) TPC $n\sigma$ fits for PP PT-5-6 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-5-6 BACKGROUND region for Pions.



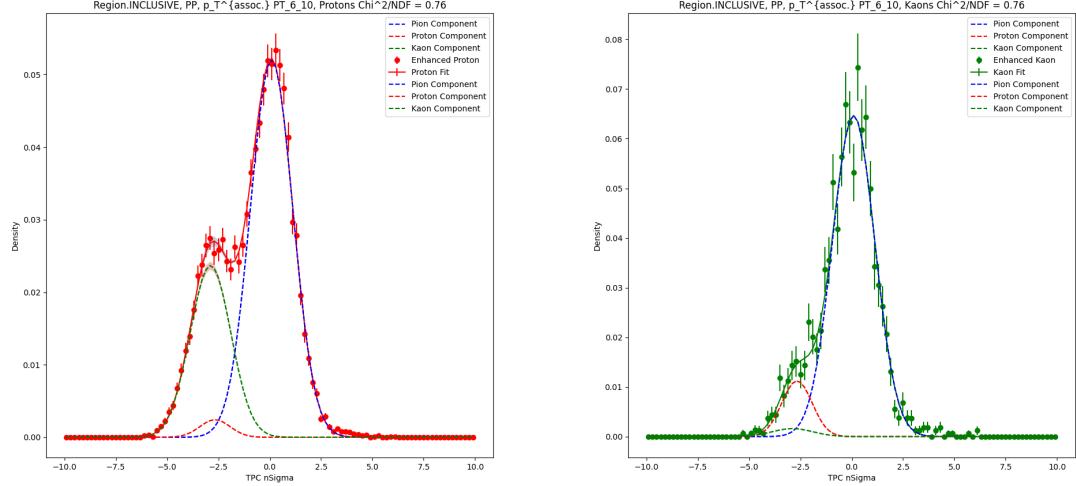
(c) TPC $n\sigma$ fits for PP PT-5-6 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-5-6 BACKGROUND region for Kaons.

Figure 28: TPC $n\sigma$ fits for PP PT-5-6 BACKGROUND region.

1.8 PP PT-6-10

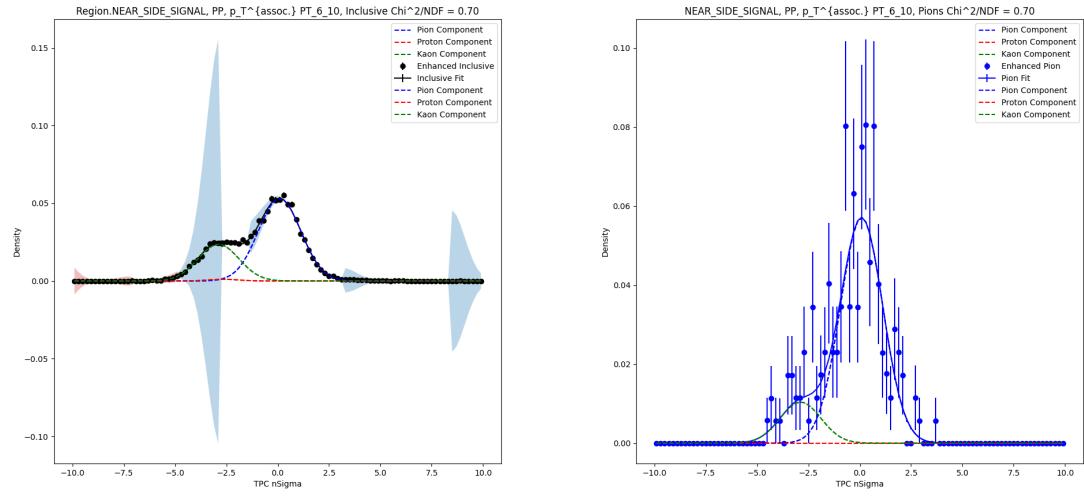


(a) TPC $n\sigma$ fits for PP PT-6-10 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-6-10 INCLUSIVE region for Pions.

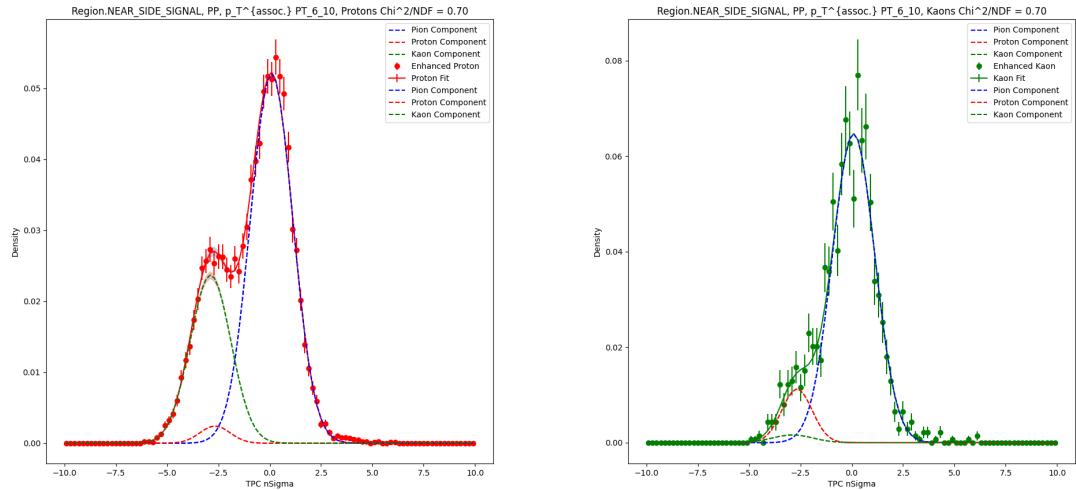


(c) TPC $n\sigma$ fits for PP PT-6-10 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for PP PT-6-10 INCLUSIVE region for Kaons.

Figure 29: TPC $n\sigma$ fits for PP PT-6-10 INCLUSIVE region.

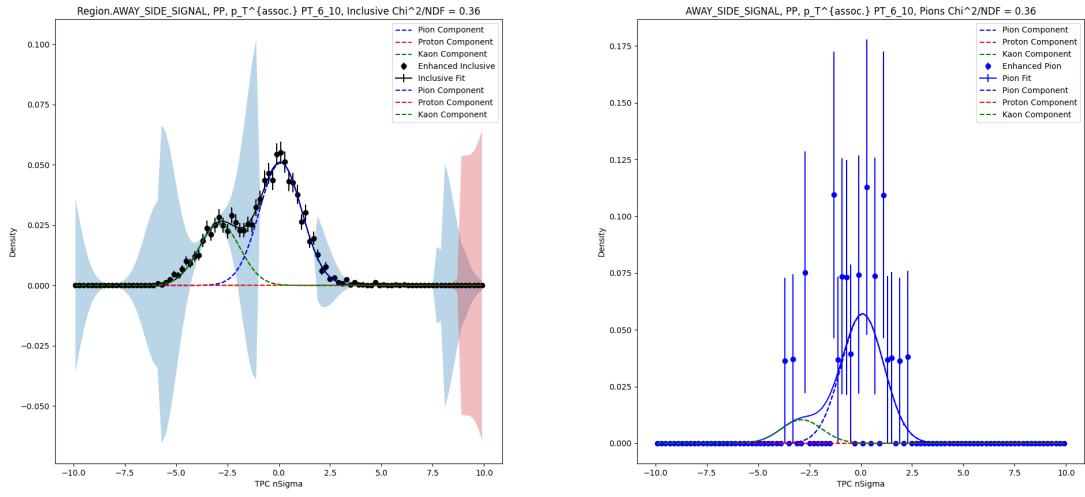


(a) TPC $n\sigma$ fits for PP PT-6-10 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-6-10 NEAR-SIDE region for Pions.

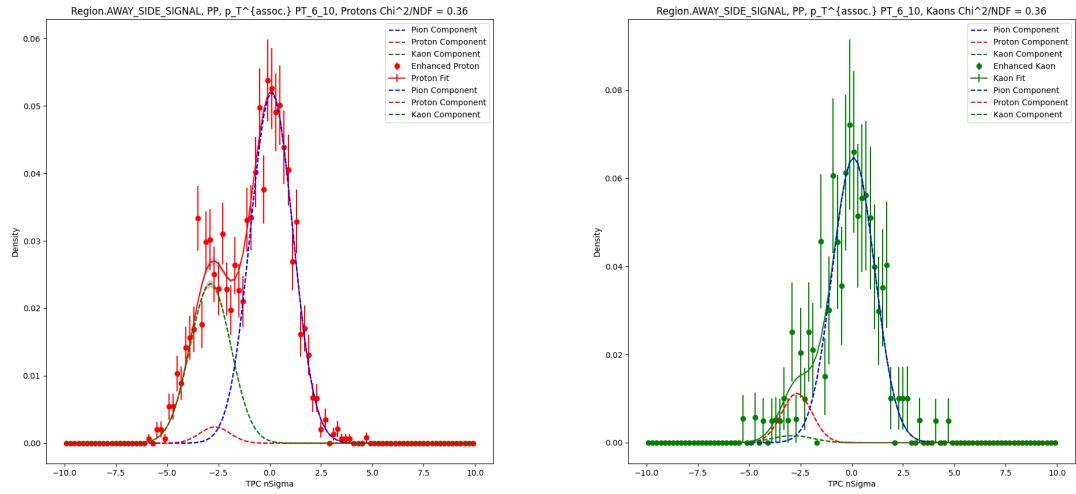


(c) TPC $n\sigma$ fits for PP PT-6-10 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-6-10 NEAR-SIDE region for Kaons.

Figure 30: TPC $n\sigma$ fits for PP PT-6-10 NEAR-SIDE region.

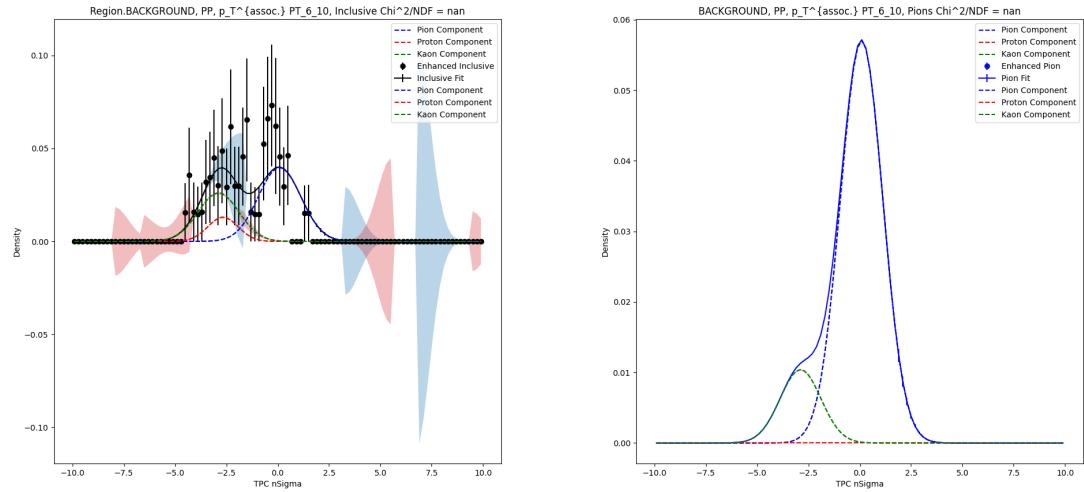


(a) TPC $n\sigma$ fits for PP PT-6-10 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-6-10 AWAY-SIDE region for Pions.

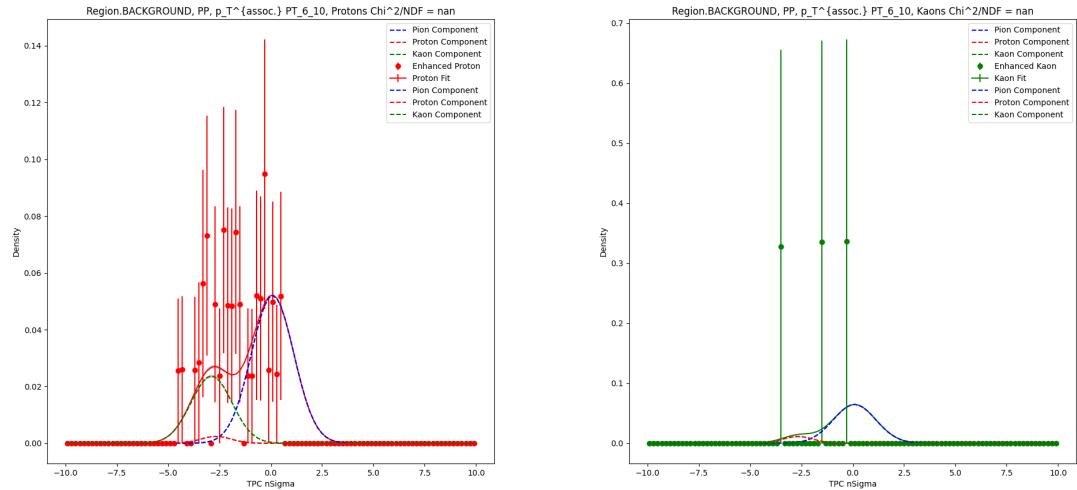


(c) TPC $n\sigma$ fits for PP PT-6-10 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for PP PT-6-10 AWAY-SIDE region for Kaons.

Figure 31: TPC $n\sigma$ fits for PP PT-6-10 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for PP PT-6-10 BACKGROUND region for Inclusive particles. (b) TPC $n\sigma$ fits for PP PT-6-10 BACKGROUND region for Pions.



(c) TPC $n\sigma$ fits for PP PT-6-10 BACKGROUND region for Protons. (d) TPC $n\sigma$ fits for PP PT-6-10 BACKGROUND region for Kaons.

Figure 32: TPC $n\sigma$ fits for PP PT-6-10 BACKGROUND region.

.2 CENTRAL

.2.1 CENTRAL Yields and Ratios

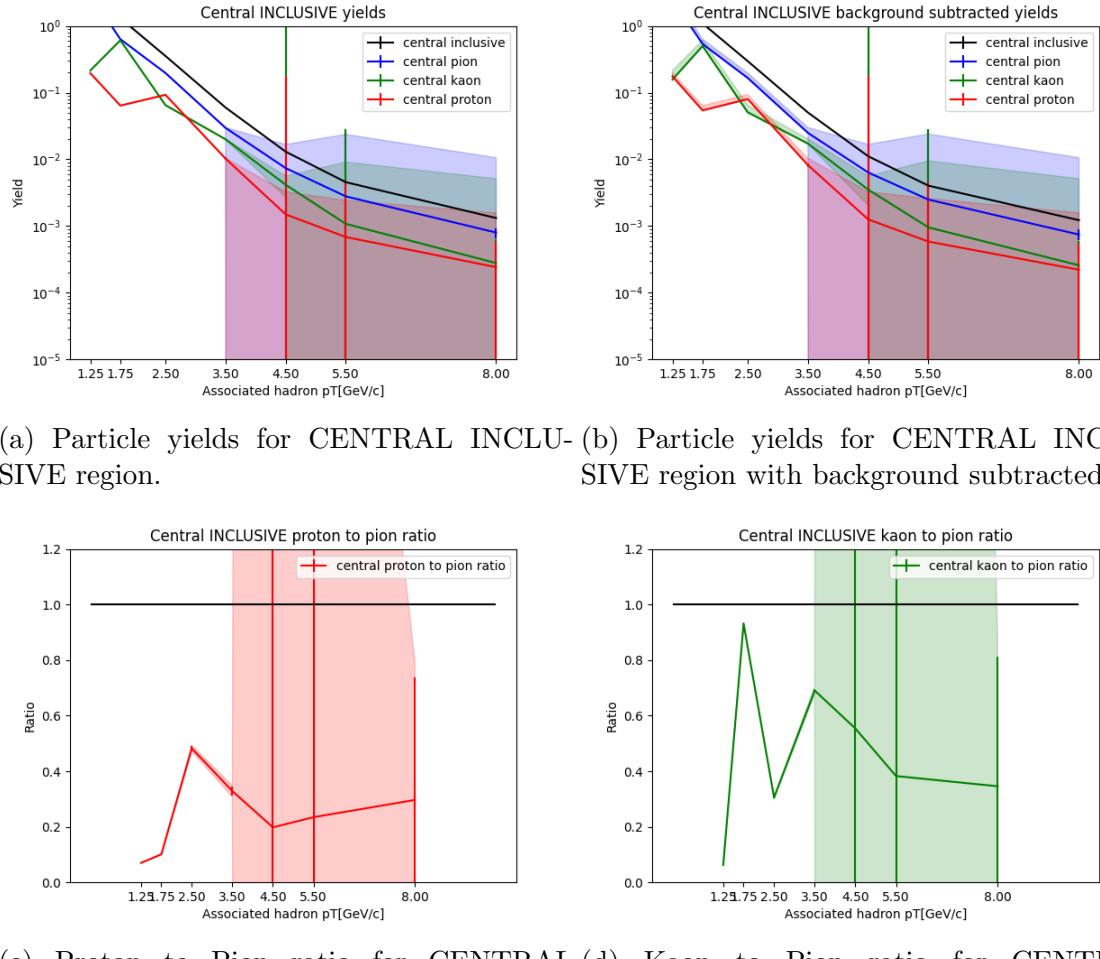
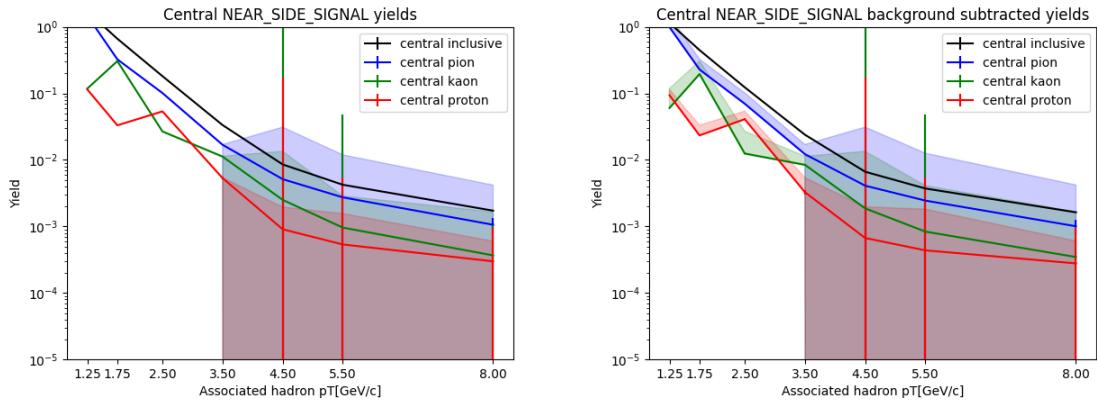
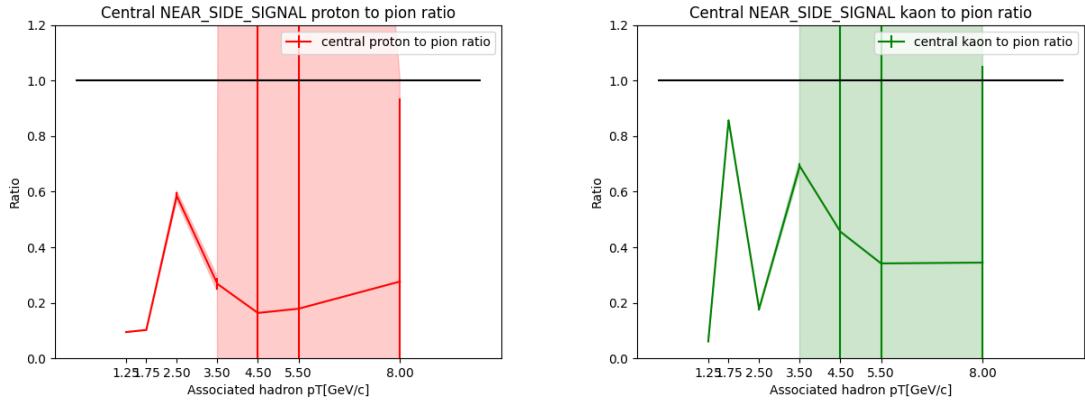


Figure 33: Particle yields and ratios for CENTRAL INCLUSIVE region.

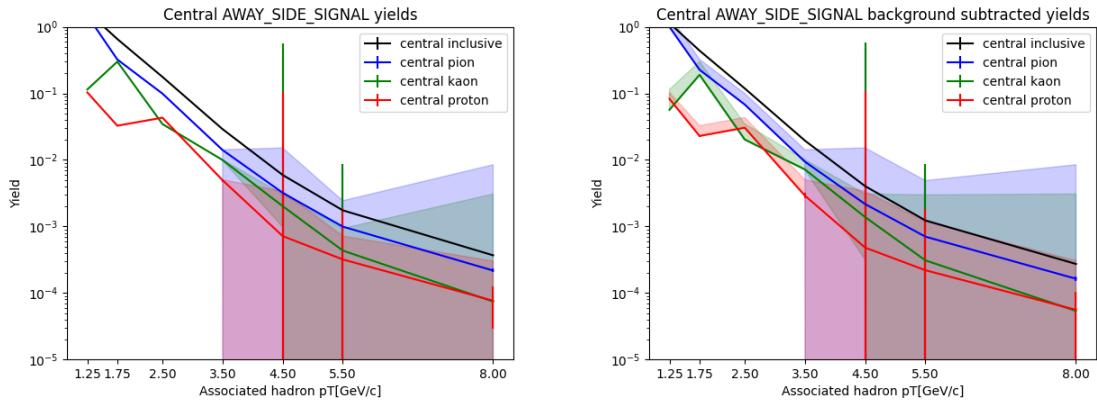


(a) Particle yields for CENTRAL NEAR-SIDE region. (b) Particle yields for CENTRAL NEAR-SIDE region with background subtracted.

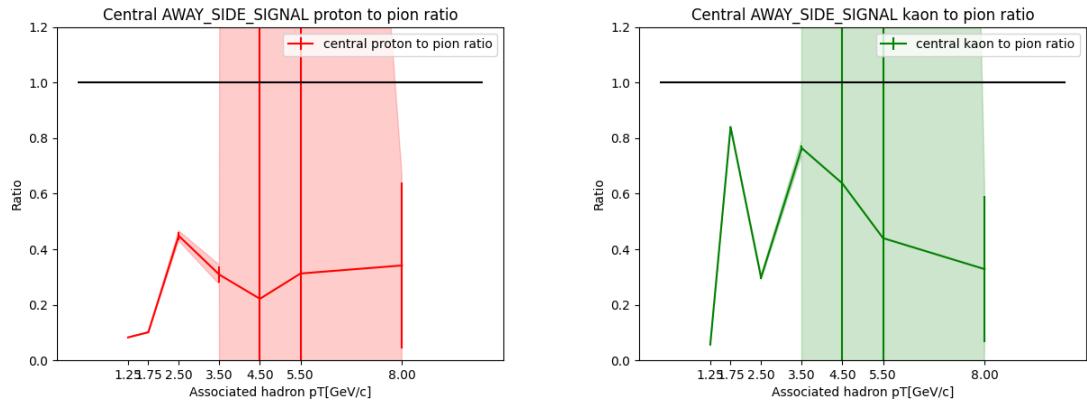


(c) Proton to Pion ratio for CENTRAL NEAR-SIDE region. (d) Kaon to Pion ratio for CENTRAL NEAR-SIDE region.

Figure 34: Particle yields and ratios for CENTRAL NEAR-SIDE region.

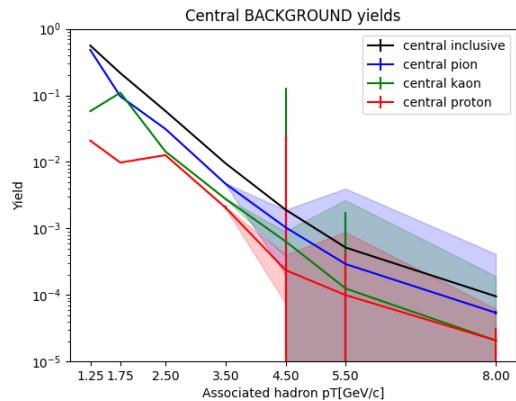


(a) Particle yields for CENTRAL AWAY-SIDE region. (b) Particle yields for CENTRAL AWAY-SIDE region with background subtracted.



(c) Proton to Pion ratio for CENTRAL AWAY-SIDE region. (d) Kaon to Pion ratio for CENTRAL AWAY-SIDE region.

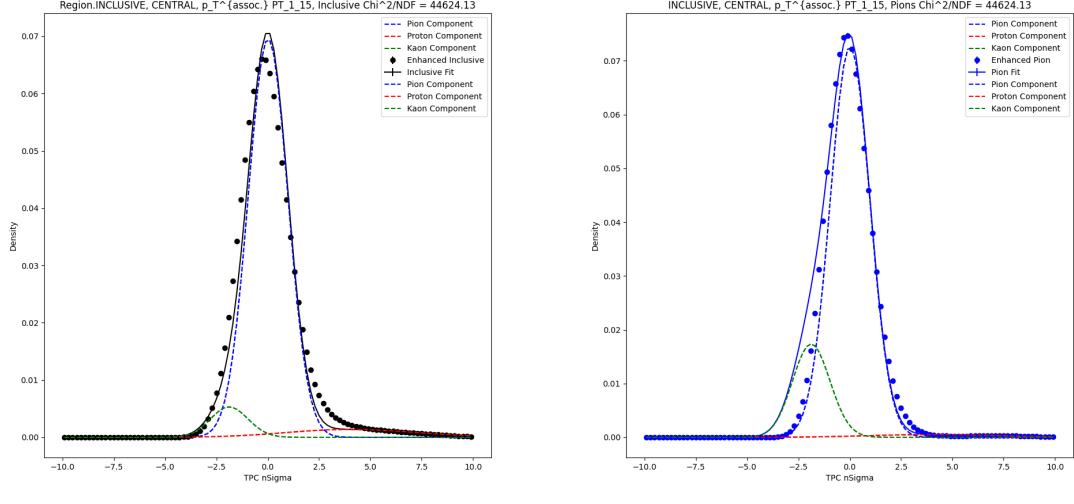
Figure 35: Particle yields and ratios for CENTRAL AWAY-SIDE region.



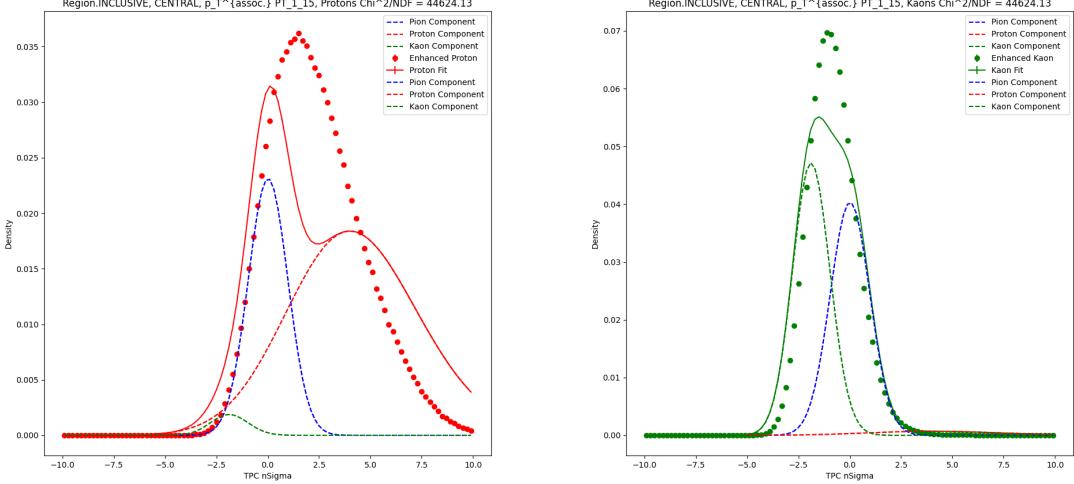
(a) Particle yields for CENTRAL BACKGROUND region.

Figure 36: Particle yields for CENTRAL BACKGROUND region.

2.2 CENTRAL PT-1-15

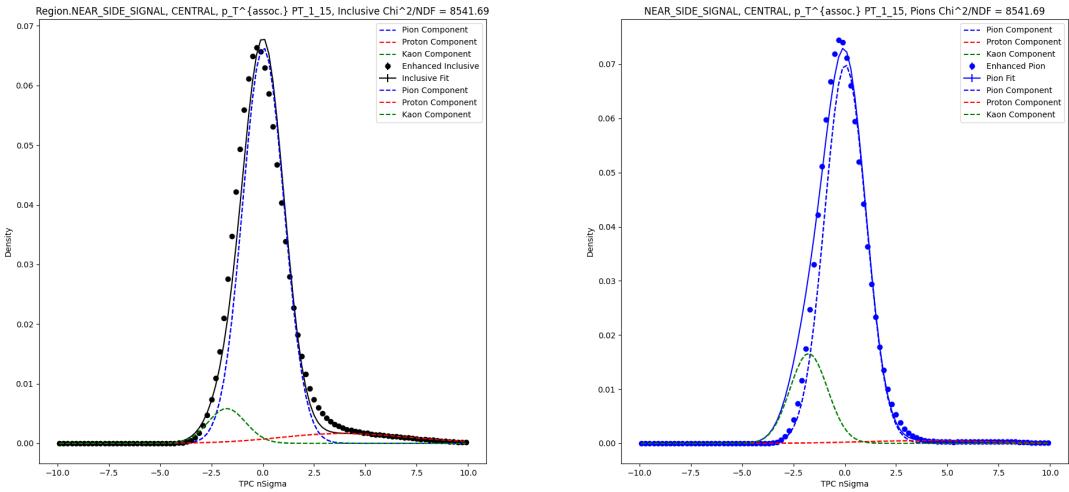


(a) TPC $n\sigma$ fits for CENTRAL PT-1-15 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-1-15 INCLUSIVE region for Pions.

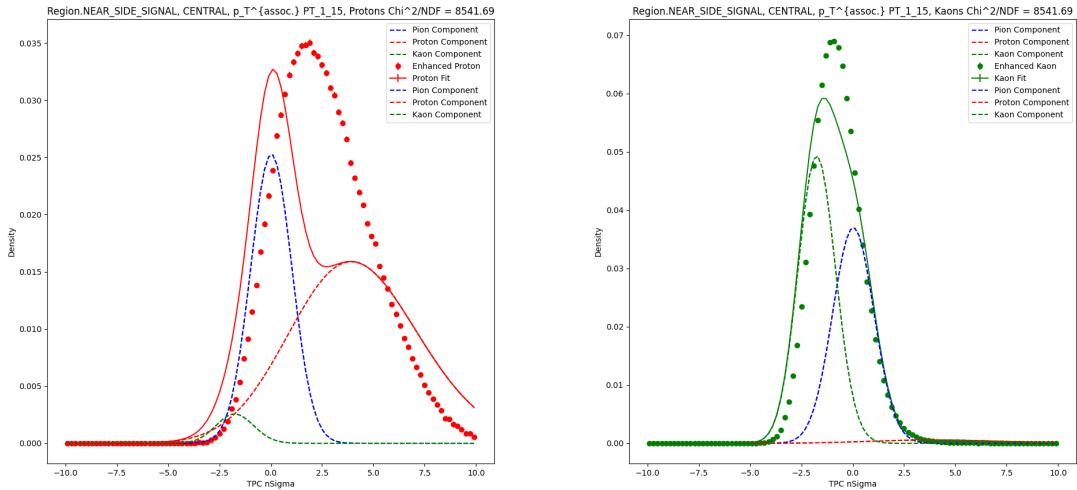


(c) TPC $n\sigma$ fits for CENTRAL PT-1-15 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-1-15 INCLUSIVE region for Kaons.

Figure 37: TPC $n\sigma$ fits for CENTRAL PT-1-15 INCLUSIVE region.

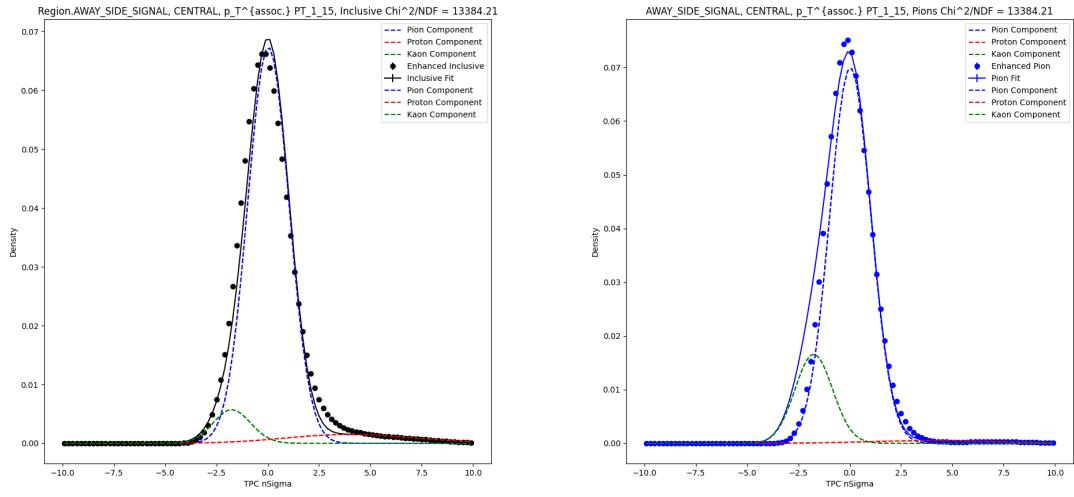


(a) TPC $n\sigma$ fits for CENTRAL PT-1-15 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-1-15 NEAR-SIDE region for Pions.

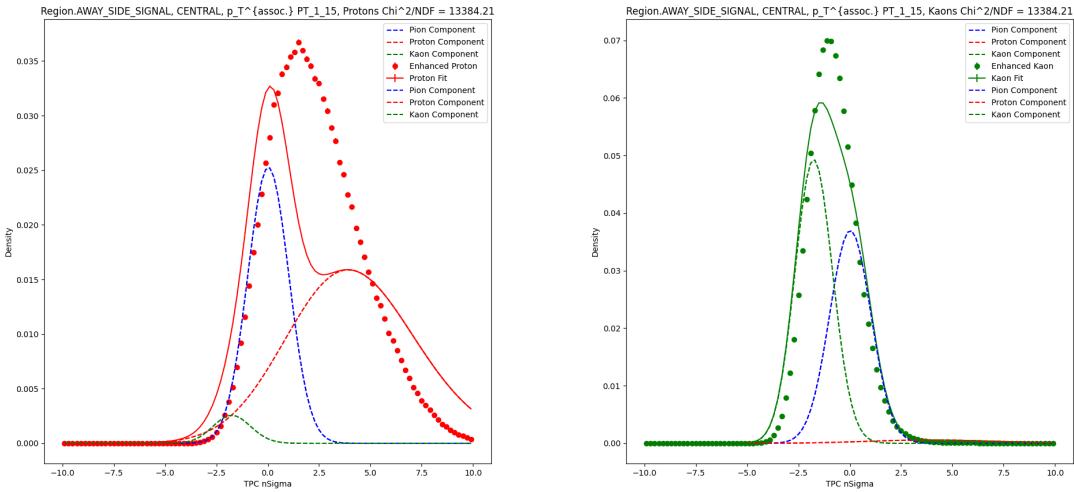


(c) TPC $n\sigma$ fits for CENTRAL PT-1-15 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-1-15 NEAR-SIDE region for Kaons.

Figure 38: TPC $n\sigma$ fits for CENTRAL PT-1-15 NEAR-SIDE region.

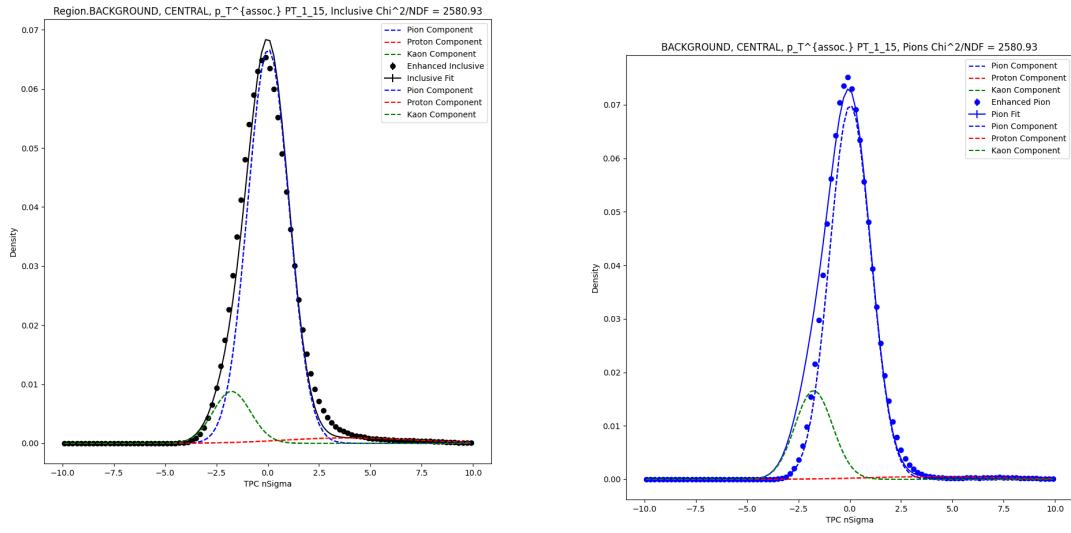


(a) TPC $n\sigma$ fits for CENTRAL PT-1-15 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-1-15 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-1-15 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-1-15 AWAY-SIDE region for Kaons.

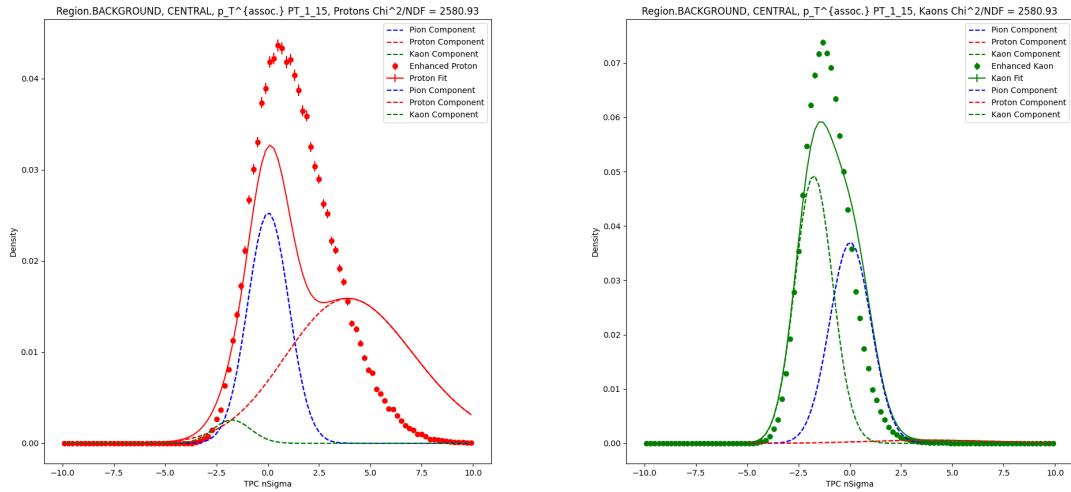
Figure 39: TPC $n\sigma$ fits for CENTRAL PT-1-15 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-1-15

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-1-15 BACKGROUND region for Pions.

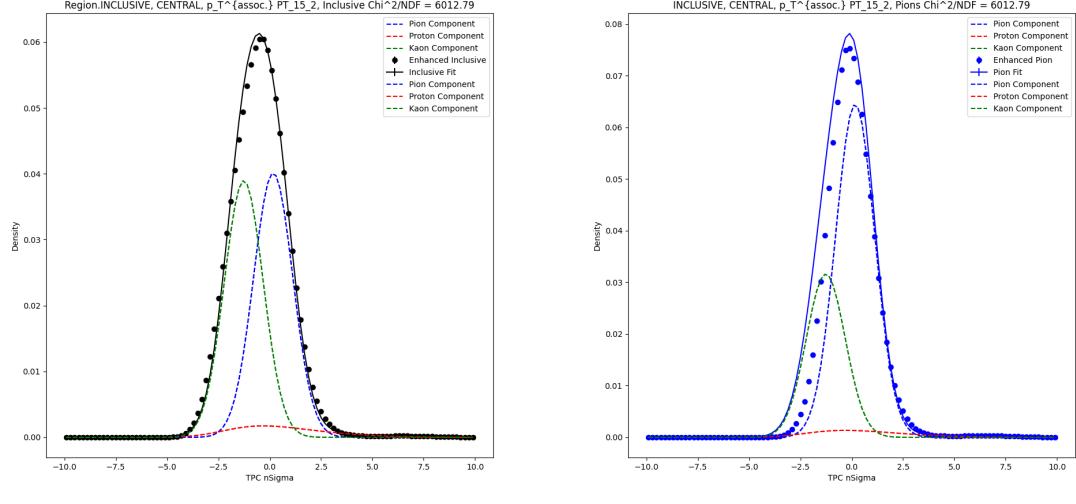


(c) TPC $n\sigma$ fits for CENTRAL PT-1-15 BACKGROUND region for Protons.

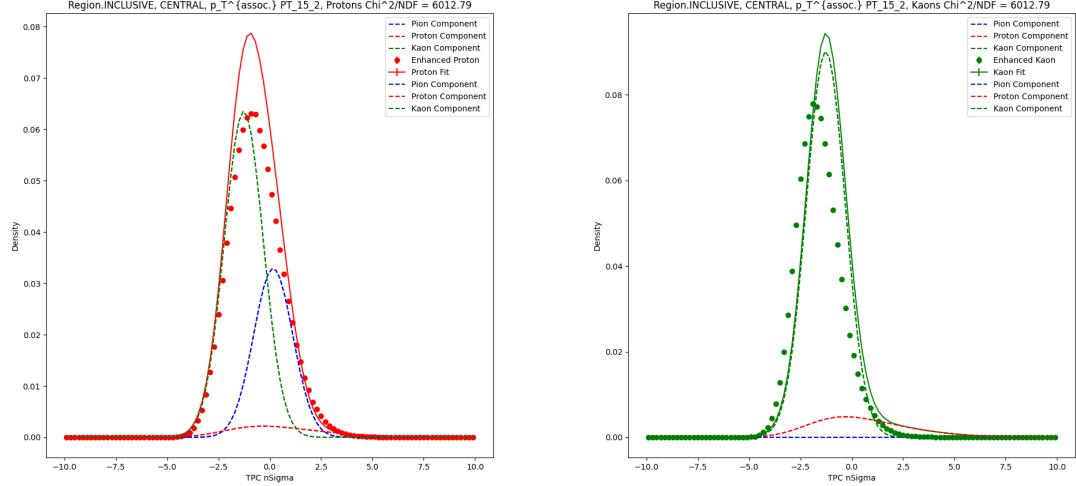
(d) TPC $n\sigma$ fits for CENTRAL PT-1-15 BACKGROUND region for Kaons.

Figure 40: TPC $n\sigma$ fits for CENTRAL PT-1-15 BACKGROUND region.

2.3 CENTRAL PT-15-2

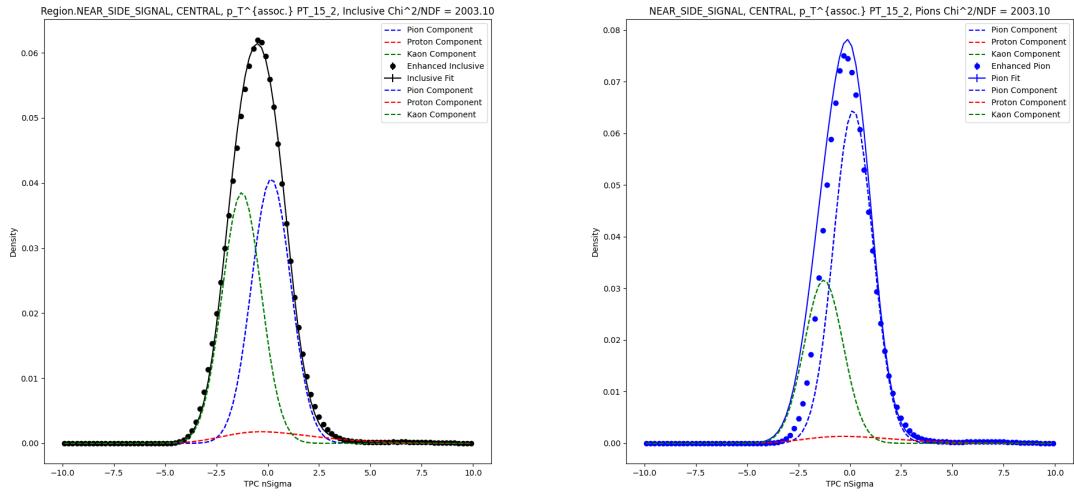


(a) TPC $n\sigma$ fits for CENTRAL PT-15-2 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-15-2 INCLUSIVE region for Pions.

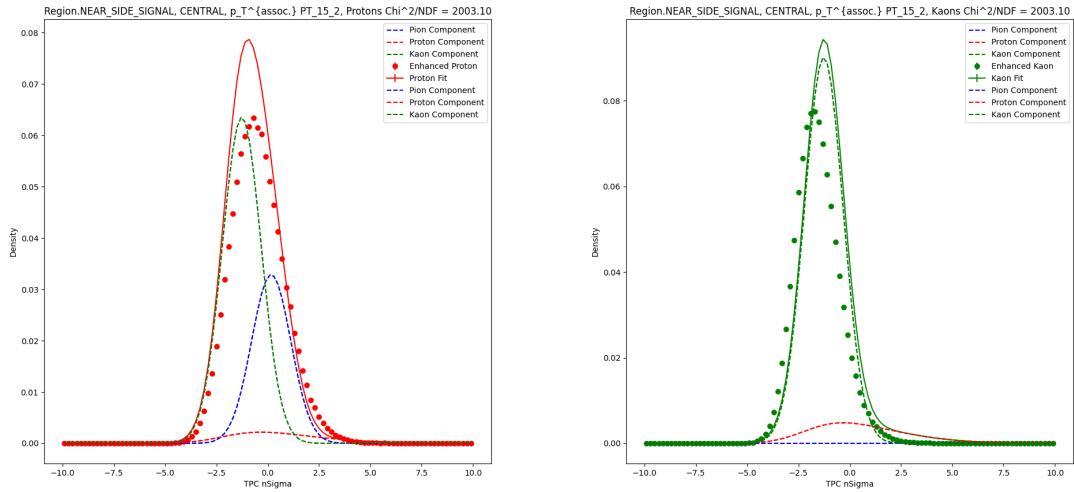


(c) TPC $n\sigma$ fits for CENTRAL PT-15-2 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-15-2 INCLUSIVE region for Kaons.

Figure 41: TPC $n\sigma$ fits for CENTRAL PT-15-2 INCLUSIVE region.

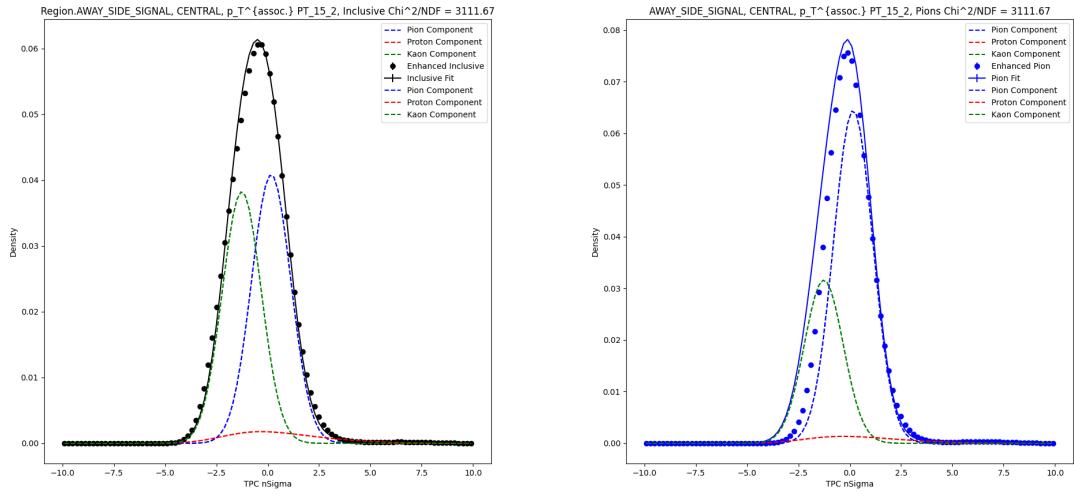


(a) TPC $n\sigma$ fits for CENTRAL PT-15-2 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-15-2 NEAR-SIDE region for Pions.

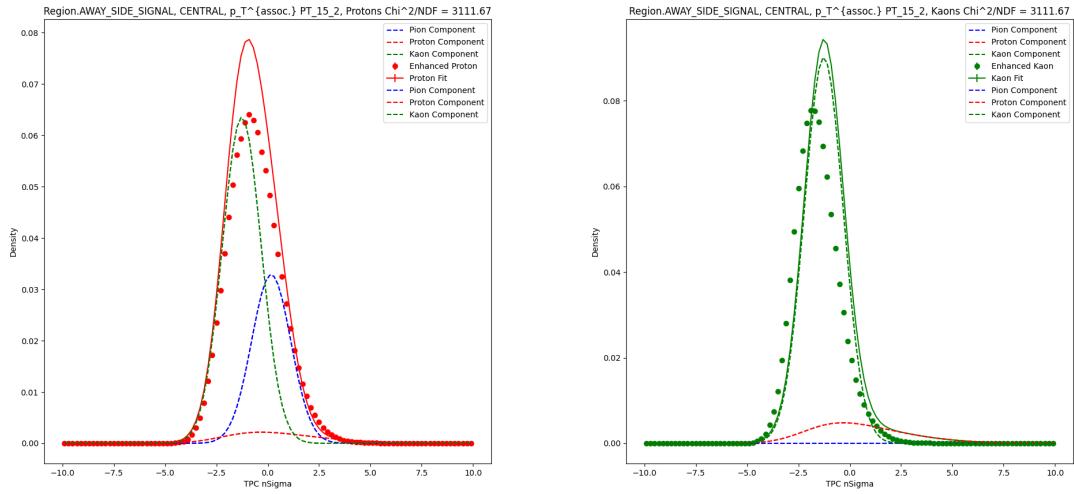


(c) TPC $n\sigma$ fits for CENTRAL PT-15-2 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-15-2 NEAR-SIDE region for Kaons.

Figure 42: TPC $n\sigma$ fits for CENTRAL PT-15-2 NEAR-SIDE region.

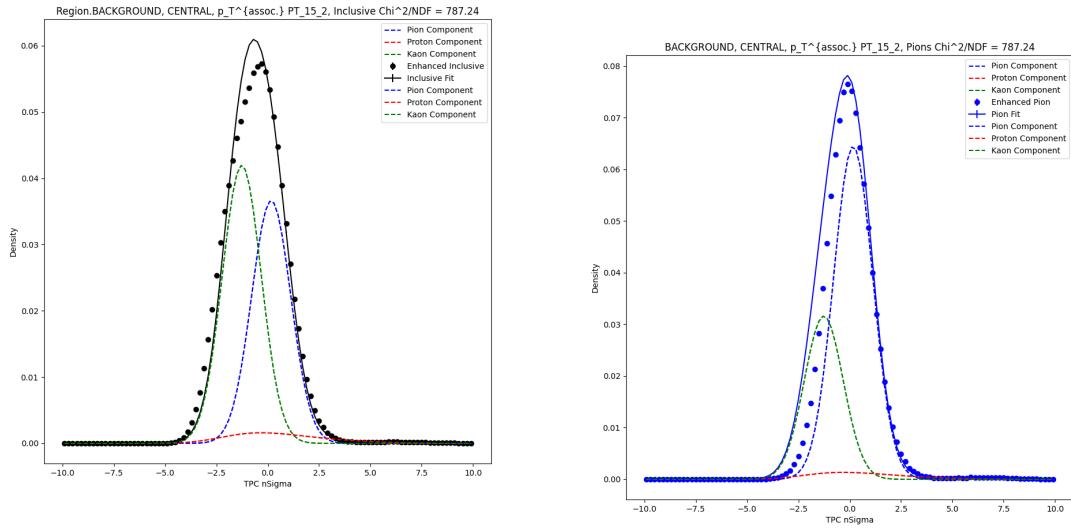


(a) TPC $n\sigma$ fits for CENTRAL PT-15-2 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-15-2 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-15-2 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-15-2 AWAY-SIDE region for Kaons.

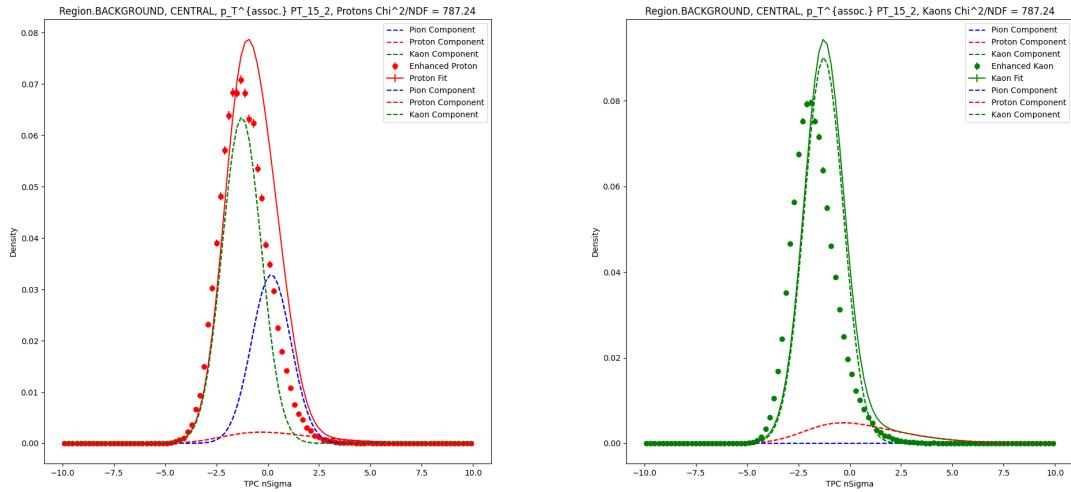
Figure 43: TPC $n\sigma$ fits for CENTRAL PT-15-2 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-15-2

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-15-2 BACKGROUND region for Pions.

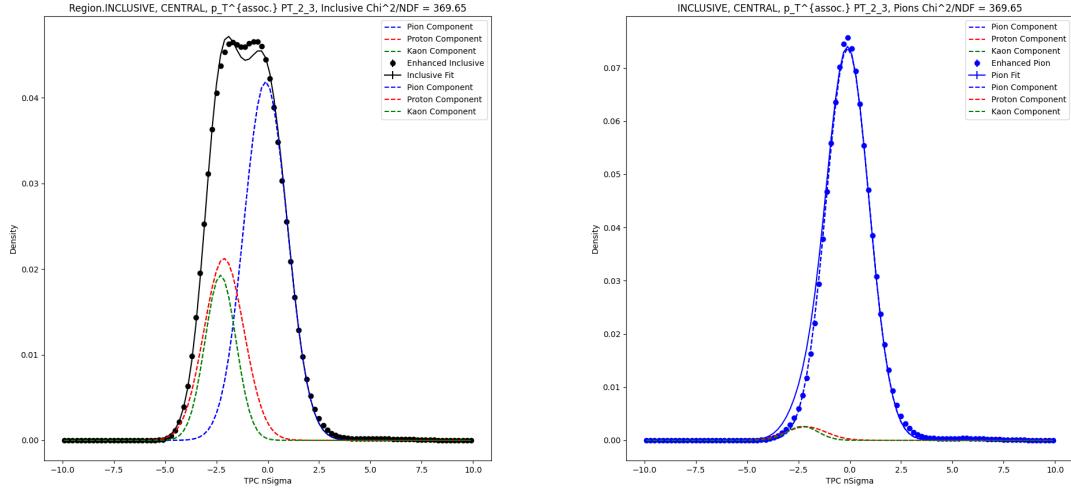


(c) TPC $n\sigma$ fits for CENTRAL PT-15-2 BACKGROUND region for Protons.

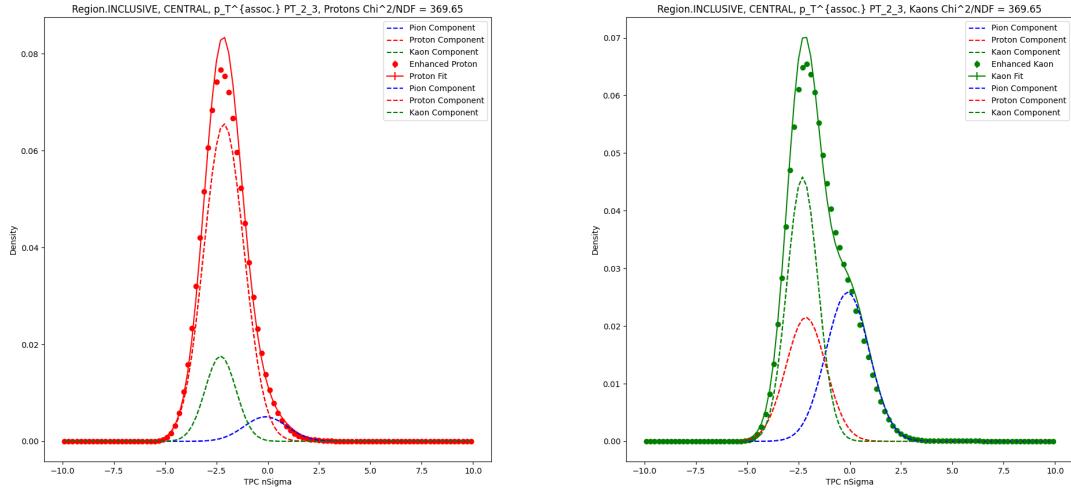
(d) TPC $n\sigma$ fits for CENTRAL PT-15-2 BACKGROUND region for Kaons.

Figure 44: TPC $n\sigma$ fits for CENTRAL PT-15-2 BACKGROUND region.

2.4 CENTRAL PT-2-3

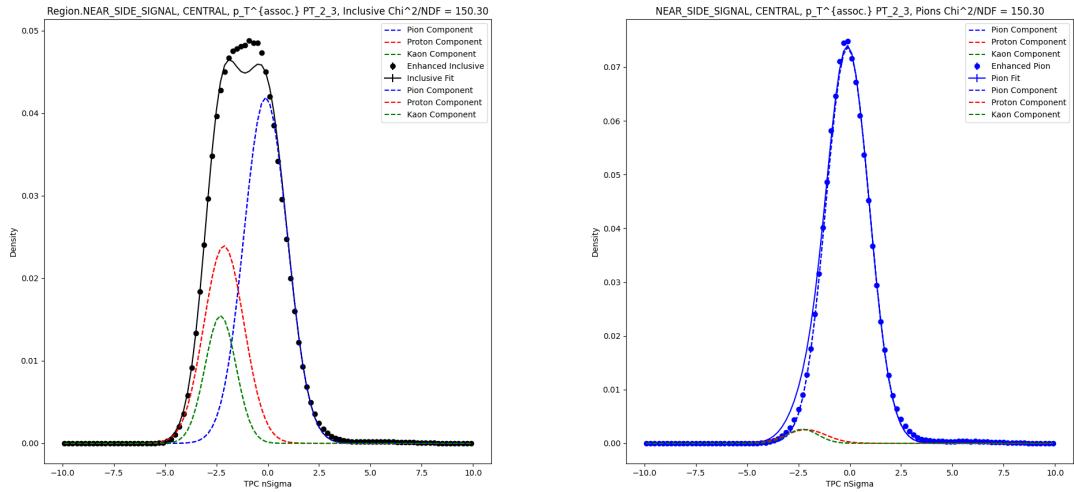


(a) TPC $n\sigma$ fits for CENTRAL PT-2-3 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-2-3 INCLUSIVE region for Pions.

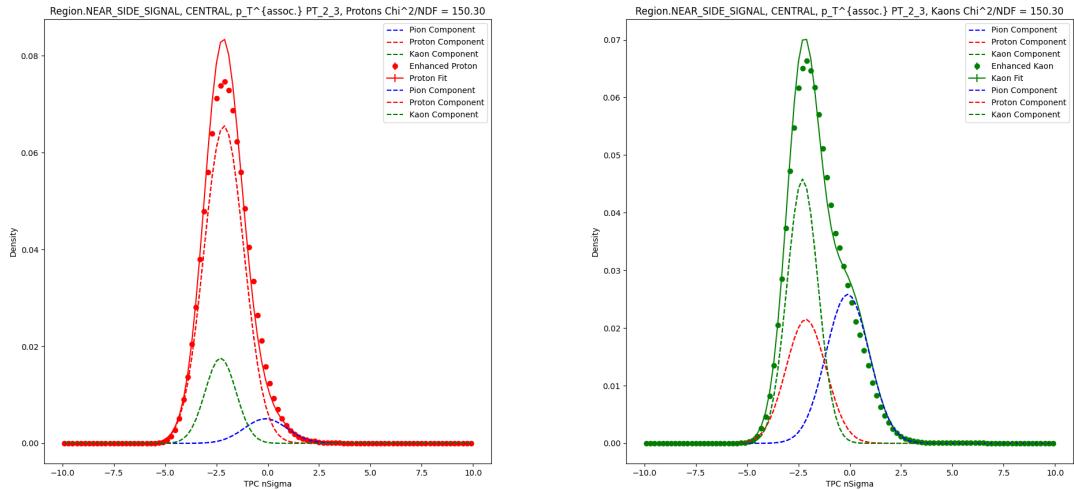


(c) TPC $n\sigma$ fits for CENTRAL PT-2-3 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-2-3 INCLUSIVE region for Kaons.

Figure 45: TPC $n\sigma$ fits for CENTRAL PT-2-3 INCLUSIVE region.

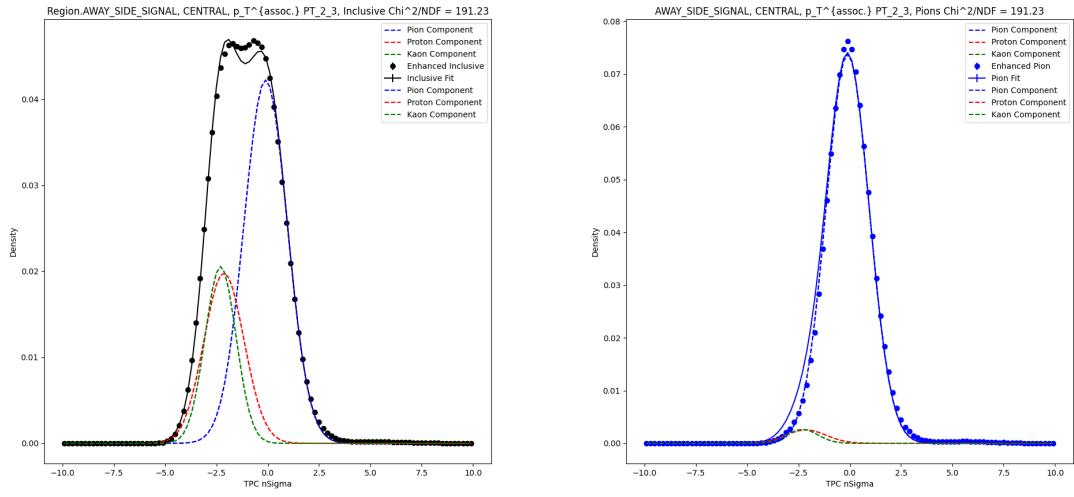


(a) TPC $n\sigma$ fits for CENTRAL PT-2-3 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-2-3 NEAR-SIDE region for Pions.

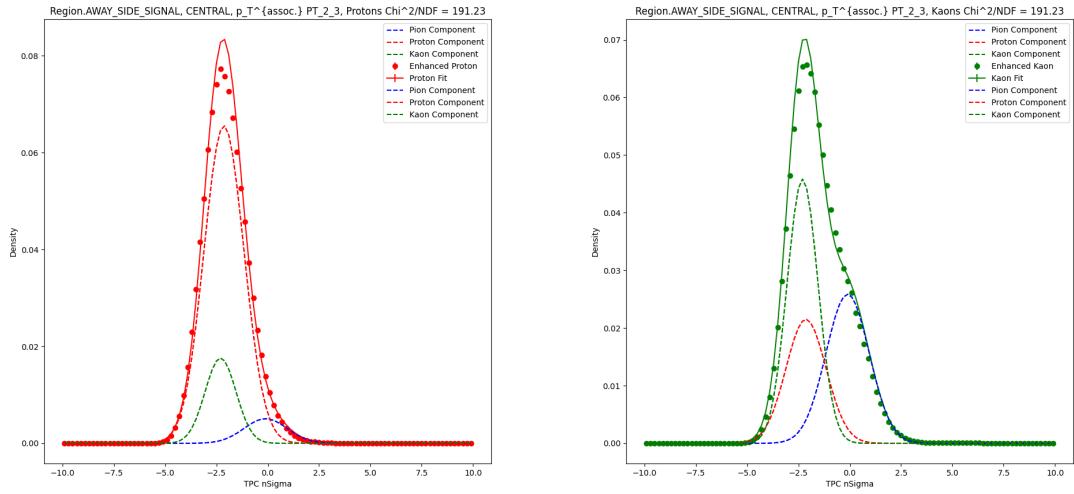


(c) TPC $n\sigma$ fits for CENTRAL PT-2-3 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-2-3 NEAR-SIDE region for Kaons.

Figure 46: TPC $n\sigma$ fits for CENTRAL PT-2-3 NEAR-SIDE region.

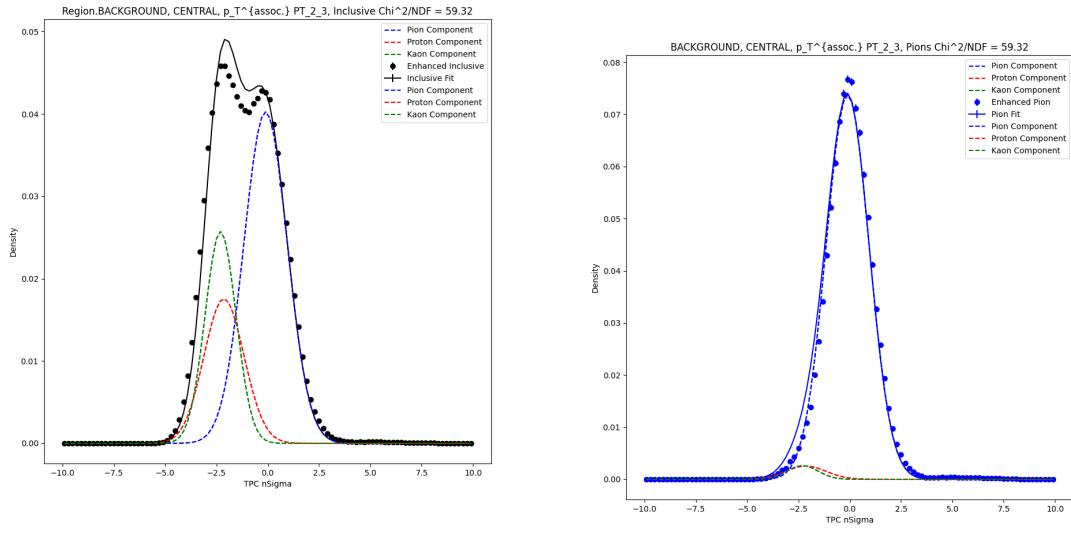


(a) TPC $n\sigma$ fits for CENTRAL PT-2-3 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-2-3 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-2-3 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-2-3 AWAY-SIDE region for Kaons.

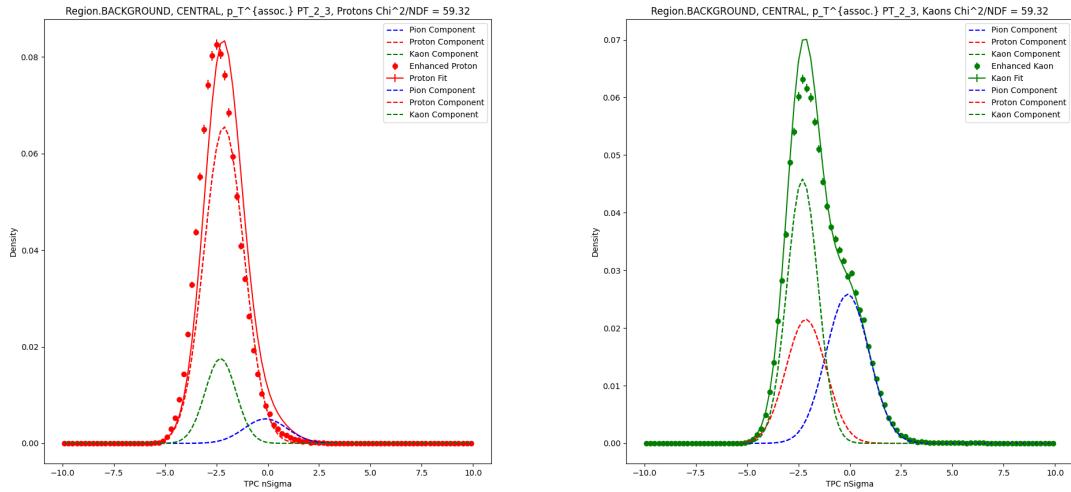
Figure 47: TPC $n\sigma$ fits for CENTRAL PT-2-3 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-2-3

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-2-3 BACKGROUND region for Pions.

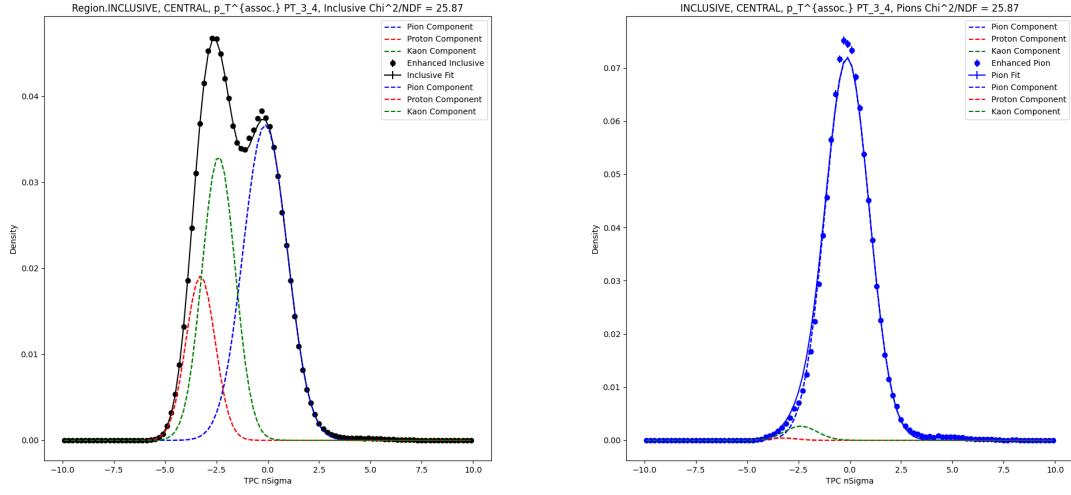


(c) TPC $n\sigma$ fits for CENTRAL PT-2-3 BACKGROUND region for Protons.

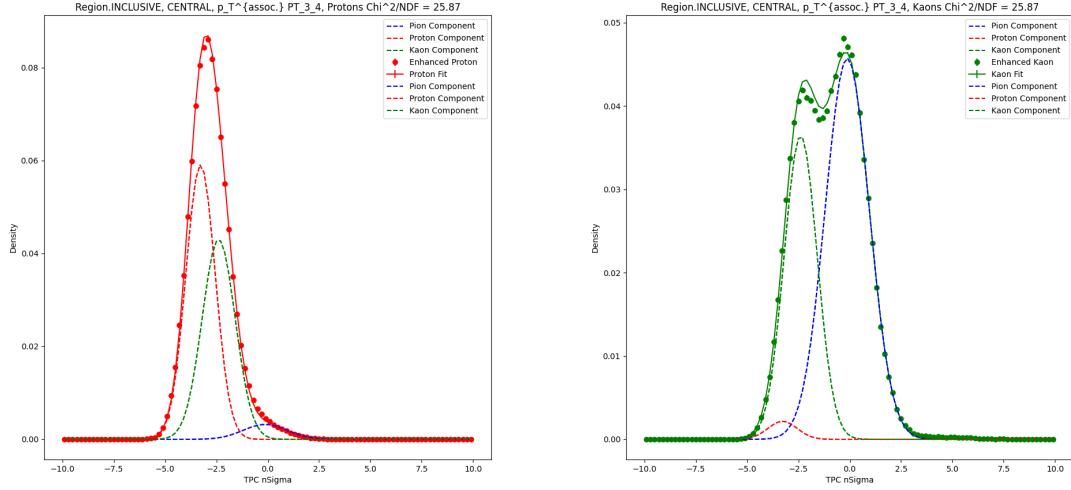
(d) TPC $n\sigma$ fits for CENTRAL PT-2-3 BACKGROUND region for Kaons.

Figure 48: TPC $n\sigma$ fits for CENTRAL PT-2-3 BACKGROUND region.

2.5 CENTRAL PT-3-4

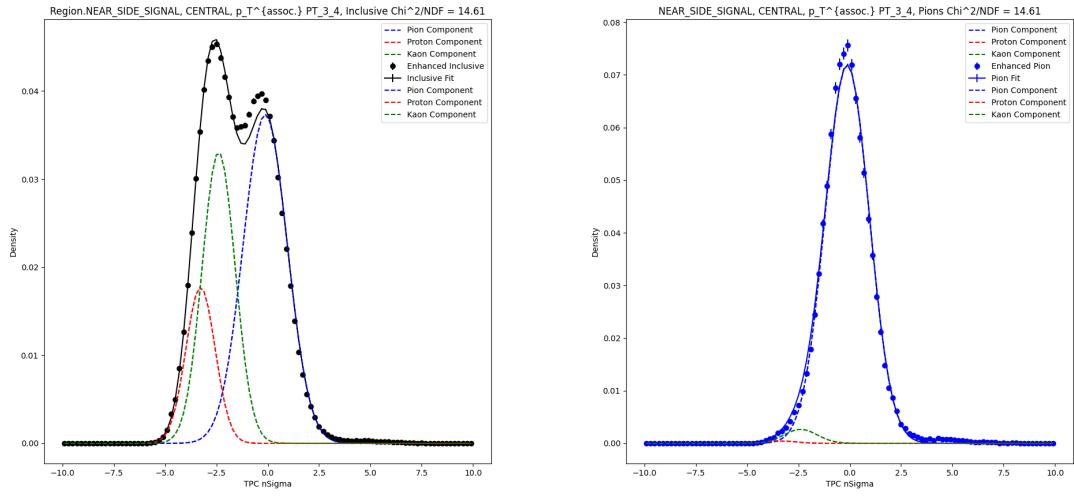


(a) TPC $n\sigma$ fits for CENTRAL PT-3-4 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-3-4 INCLUSIVE region for Pions.

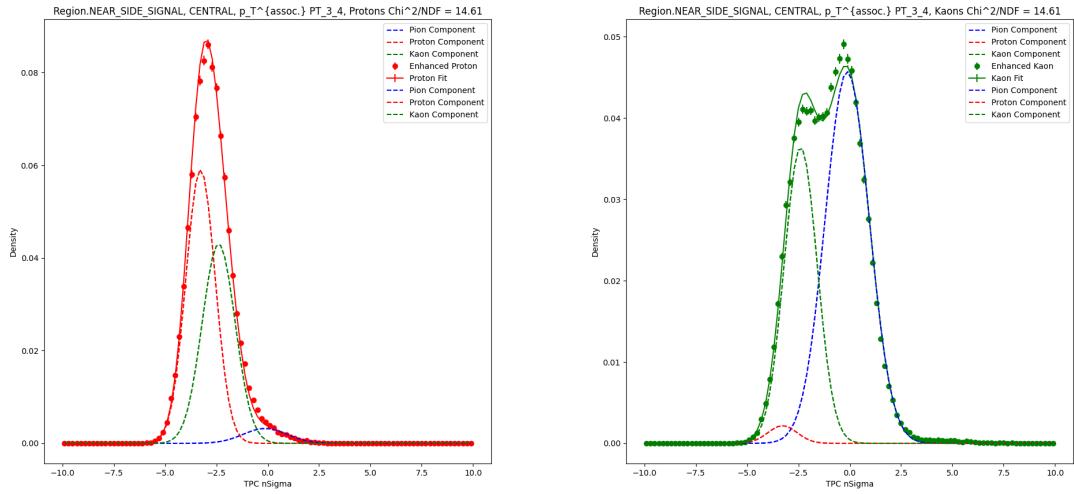


(c) TPC $n\sigma$ fits for CENTRAL PT-3-4 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-3-4 INCLUSIVE region for Kaons.

Figure 49: TPC $n\sigma$ fits for CENTRAL PT-3-4 INCLUSIVE region.

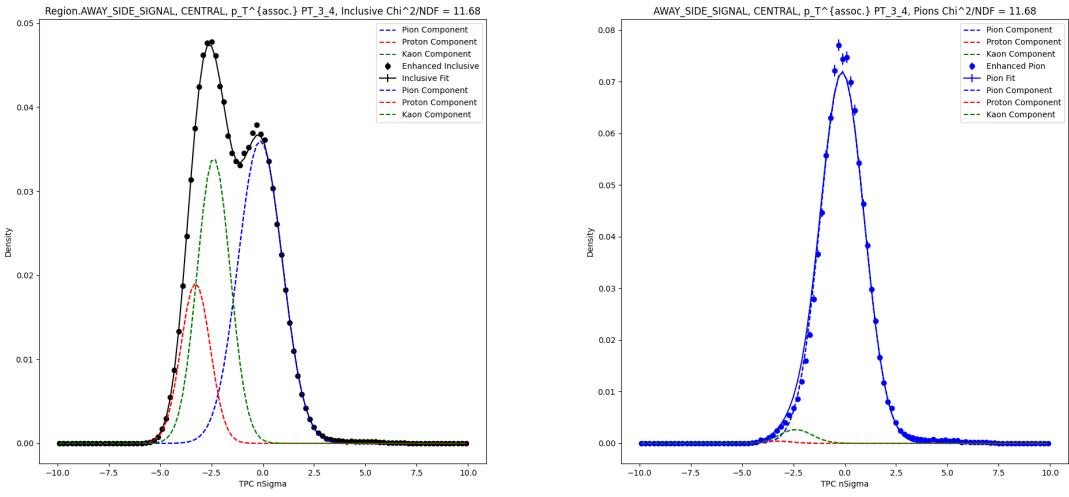


(a) TPC $n\sigma$ fits for CENTRAL PT-3-4 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-3-4 NEAR-SIDE region for Pions.

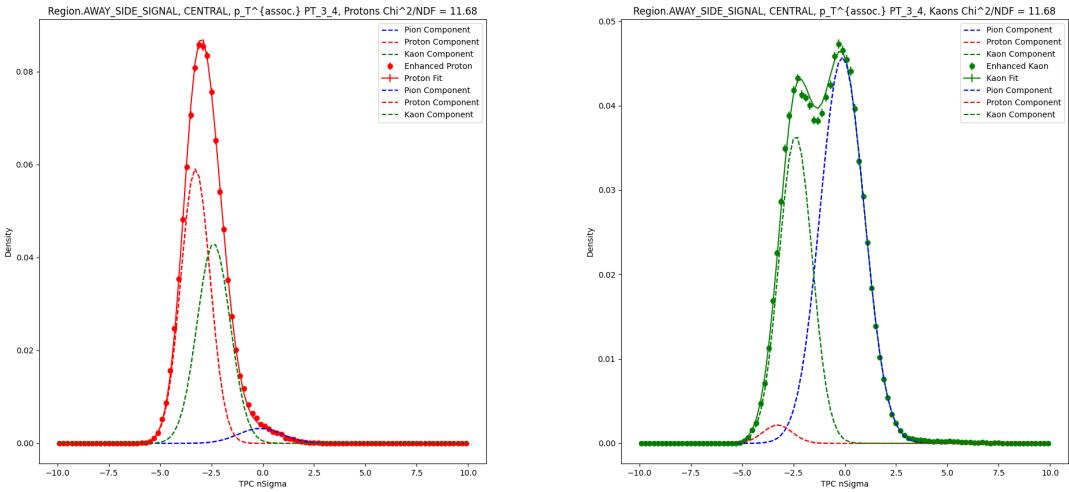


(c) TPC $n\sigma$ fits for CENTRAL PT-3-4 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-3-4 NEAR-SIDE region for Kaons.

Figure 50: TPC $n\sigma$ fits for CENTRAL PT-3-4 NEAR-SIDE region.

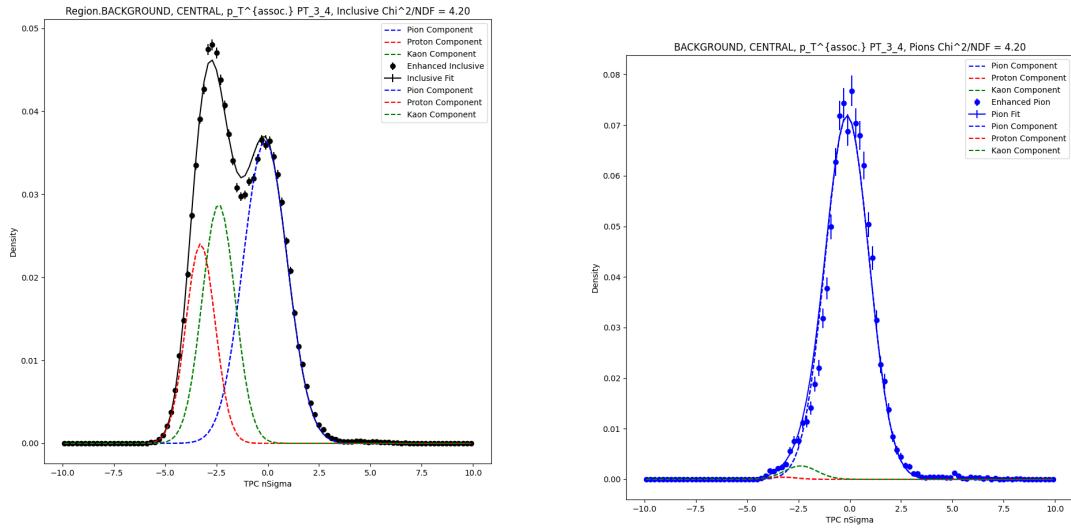


(a) TPC $n\sigma$ fits for CENTRAL PT-3-4 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-3-4 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-3-4 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-3-4 AWAY-SIDE region for Kaons.

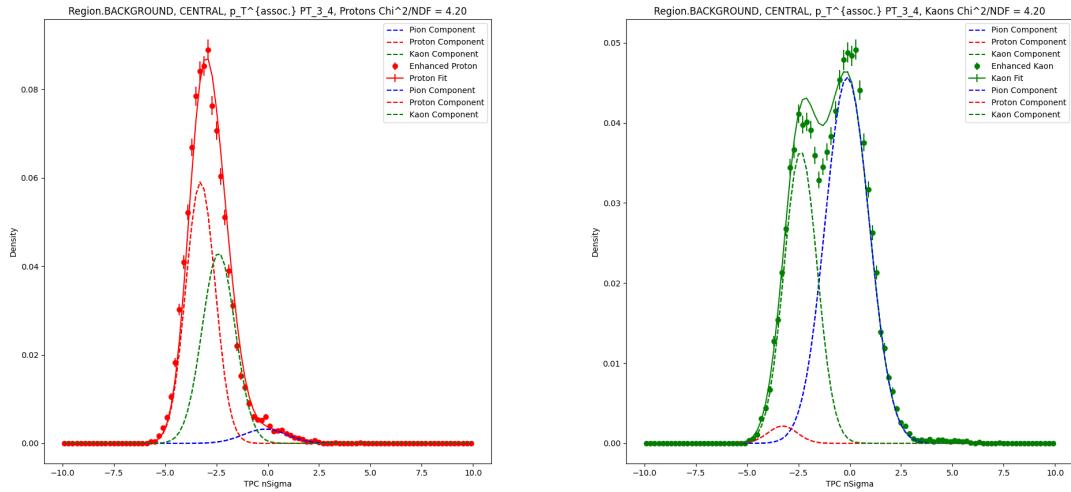
Figure 51: TPC $n\sigma$ fits for CENTRAL PT-3-4 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-3-4

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-3-4 BACKGROUND region for Pions.

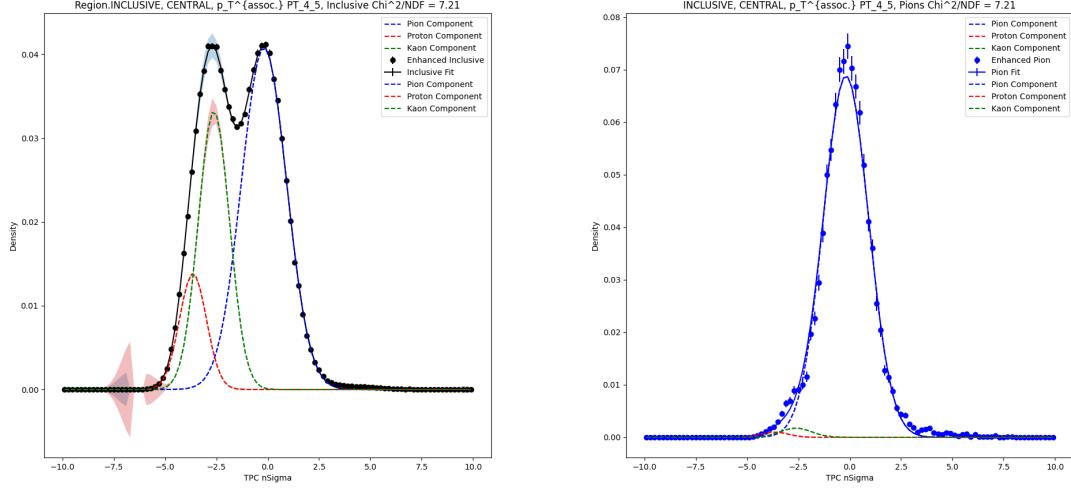


(c) TPC $n\sigma$ fits for CENTRAL PT-3-4 BACKGROUND region for Protons.

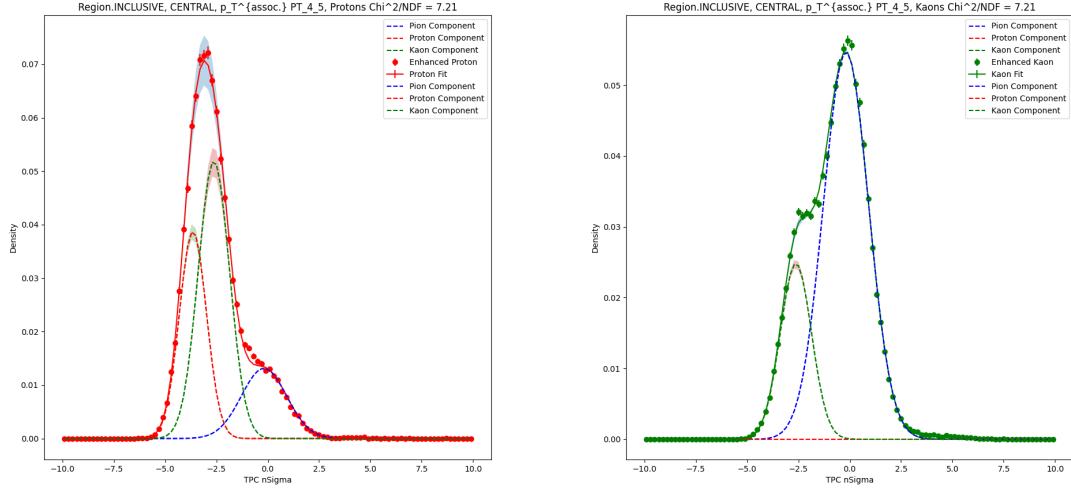
(d) TPC $n\sigma$ fits for CENTRAL PT-3-4 BACKGROUND region for Kaons.

Figure 52: TPC $n\sigma$ fits for CENTRAL PT-3-4 BACKGROUND region.

2.6 CENTRAL PT-4-5

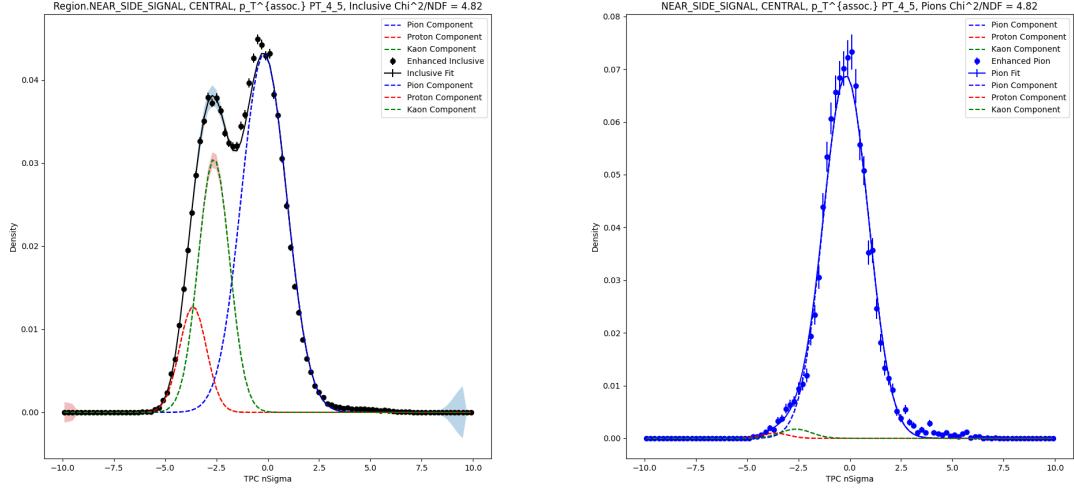


(a) TPC $n\sigma$ fits for CENTRAL PT-4-5 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-4-5 INCLUSIVE region for Pions.

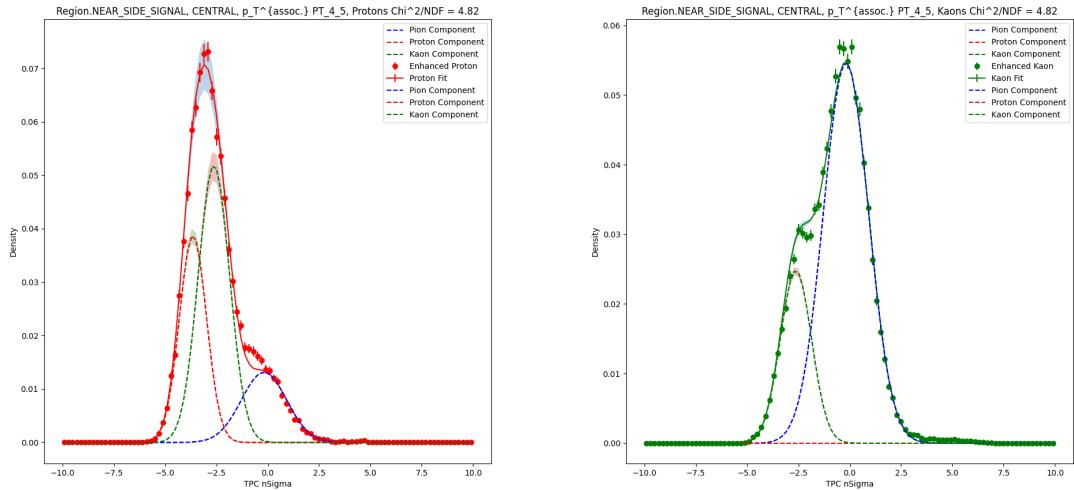


(c) TPC $n\sigma$ fits for CENTRAL PT-4-5 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-4-5 INCLUSIVE region for Kaons.

Figure 53: TPC $n\sigma$ fits for CENTRAL PT-4-5 INCLUSIVE region.

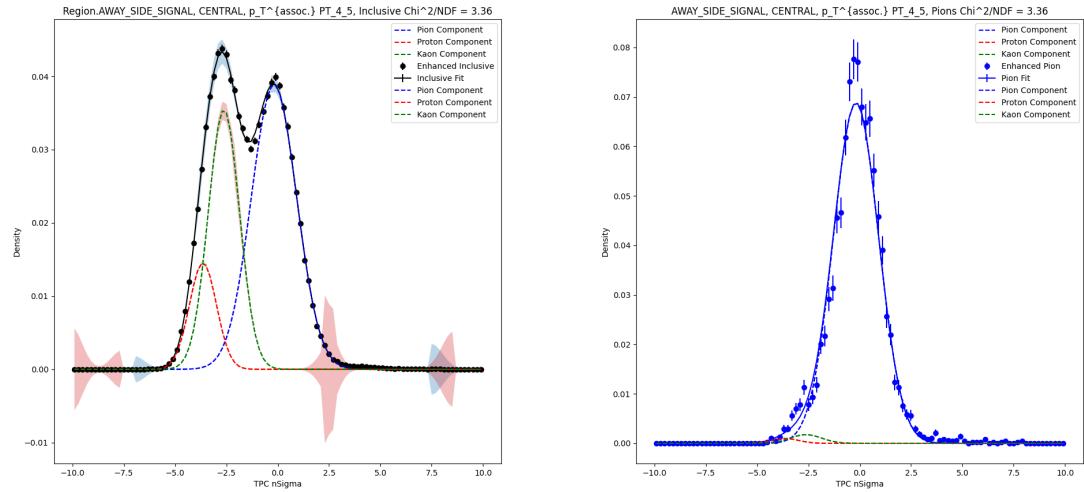


(a) TPC $n\sigma$ fits for CENTRAL PT-4-5 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-4-5 NEAR-SIDE region for Pions.

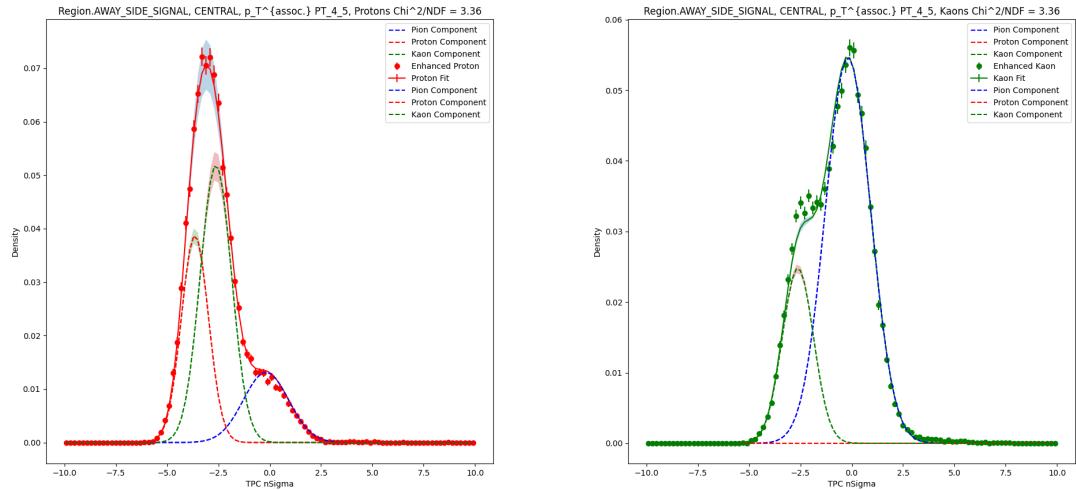


(c) TPC $n\sigma$ fits for CENTRAL PT-4-5 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-4-5 NEAR-SIDE region for Kaons.

Figure 54: TPC $n\sigma$ fits for CENTRAL PT-4-5 NEAR-SIDE region.

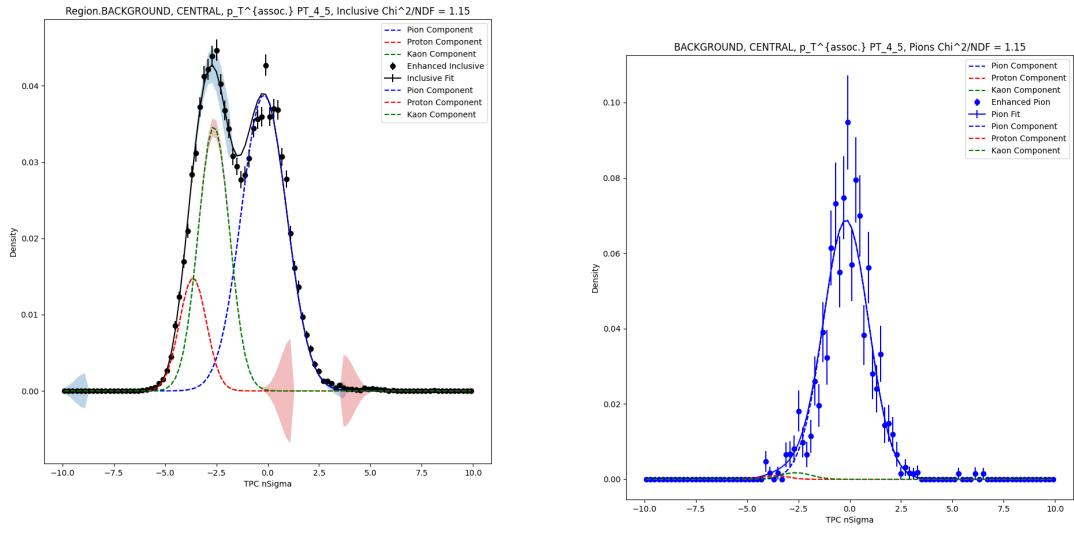


(a) TPC $n\sigma$ fits for CENTRAL PT-4-5 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-4-5 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-4-5 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-4-5 AWAY-SIDE region for Kaons.

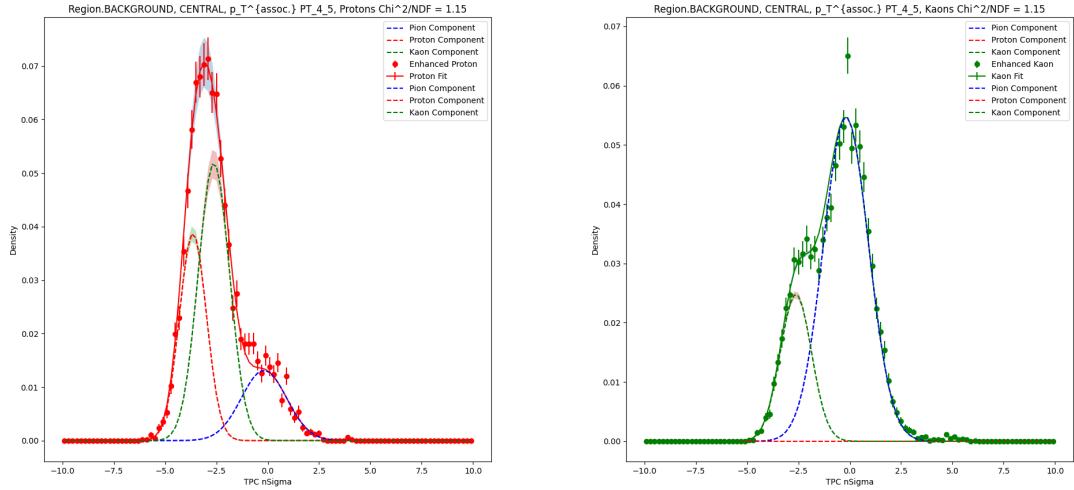
Figure 55: TPC $n\sigma$ fits for CENTRAL PT-4-5 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-4-5

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-4-5 BACKGROUND region for Pions.

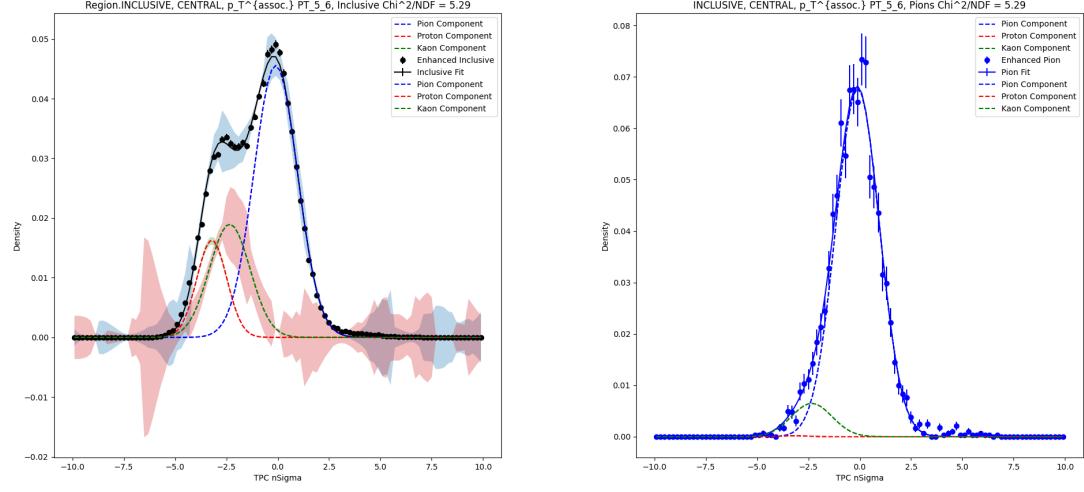


(c) TPC $n\sigma$ fits for CENTRAL PT-4-5 BACKGROUND region for Protons.

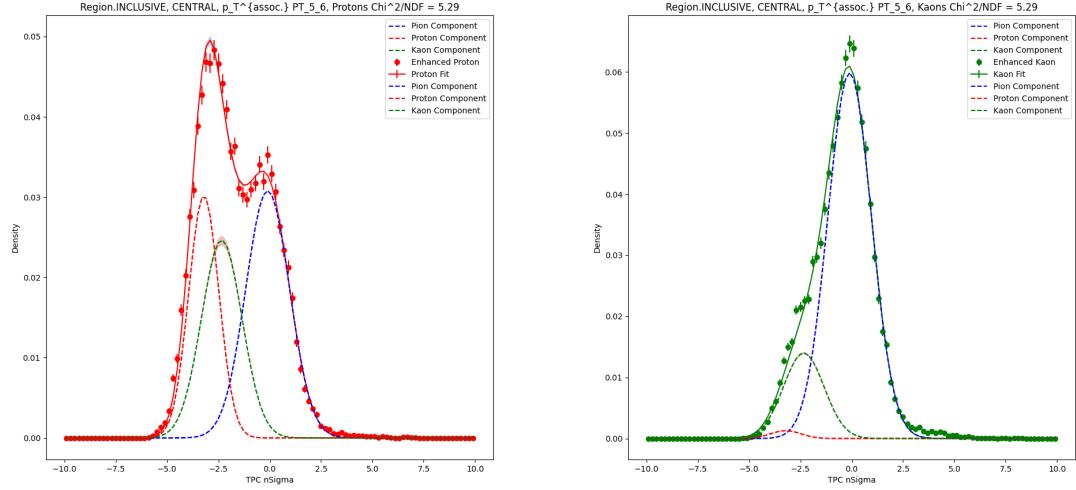
(d) TPC $n\sigma$ fits for CENTRAL PT-4-5 BACKGROUND region for Kaons.

Figure 56: TPC $n\sigma$ fits for CENTRAL PT-4-5 BACKGROUND region.

2.7 CENTRAL PT-5-6

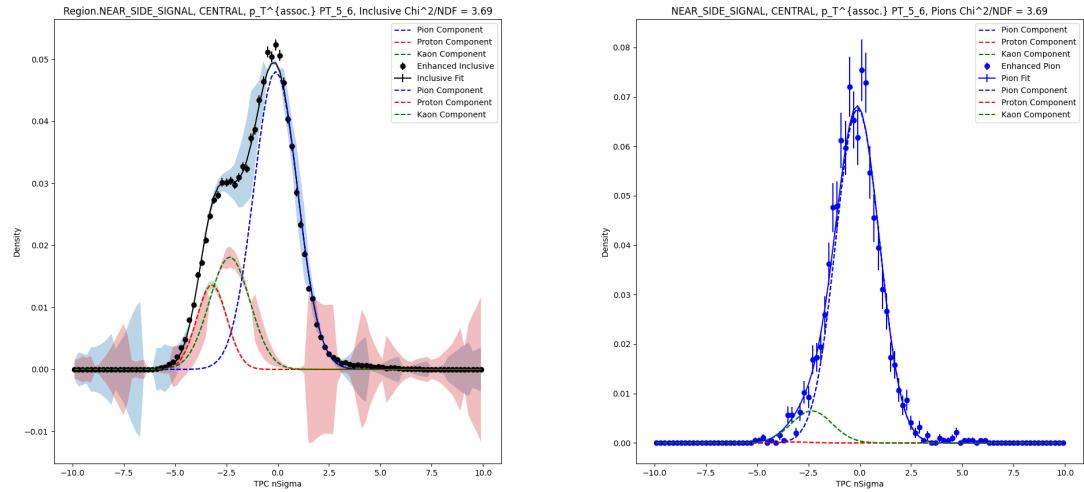


(a) TPC $n\sigma$ fits for CENTRAL PT-5-6 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-5-6 INCLUSIVE region for Pions.

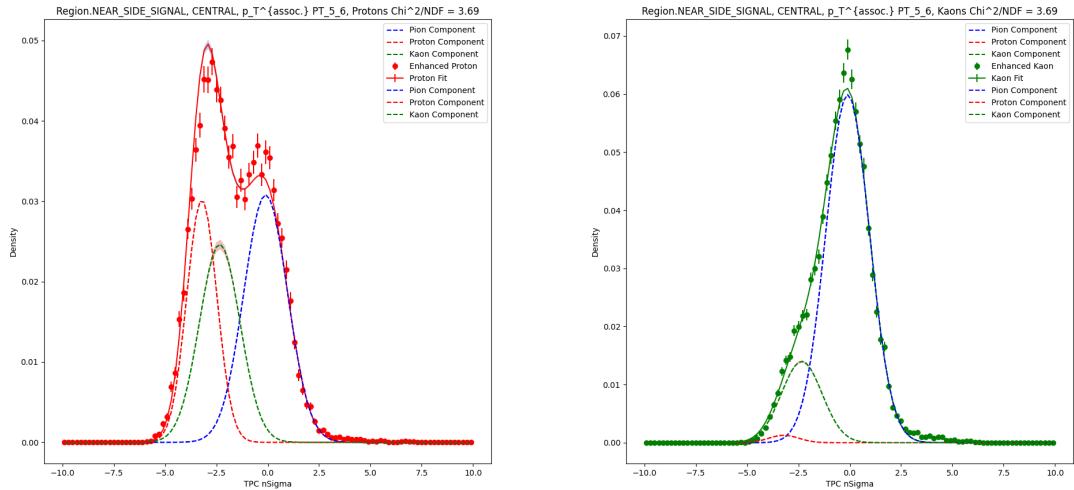


(c) TPC $n\sigma$ fits for CENTRAL PT-5-6 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-5-6 INCLUSIVE region for Kaons.

Figure 57: TPC $n\sigma$ fits for CENTRAL PT-5-6 INCLUSIVE region.

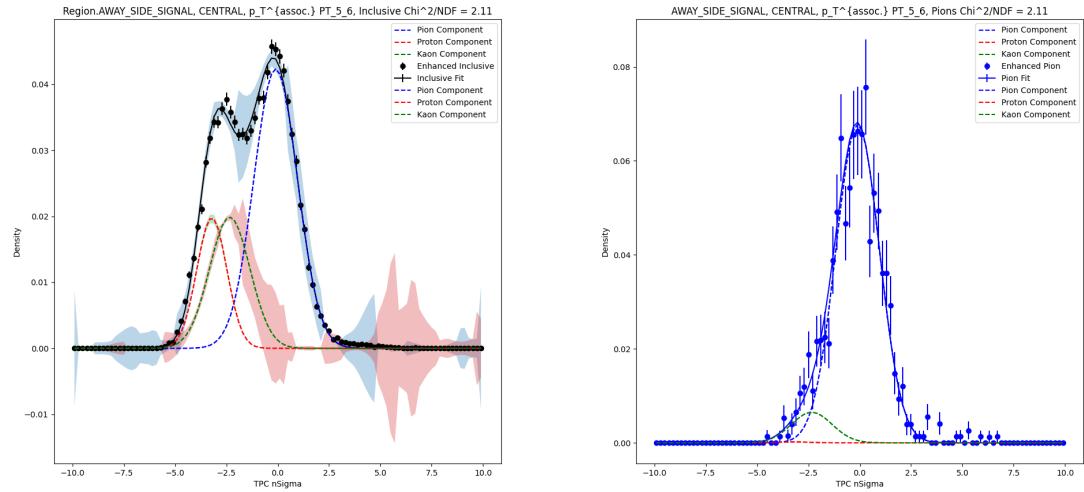


(a) TPC $n\sigma$ fits for CENTRAL PT-5-6 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-5-6 NEAR-SIDE region for Pions.

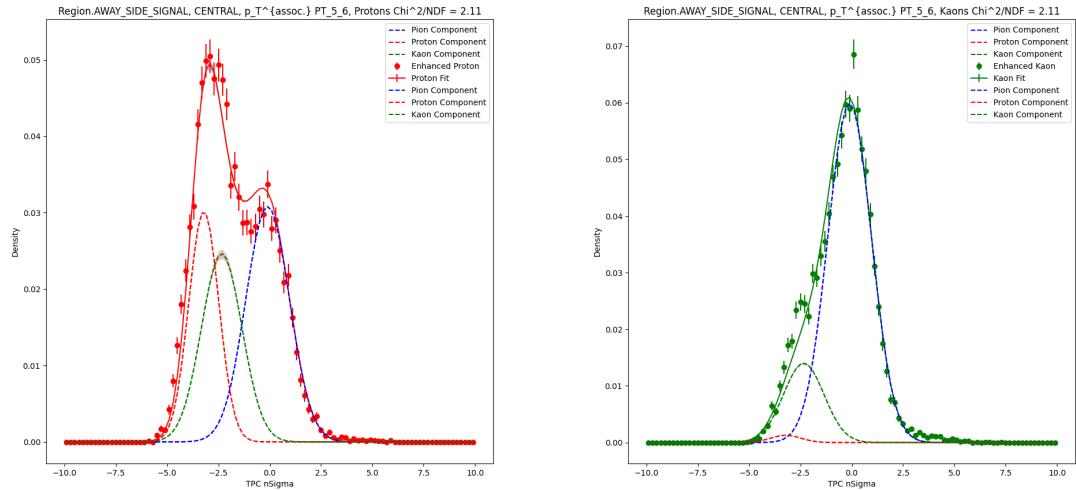


(c) TPC $n\sigma$ fits for CENTRAL PT-5-6 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-5-6 NEAR-SIDE region for Kaons.

Figure 58: TPC $n\sigma$ fits for CENTRAL PT-5-6 NEAR-SIDE region.

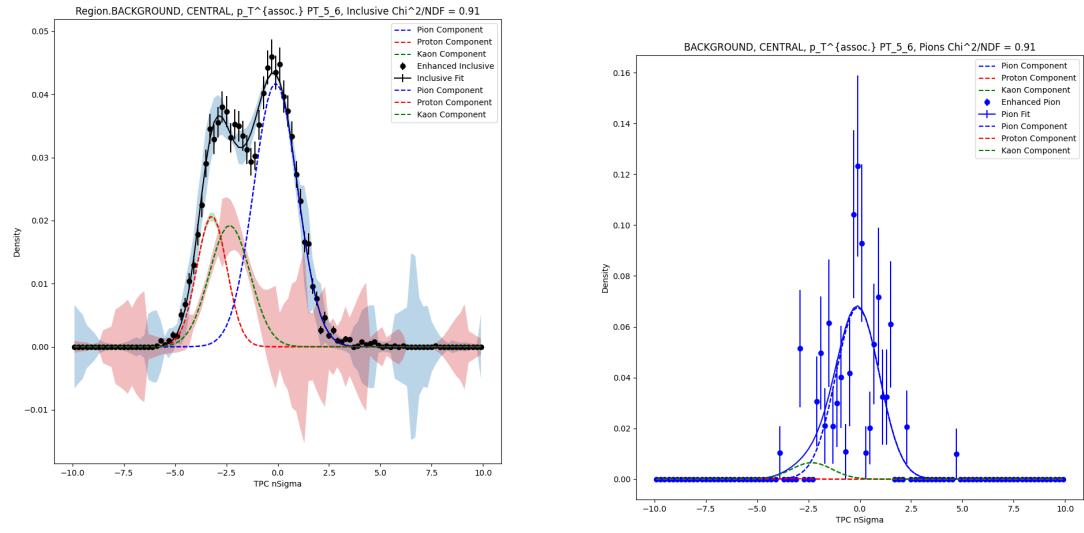


(a) TPC $n\sigma$ fits for CENTRAL PT-5-6 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-5-6 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-5-6 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-5-6 AWAY-SIDE region for Kaons.

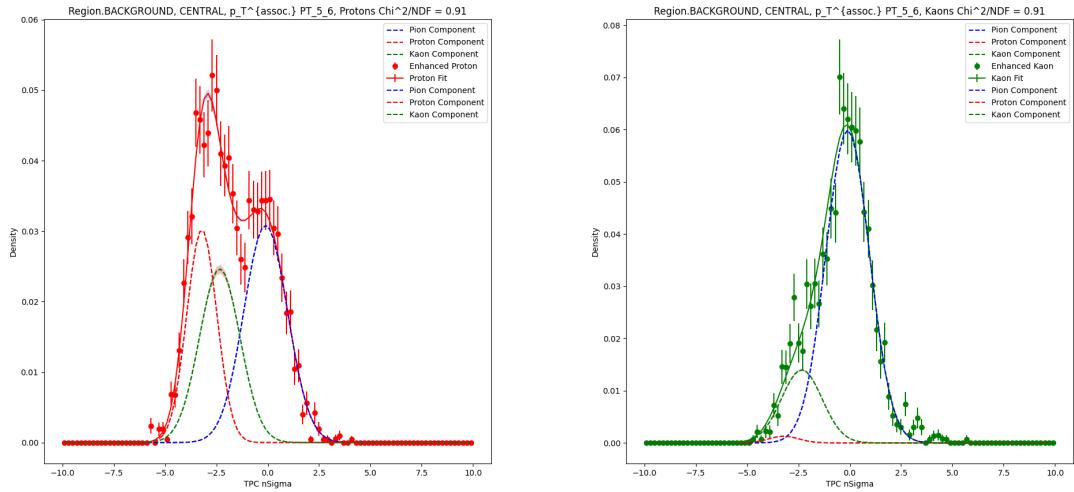
Figure 59: TPC $n\sigma$ fits for CENTRAL PT-5-6 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-5-6

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-5-6
BACKGROUND region for Pions.

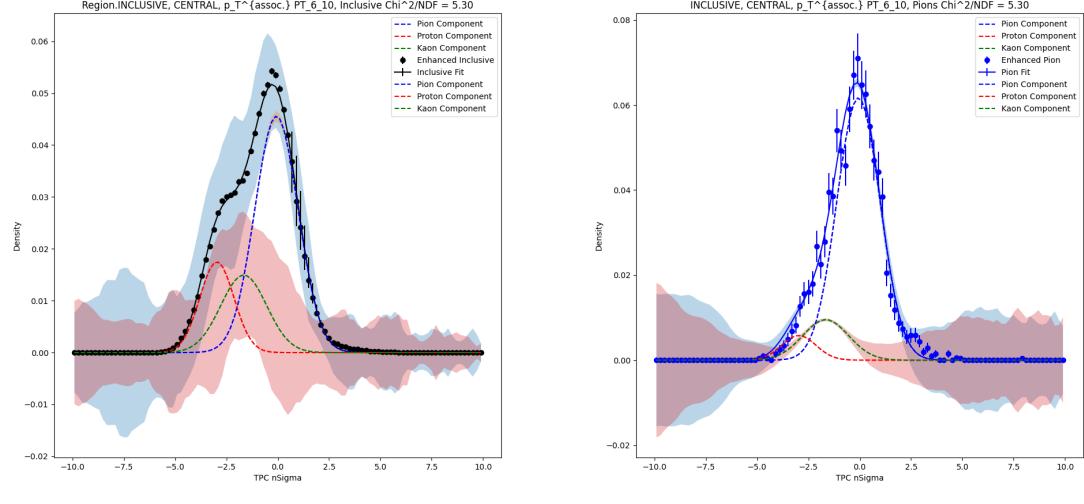


(c) TPC $n\sigma$ fits for CENTRAL PT-5-6
BACKGROUND region for Protons.

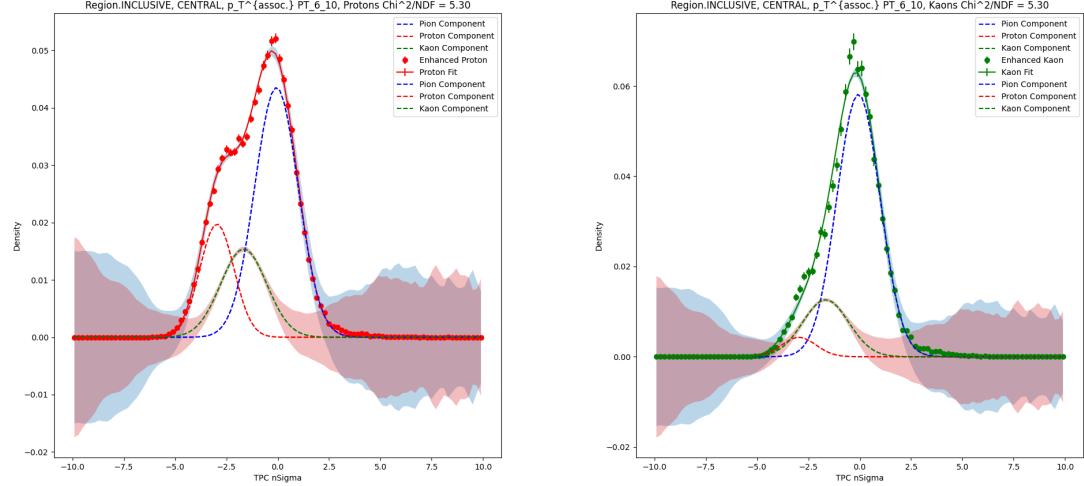
(d) TPC $n\sigma$ fits for CENTRAL PT-5-6
BACKGROUND region for Kaons.

Figure 60: TPC $n\sigma$ fits for CENTRAL PT-5-6 BACKGROUND region.

2.8 CENTRAL PT-6-10

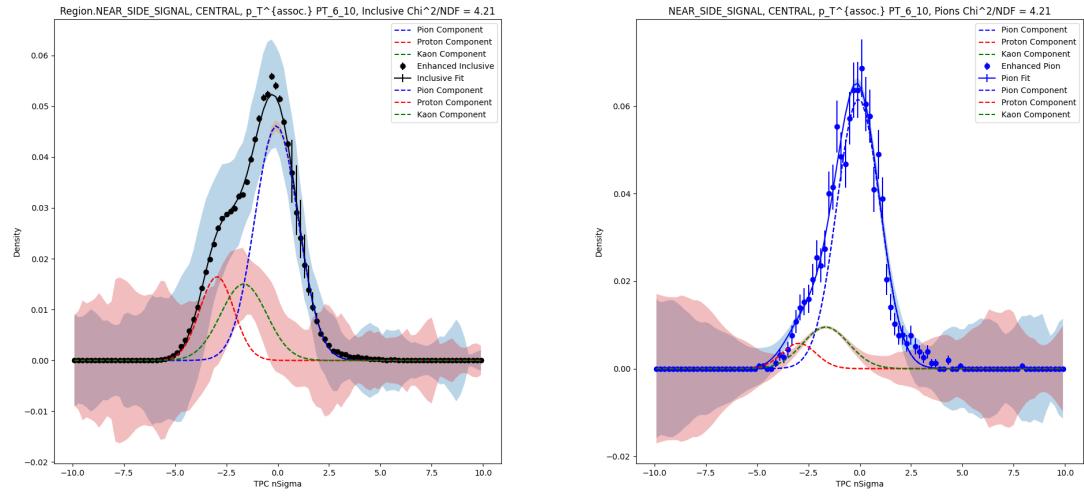


(a) TPC $n\sigma$ fits for CENTRAL PT-6-10 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-6-10 INCLUSIVE region for Pions.

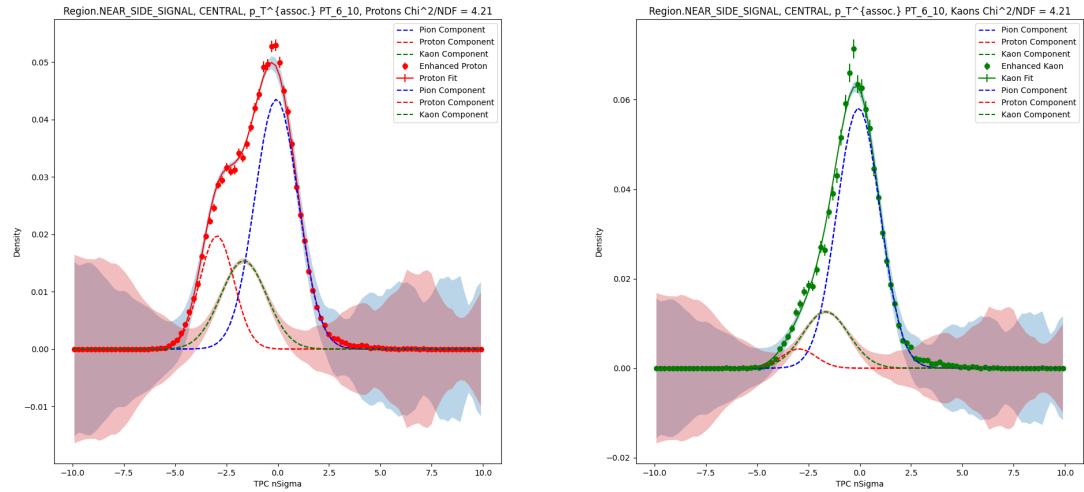


(c) TPC $n\sigma$ fits for CENTRAL PT-6-10 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-6-10 INCLUSIVE region for Kaons.

Figure 61: TPC $n\sigma$ fits for CENTRAL PT-6-10 INCLUSIVE region.

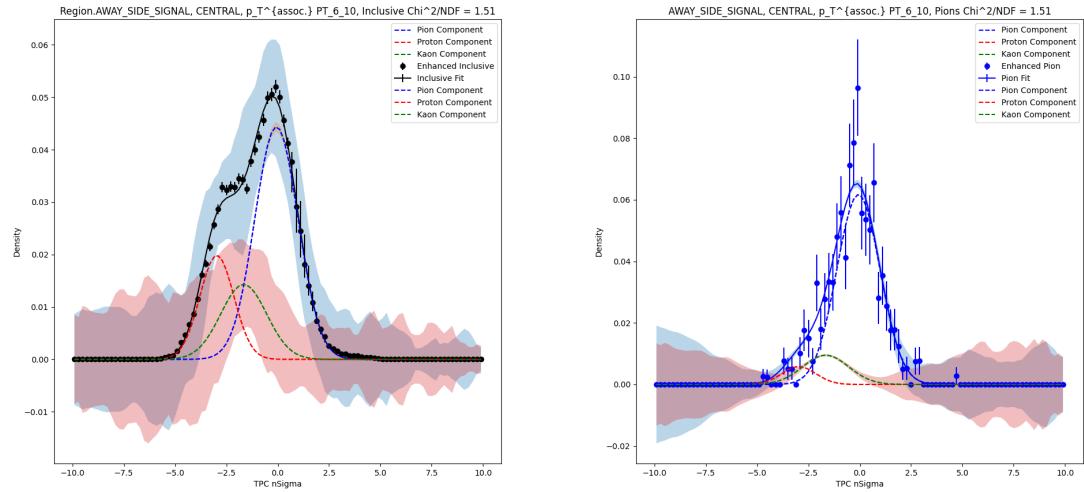


(a) TPC $n\sigma$ fits for CENTRAL PT-6-10 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-6-10 NEAR-SIDE region for Pions.

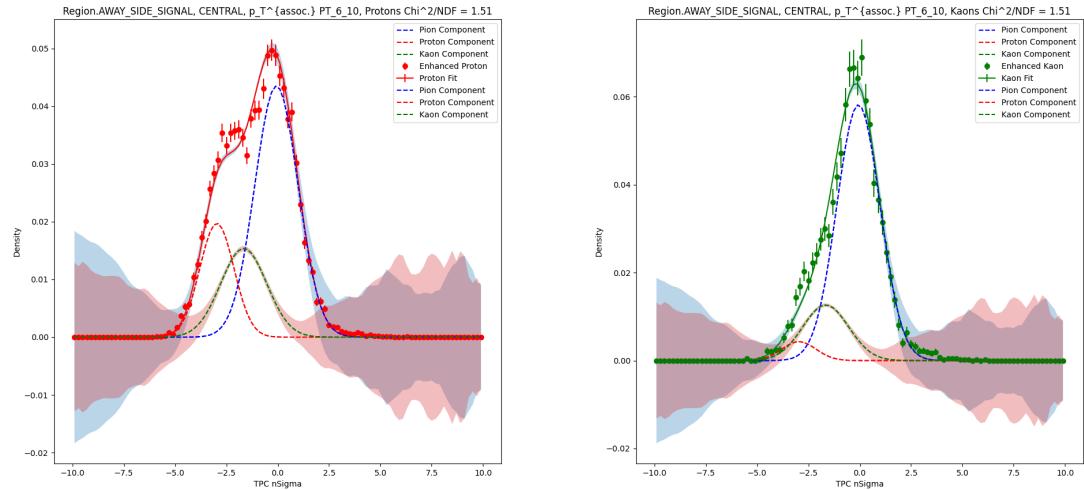


(c) TPC $n\sigma$ fits for CENTRAL PT-6-10 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-6-10 NEAR-SIDE region for Kaons.

Figure 62: TPC $n\sigma$ fits for CENTRAL PT-6-10 NEAR-SIDE region.

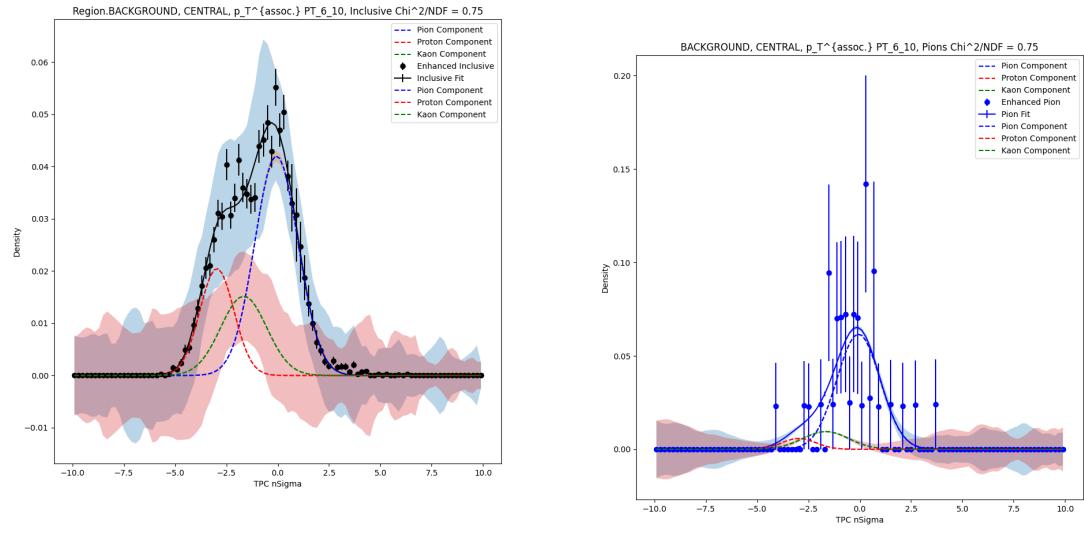


(a) TPC $n\sigma$ fits for CENTRAL PT-6-10 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for CENTRAL PT-6-10 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-6-10 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for CENTRAL PT-6-10 AWAY-SIDE region for Kaons.

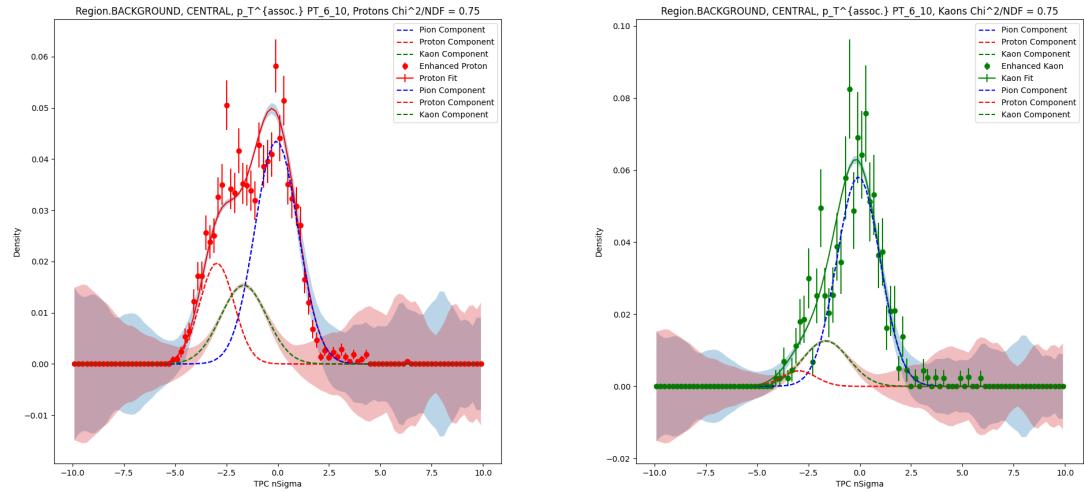
Figure 63: TPC $n\sigma$ fits for CENTRAL PT-6-10 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for CENTRAL PT-6-10

BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for CENTRAL PT-6-10 BACKGROUND region for Pions.



(c) TPC $n\sigma$ fits for CENTRAL PT-6-10 BACKGROUND region for Protons.

(d) TPC $n\sigma$ fits for CENTRAL PT-6-10 BACKGROUND region for Kaons.

Figure 64: TPC $n\sigma$ fits for CENTRAL PT-6-10 BACKGROUND region.

3 SEMICENTRAL

3.1 SEMICENTRAL Yields and Ratios

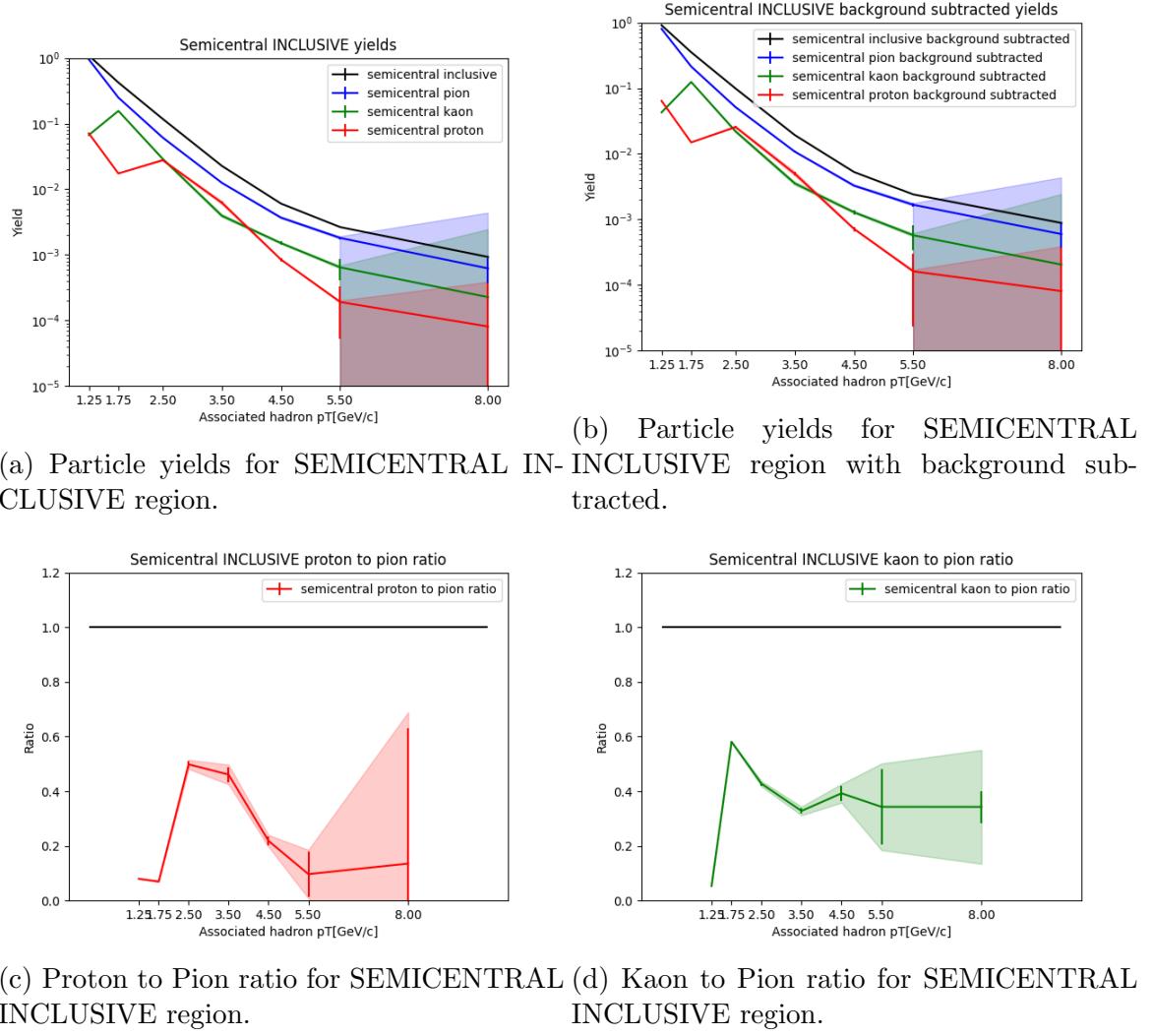
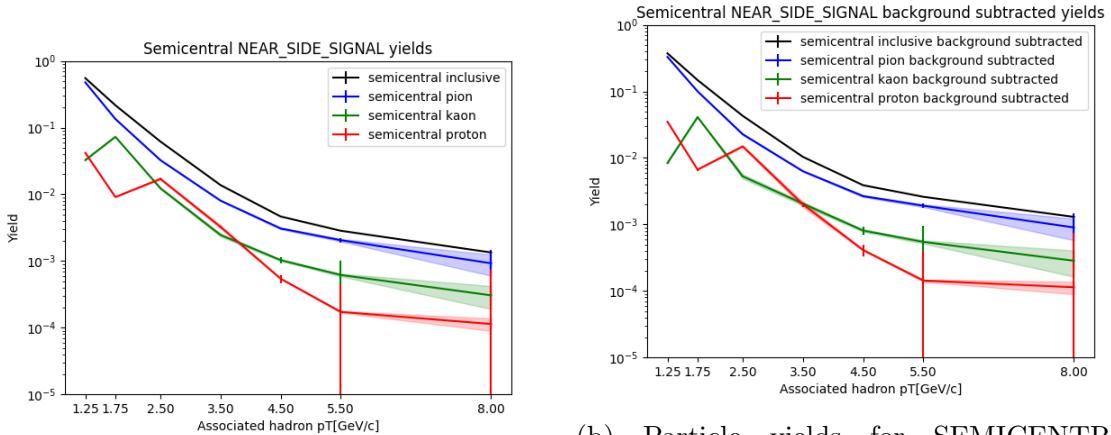
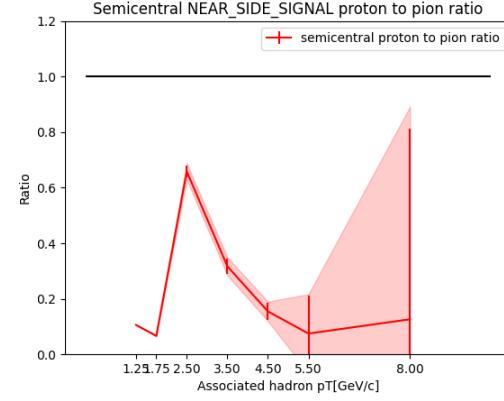


Figure 65: Particle yields and ratios for SEMICENTRAL INCLUSIVE region.

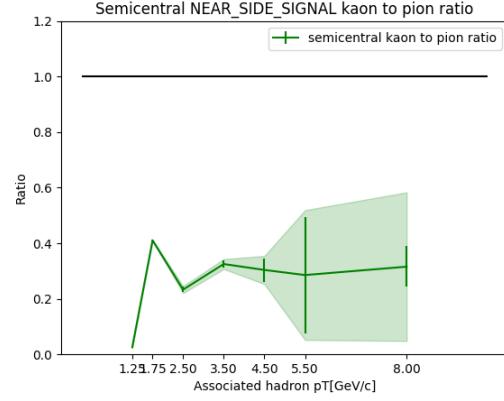


(a) Particle yields for SEMICENTRAL NEAR-SIDE region with background subtracted.

(b) Particle yields for SEMICENTRAL NEAR-SIDE region with background subtracted.

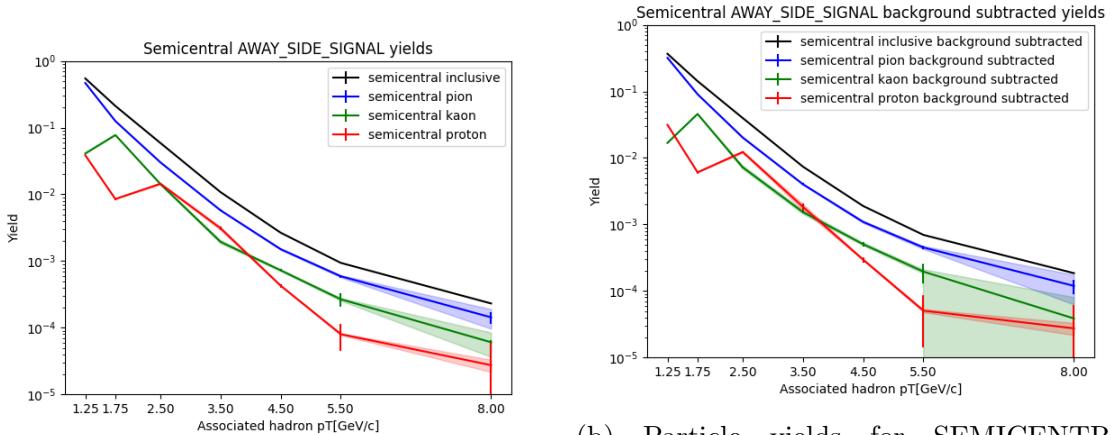


(c) Proton to Pion ratio for SEMICENTRAL NEAR-SIDE region.



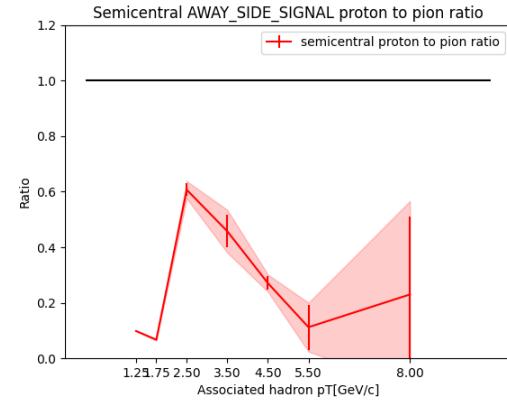
(d) Kaon to Pion ratio for SEMICENTRAL NEAR-SIDE region.

Figure 66: Particle yields and ratios for SEMICENTRAL NEAR-SIDE region.

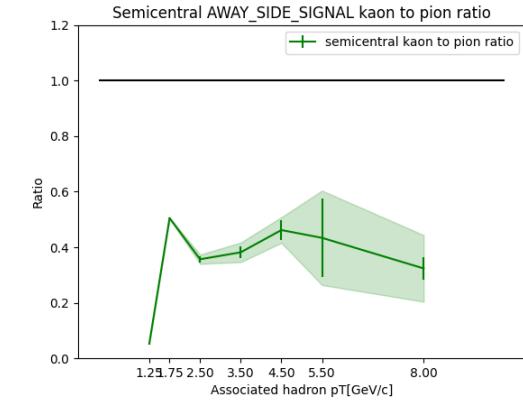


(a) Particle yields for SEMICENTRAL AWAY-SIDE region.

(b) Particle yields for SEMICENTRAL AWAY-SIDE region with background subtracted.

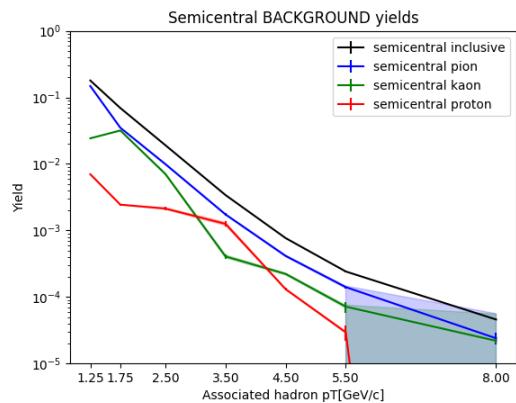


(c) Proton to Pion ratio for SEMICENTRAL AWAY-SIDE region.



(d) Kaon to Pion ratio for SEMICENTRAL AWAY-SIDE region.

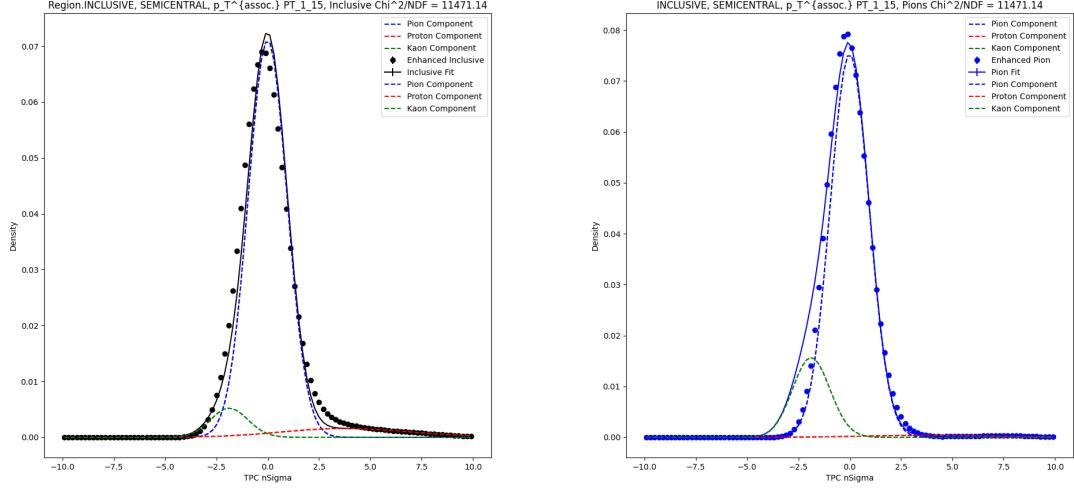
Figure 67: Particle yields and ratios for SEMICENTRAL AWAY-SIDE region.



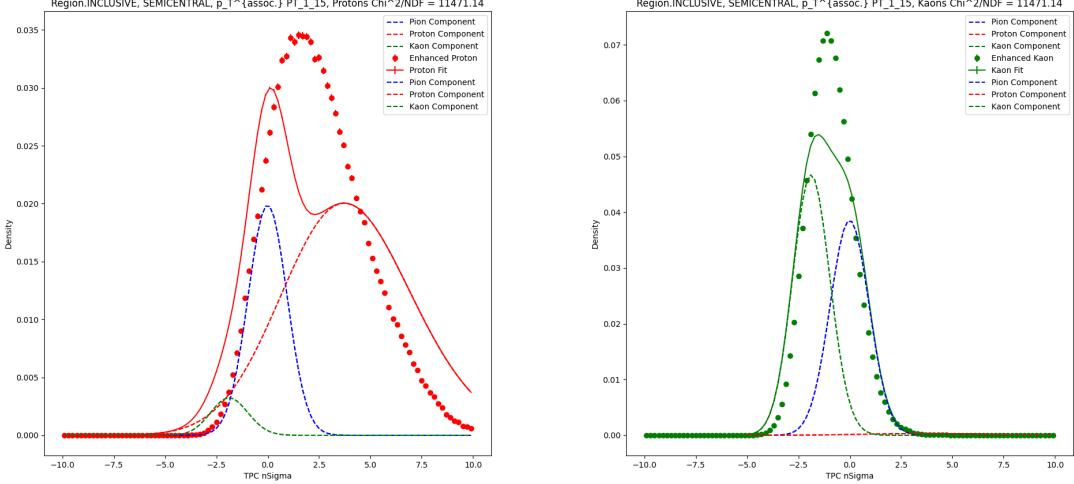
(a) Particle yields for SEMICENTRAL BACKGROUND region.

Figure 68: Particle yields for SEMICENTRAL BACKGROUND region.

3.2 SEMICENTRAL PT-1-15

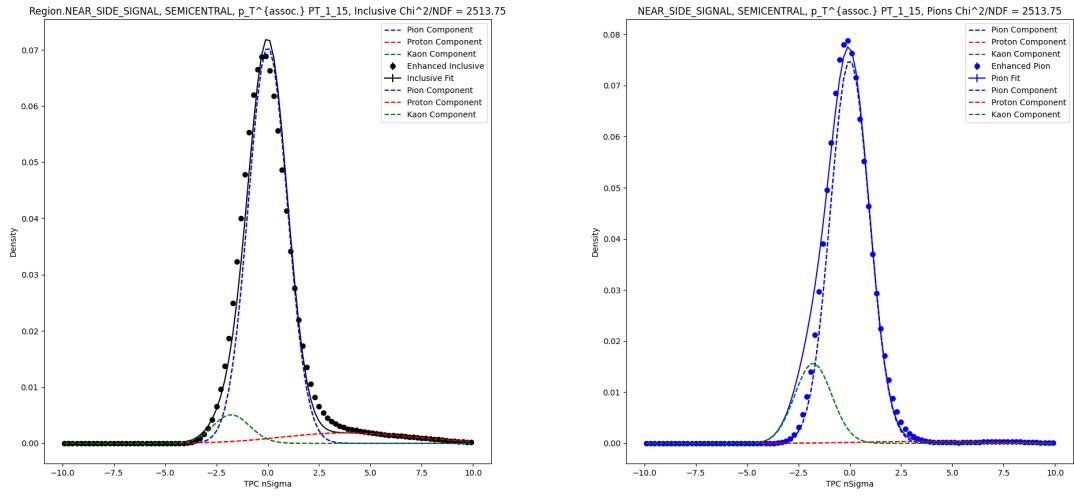


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 INCLUSIVE region for Pions.

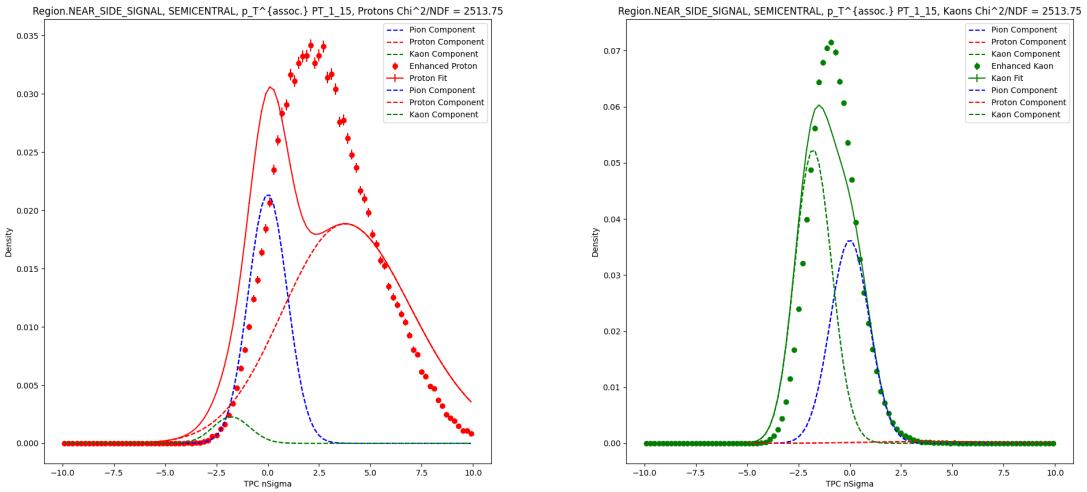


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 INCLUSIVE region for Kaons.

Figure 69: TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 INCLUSIVE region.

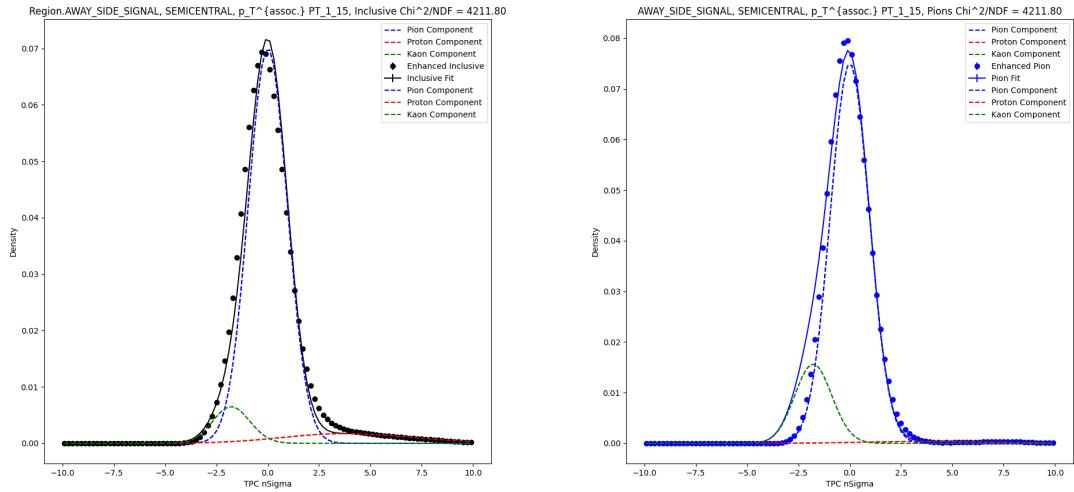


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 NEAR-SIDE region for Pions.

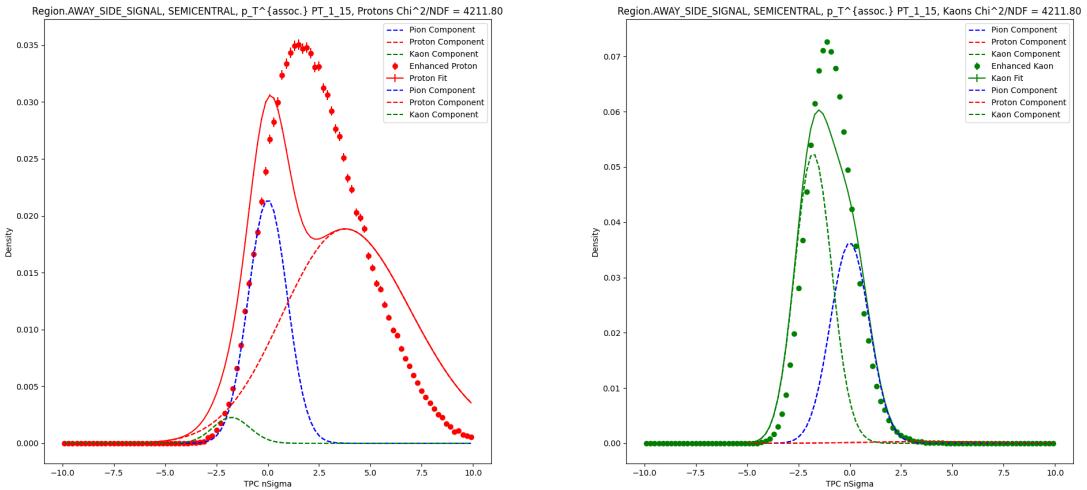


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 NEAR-SIDE region for Kaons.

Figure 70: TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 NEAR-SIDE region.

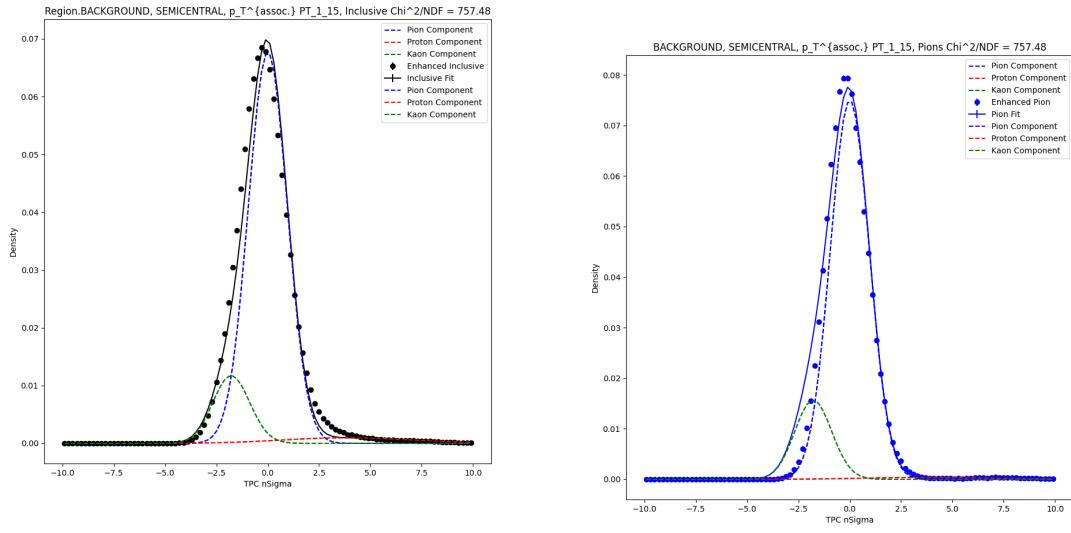


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 AWAY-SIDE region for Kaons.

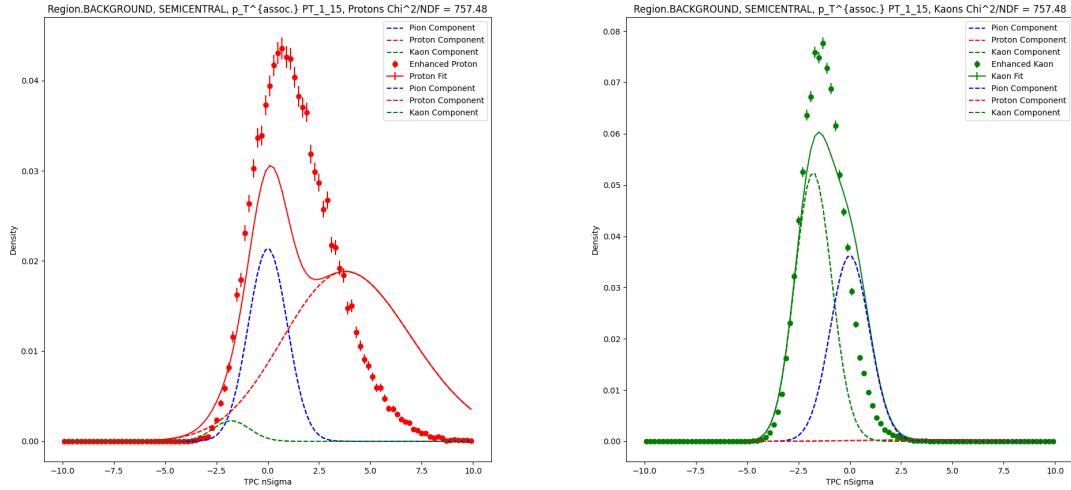
Figure 71: TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

1-15 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 BACKGROUND region for Pions.

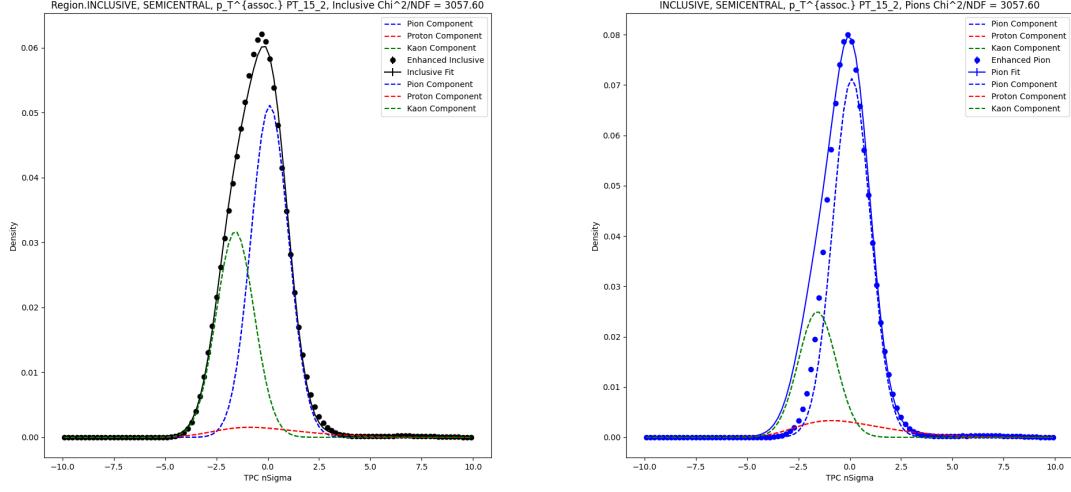


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 BACKGROUND region for Protons.

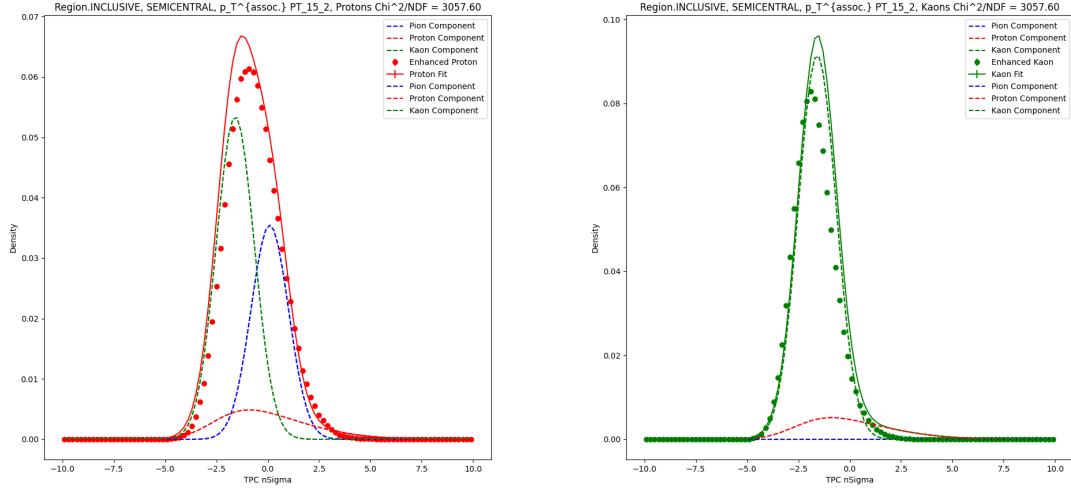
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 BACKGROUND region for Kaons.

Figure 72: TPC $n\sigma$ fits for SEMICENTRAL PT-1-15 BACKGROUND region.

3.3 SEMICENTRAL PT-15-2

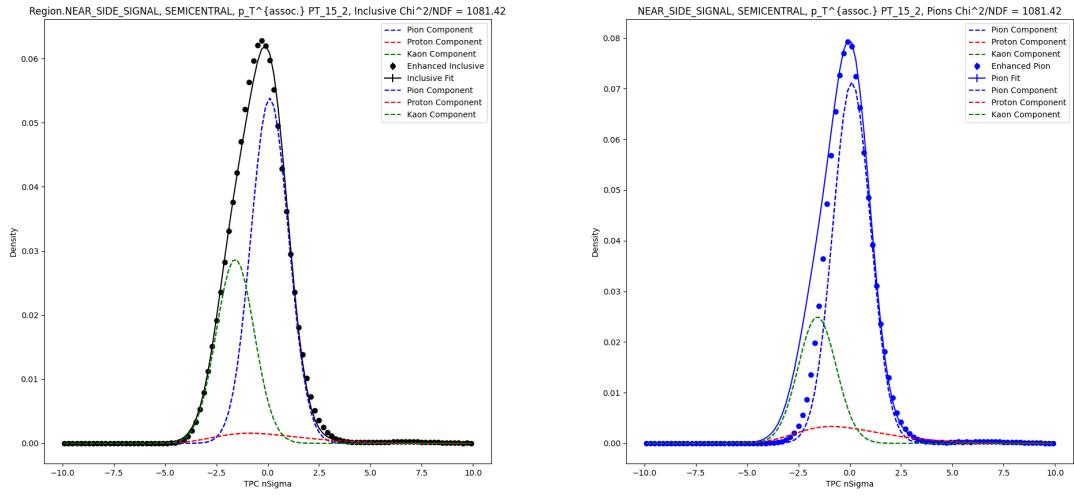


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 INCLUSIVE region for Pions.

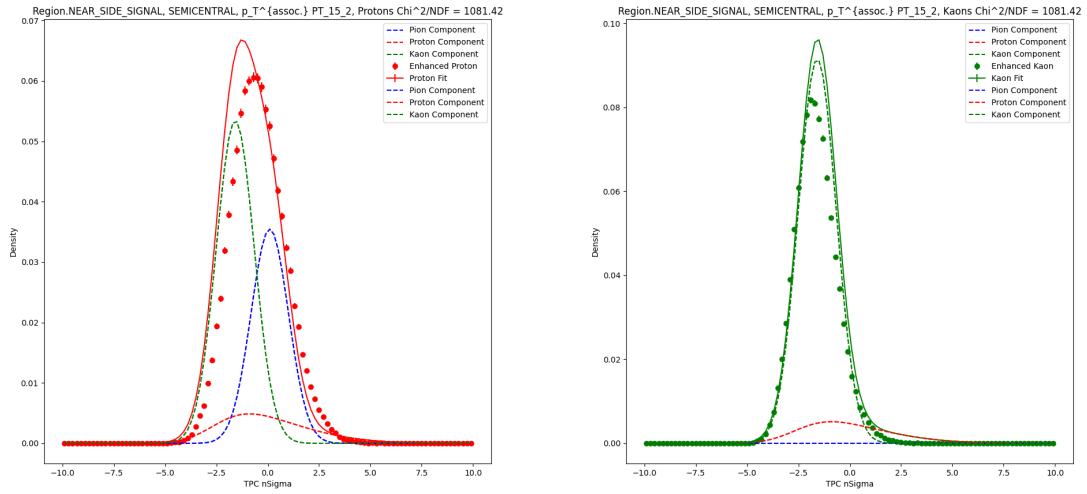


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 INCLUSIVE region for Kaons.

Figure 73: TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 INCLUSIVE region.

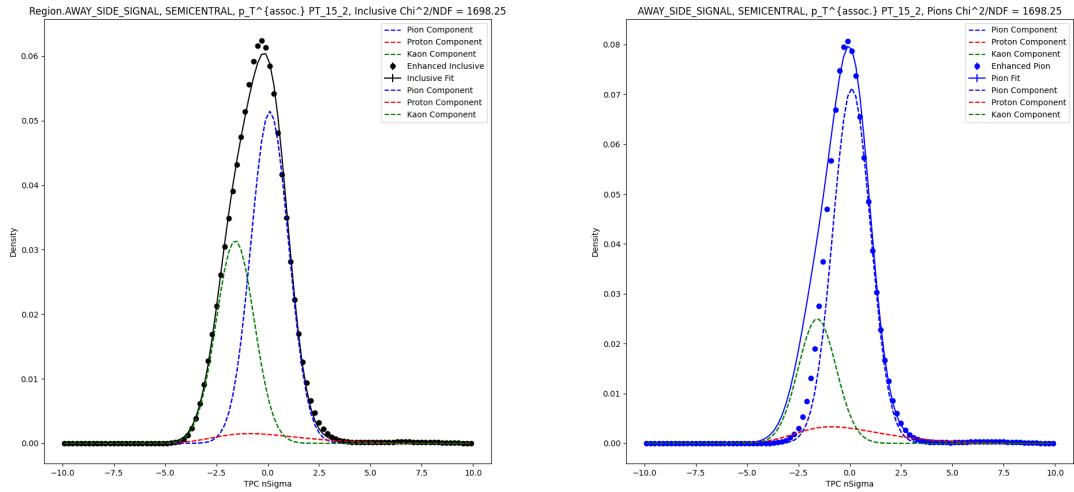


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 NEAR-SIDE region for Pions.

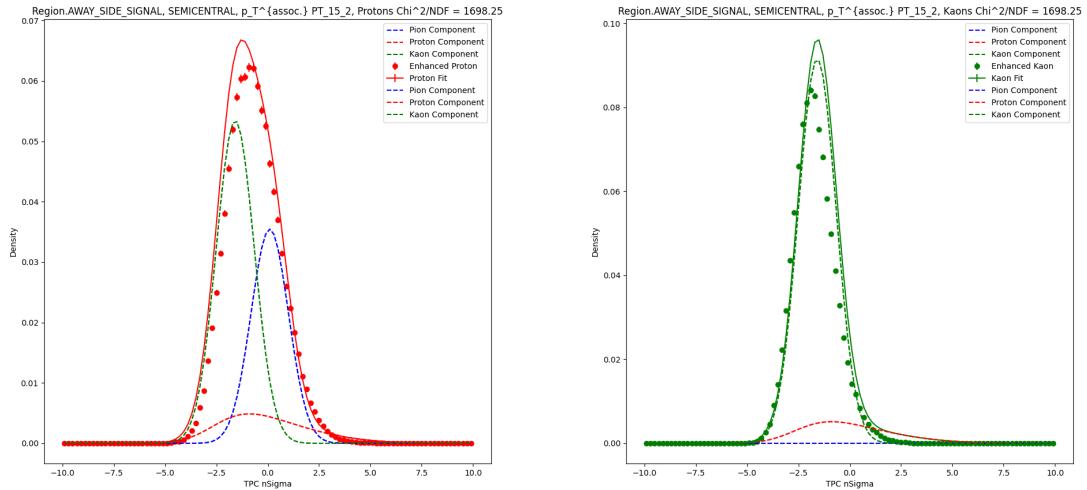


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 NEAR-SIDE region for Kaons.

Figure 74: TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 NEAR-SIDE region.

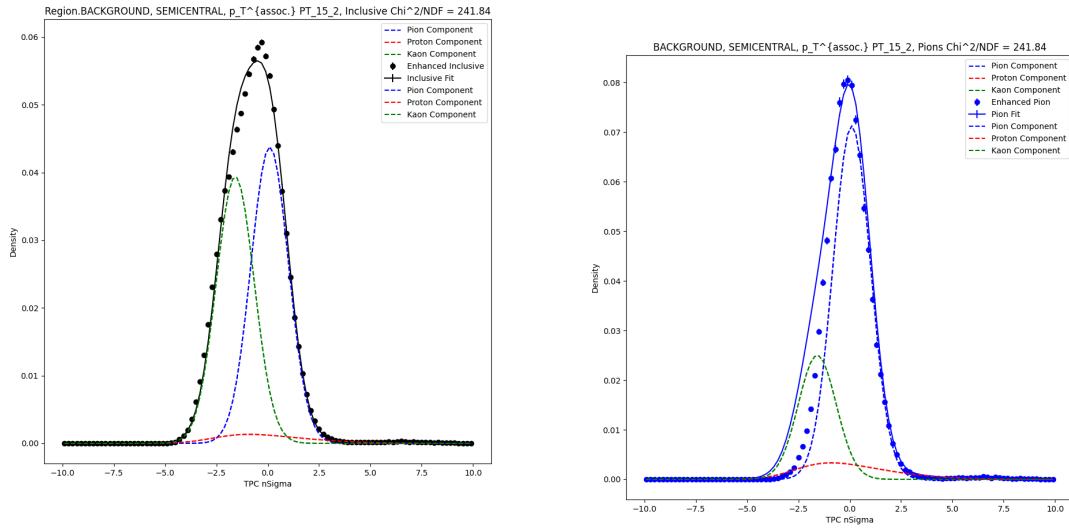


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 AWAY-SIDE region for Kaons.

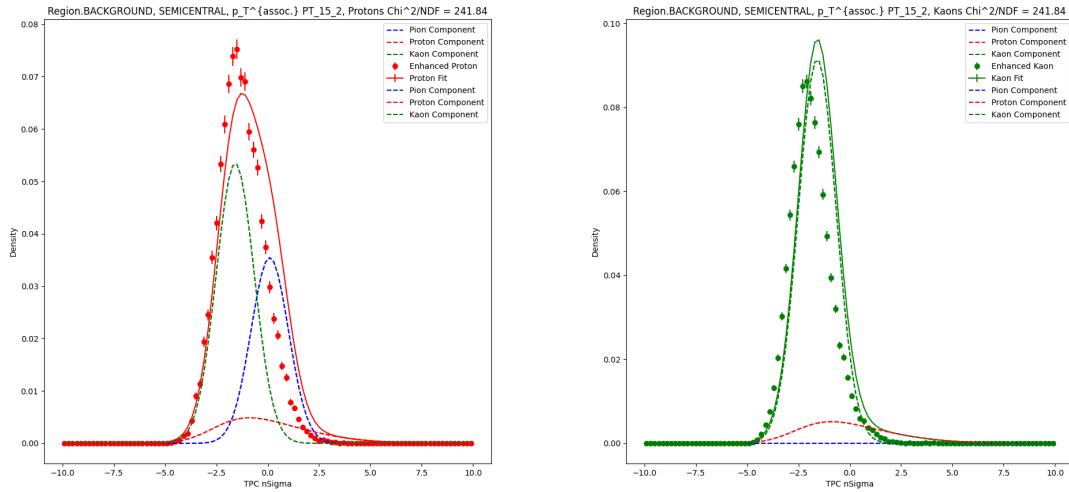
Figure 75: TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

15-2 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 BACKGROUND region for Pions.

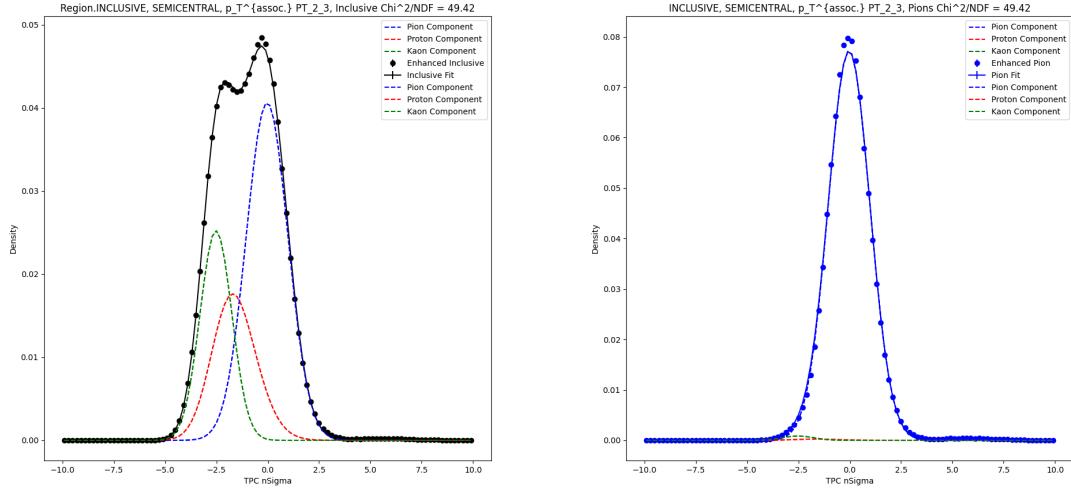


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 BACKGROUND region for Protons.

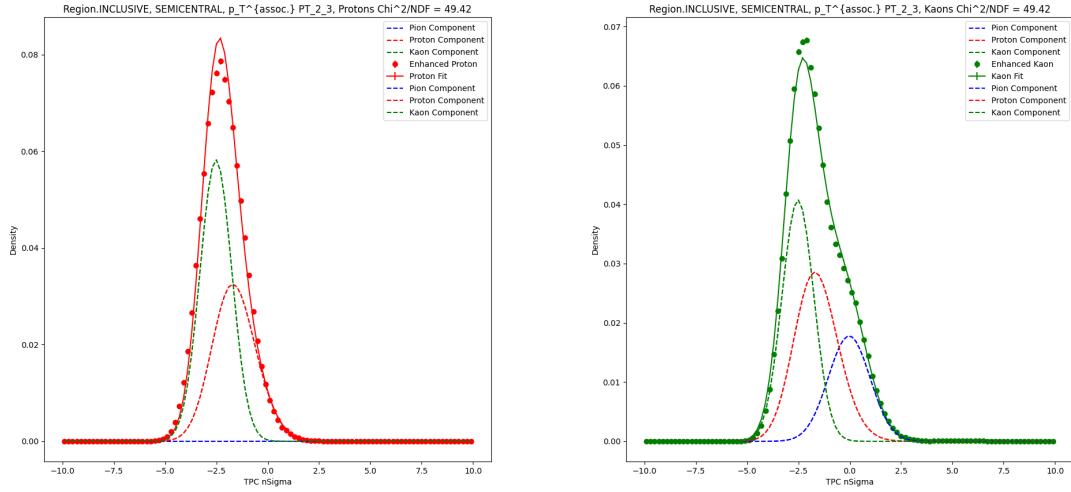
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 BACKGROUND region for Kaons.

Figure 76: TPC $n\sigma$ fits for SEMICENTRAL PT-15-2 BACKGROUND region.

3.4 SEMICENTRAL PT-2-3

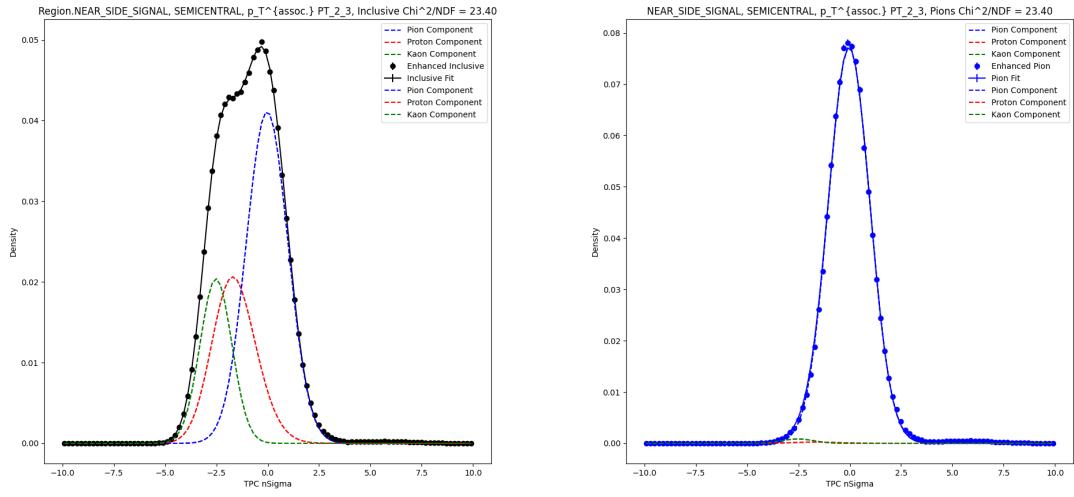


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 INCLUSIVE region for Pions.

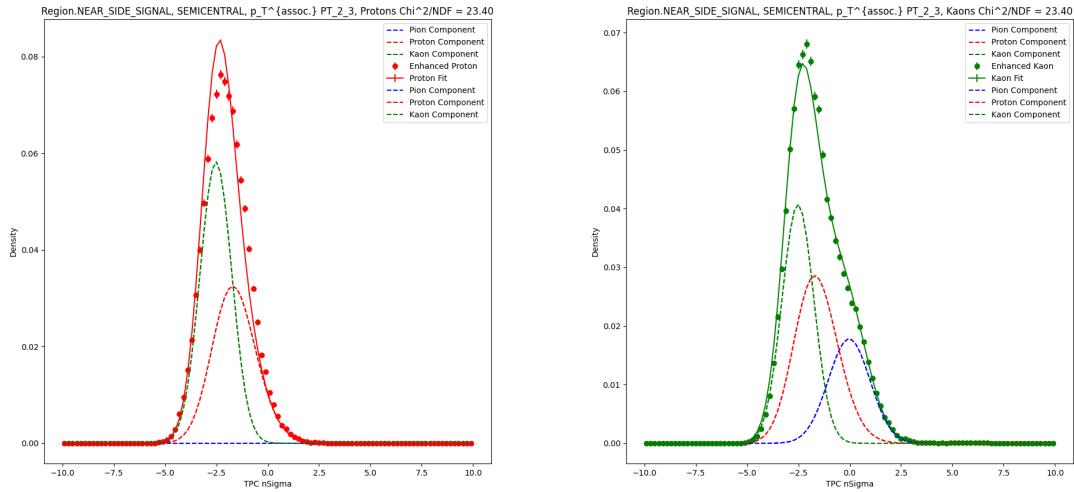


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 INCLUSIVE region for Kaons.

Figure 77: TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 INCLUSIVE region.

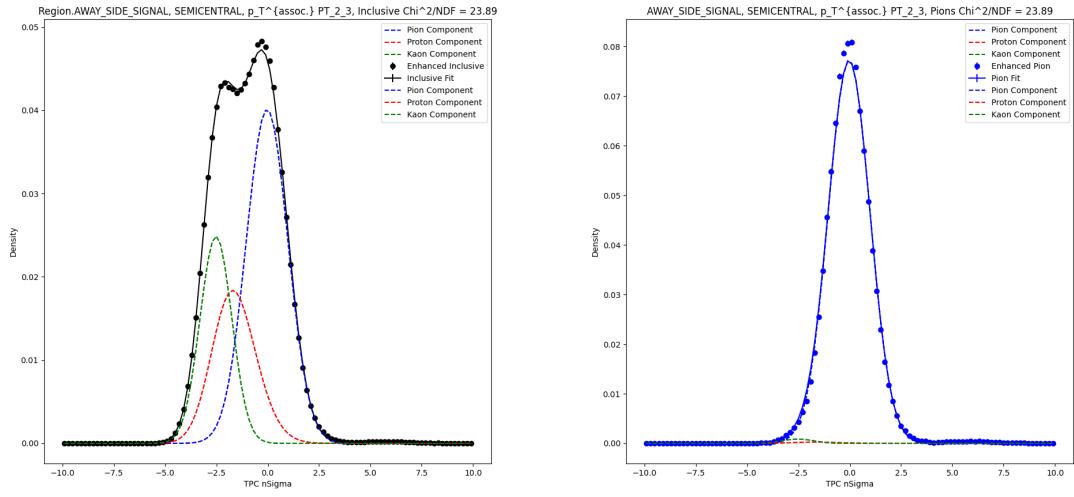


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 NEAR-SIDE region for Pions.

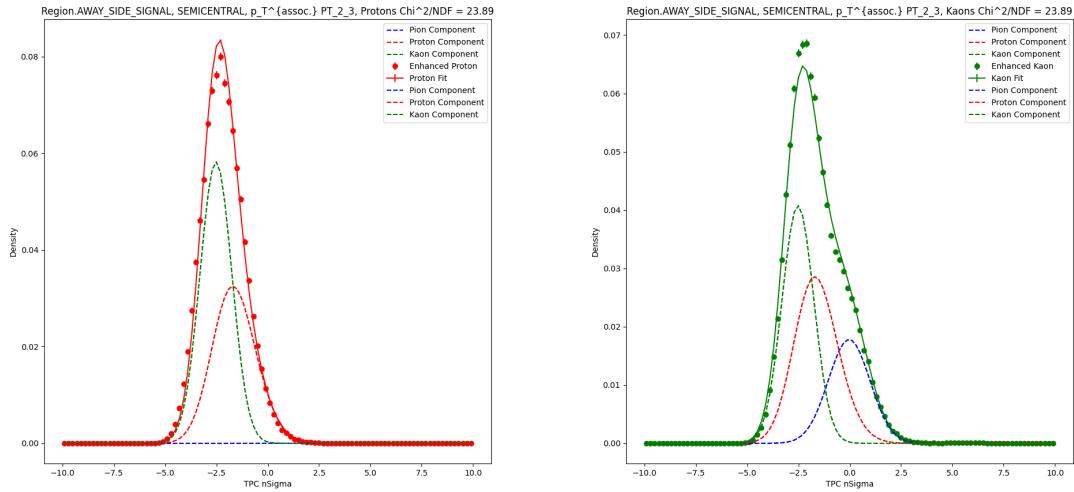


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 NEAR-SIDE region for Kaons.

Figure 78: TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 NEAR-SIDE region.

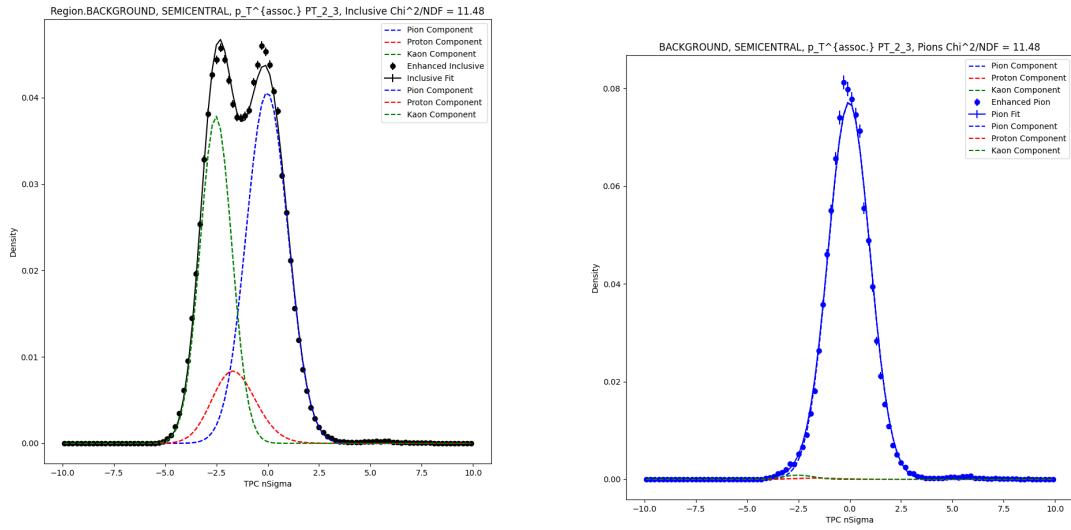


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 AWAY-SIDE region for Kaons.

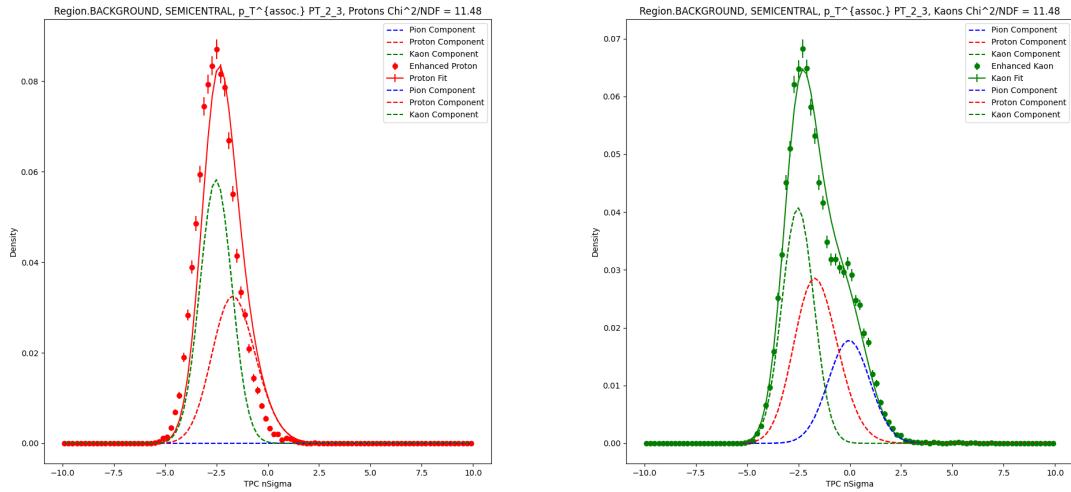
Figure 79: TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

2-3 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 BACKGROUND region for Pions.

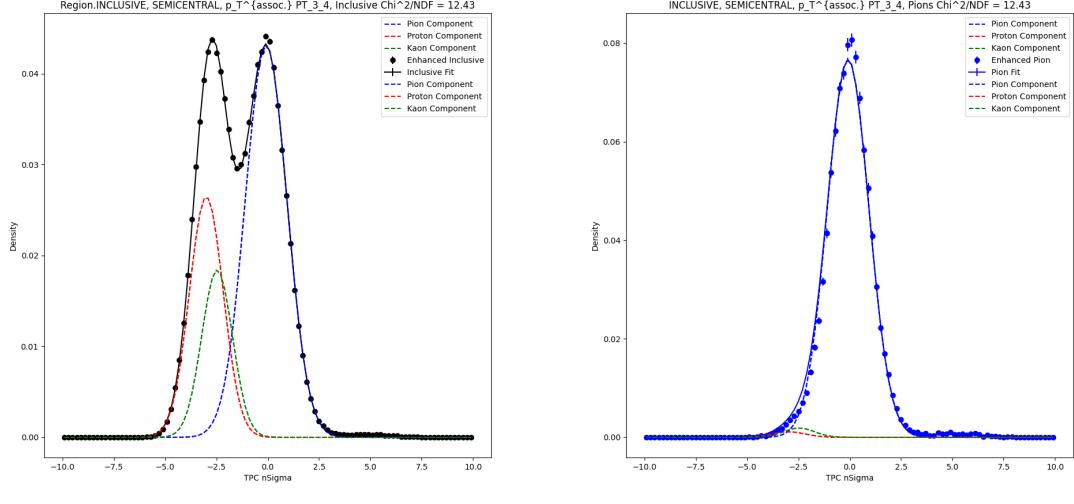


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 BACKGROUND region for Protons.

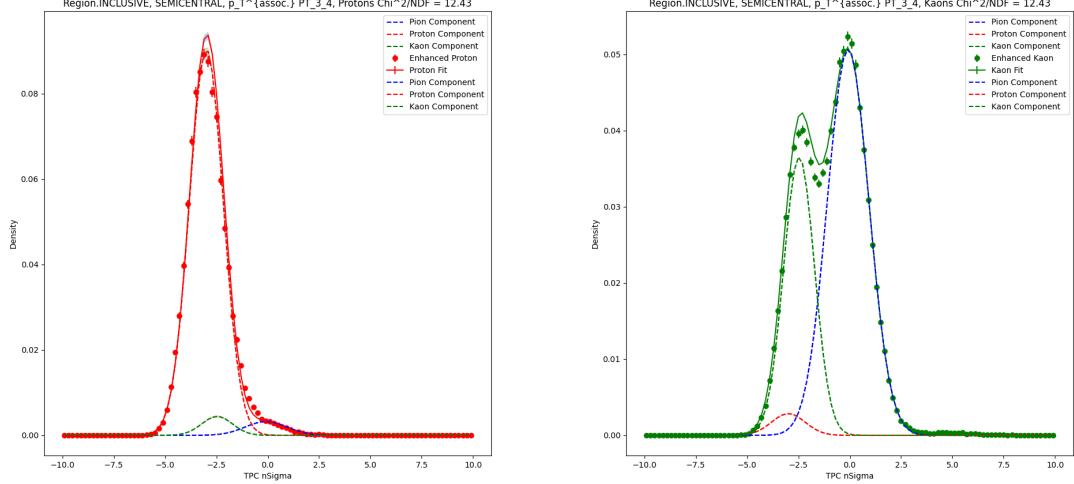
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 BACKGROUND region for Kaons.

Figure 80: TPC $n\sigma$ fits for SEMICENTRAL PT-2-3 BACKGROUND region.

3.5 SEMICENTRAL PT-3-4

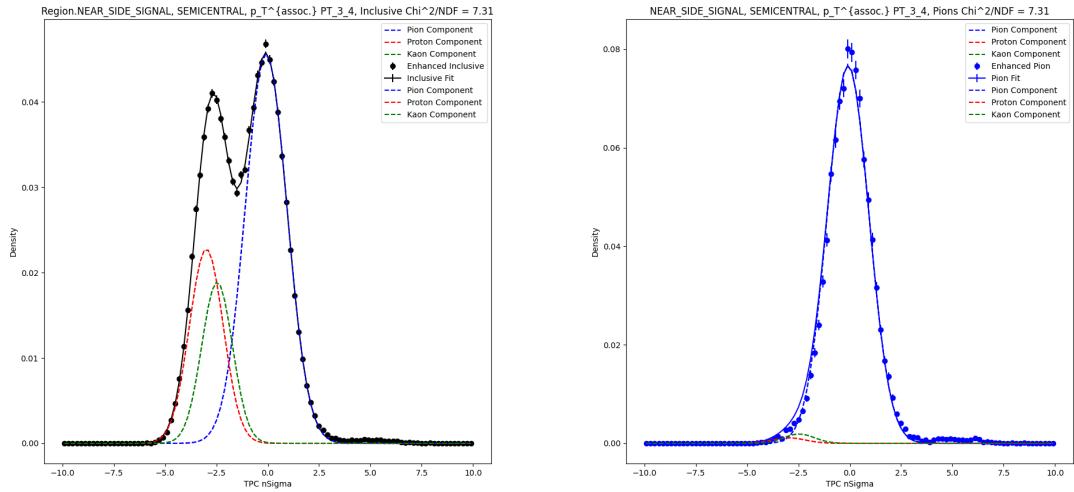


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 INCLUSIVE region for Pions.

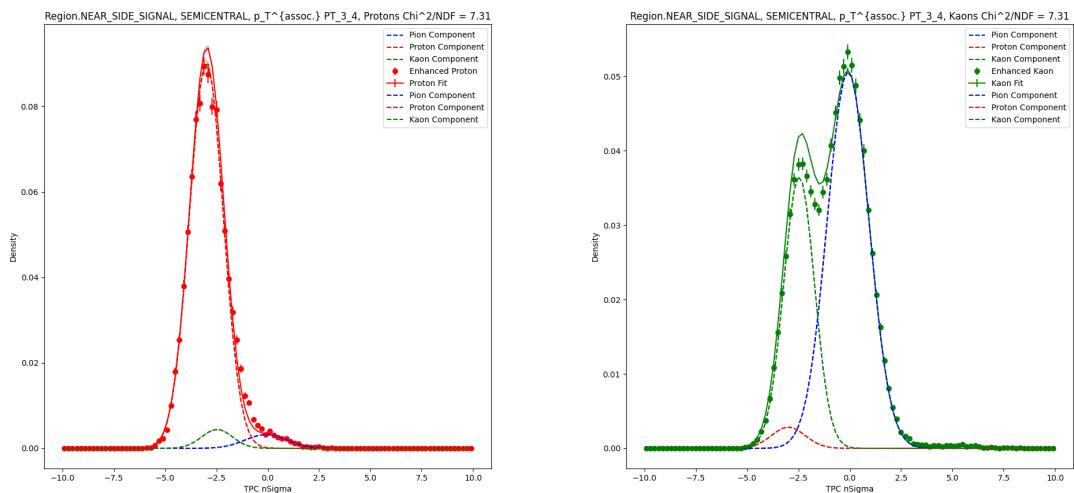


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 INCLUSIVE region for Kaons.

Figure 81: TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 INCLUSIVE region.

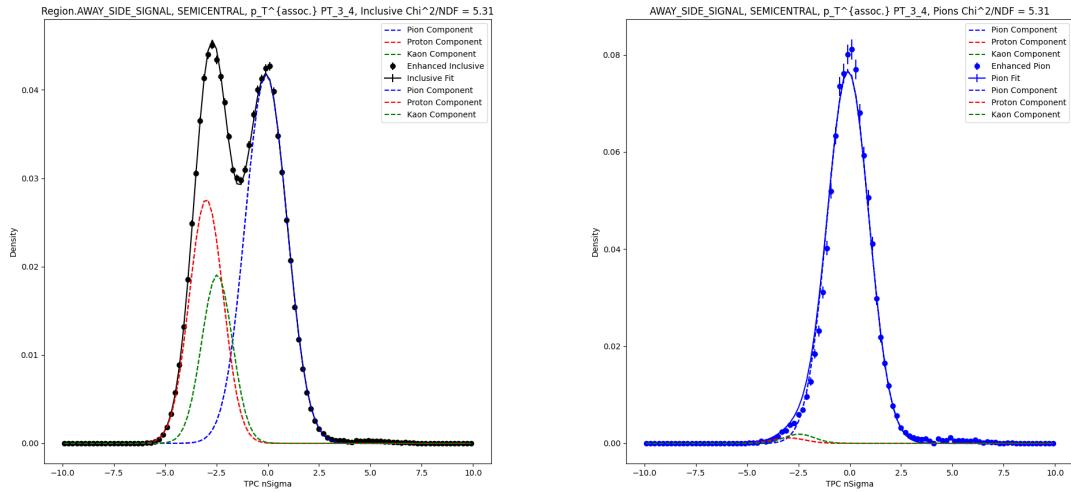


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 NEAR-SIDE region for Pions.

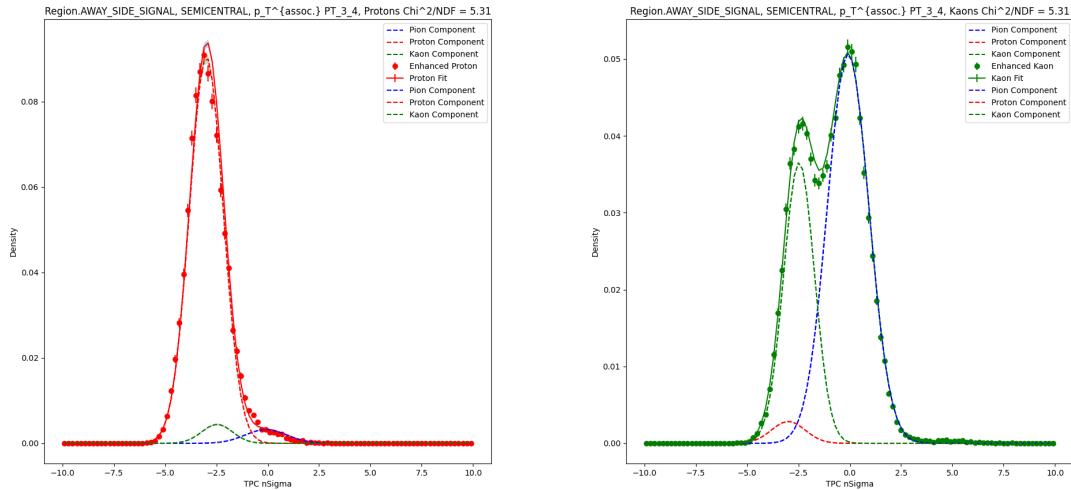


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 NEAR-SIDE region for Kaons.

Figure 82: TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 NEAR-SIDE region.

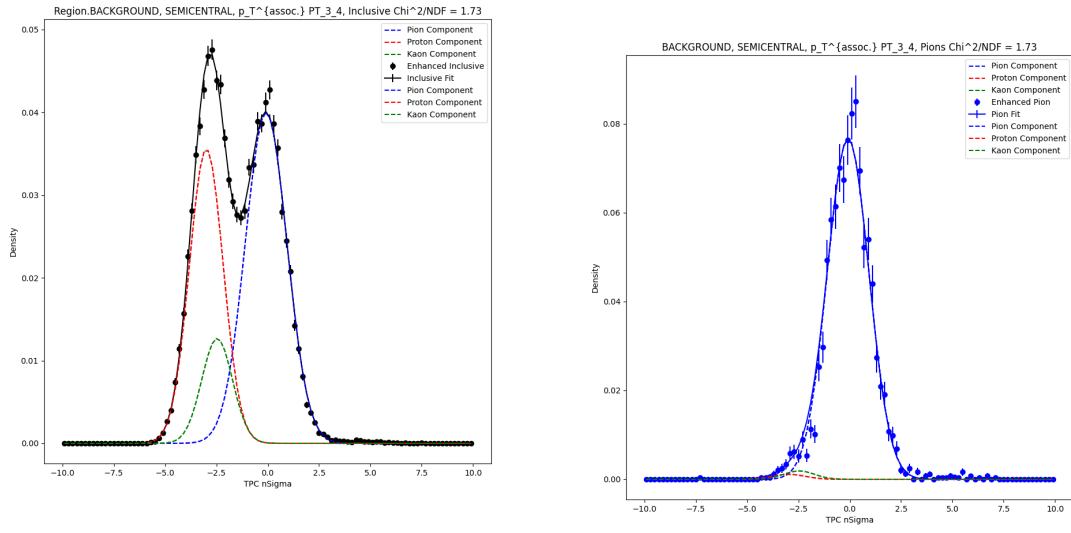


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 AWAY-SIDE region for Kaons.

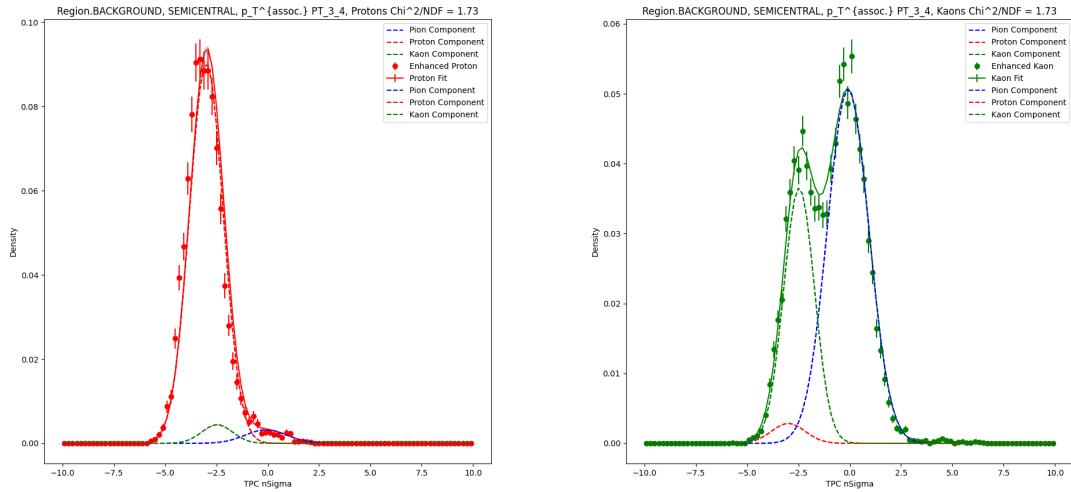
Figure 83: TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

3-4 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 BACKGROUND region for Pions.

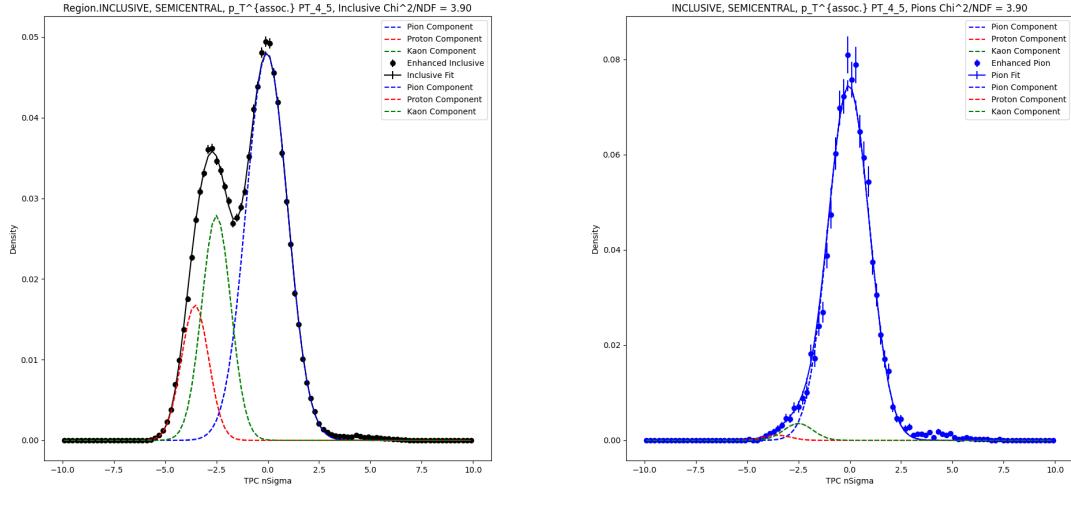


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 BACKGROUND region for Protons.

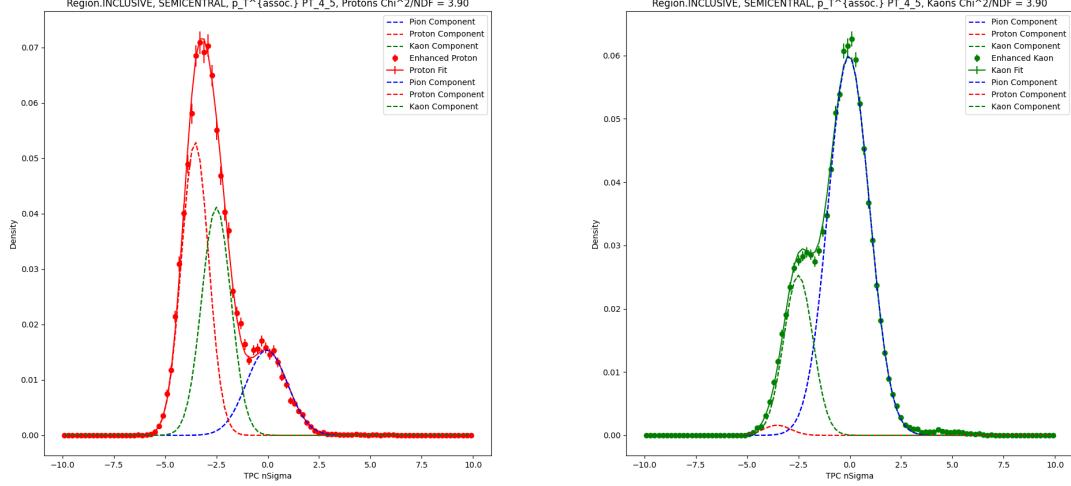
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 BACKGROUND region for Kaons.

Figure 84: TPC $n\sigma$ fits for SEMICENTRAL PT-3-4 BACKGROUND region.

3.6 SEMICENTRAL PT-4-5

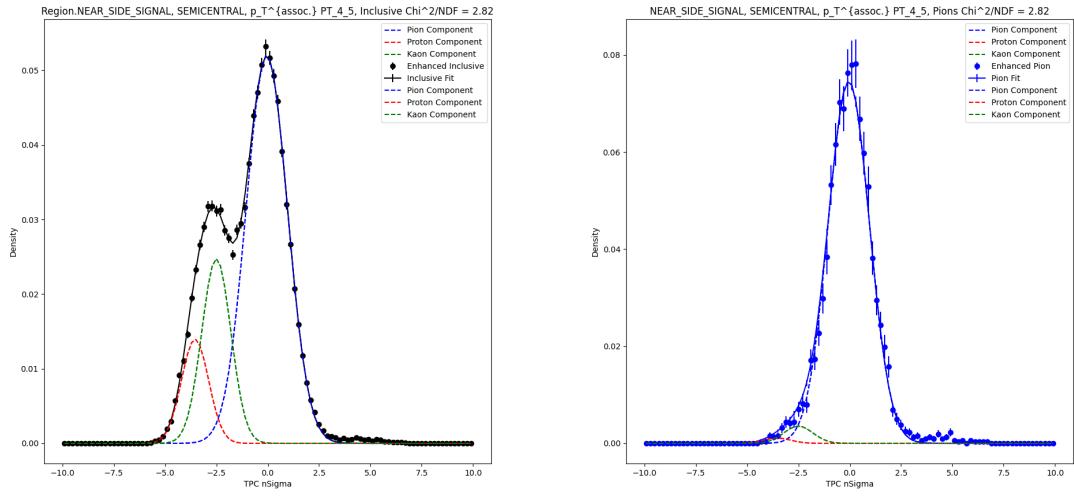


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 INCLUSIVE region for Pions.

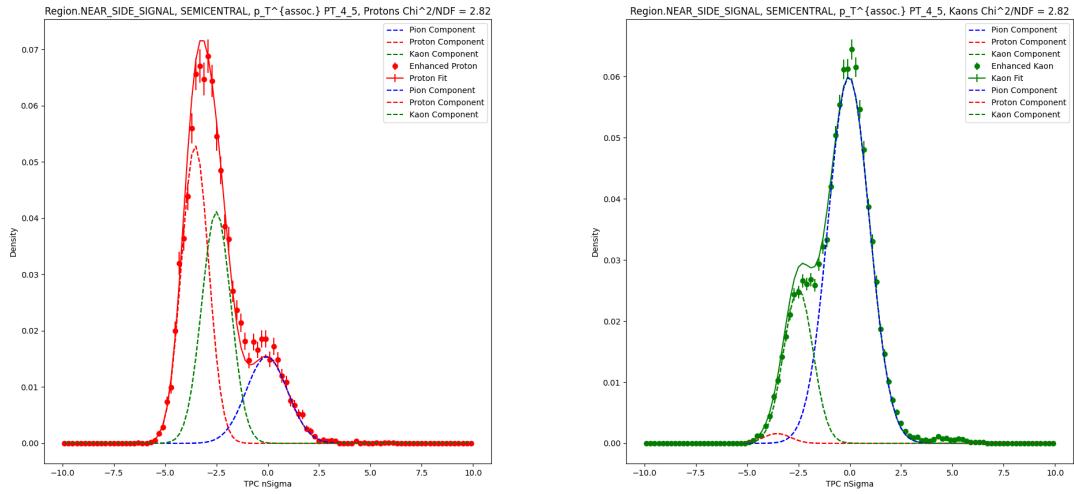


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 INCLUSIVE region for Kaons.

Figure 85: TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 INCLUSIVE region.

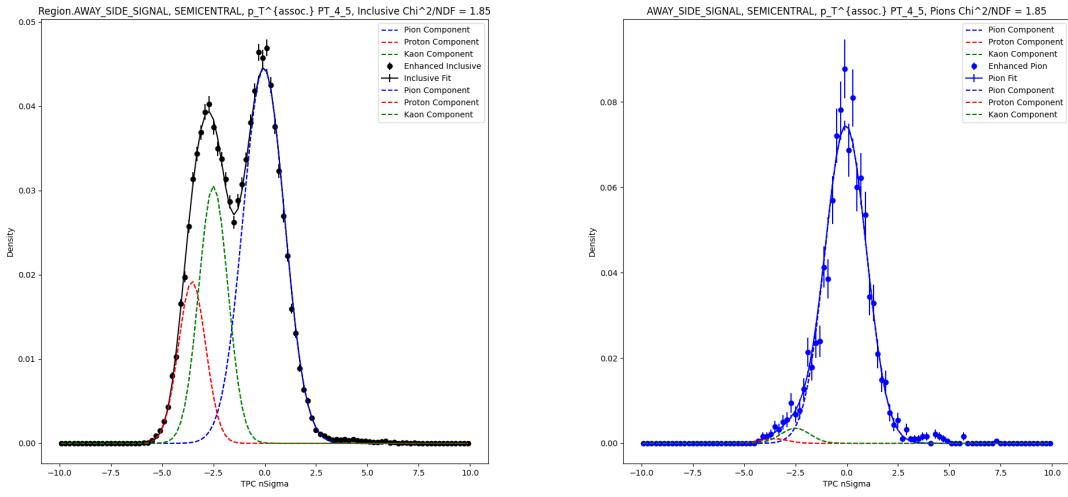


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 NEAR-SIDE region for Pions.

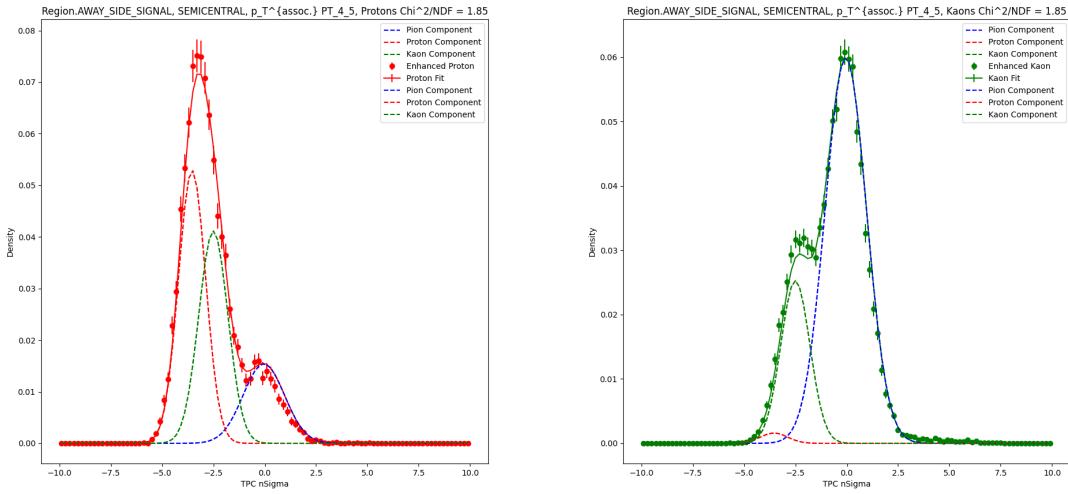


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 NEAR-SIDE region for Kaons.

Figure 86: TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 NEAR-SIDE region.

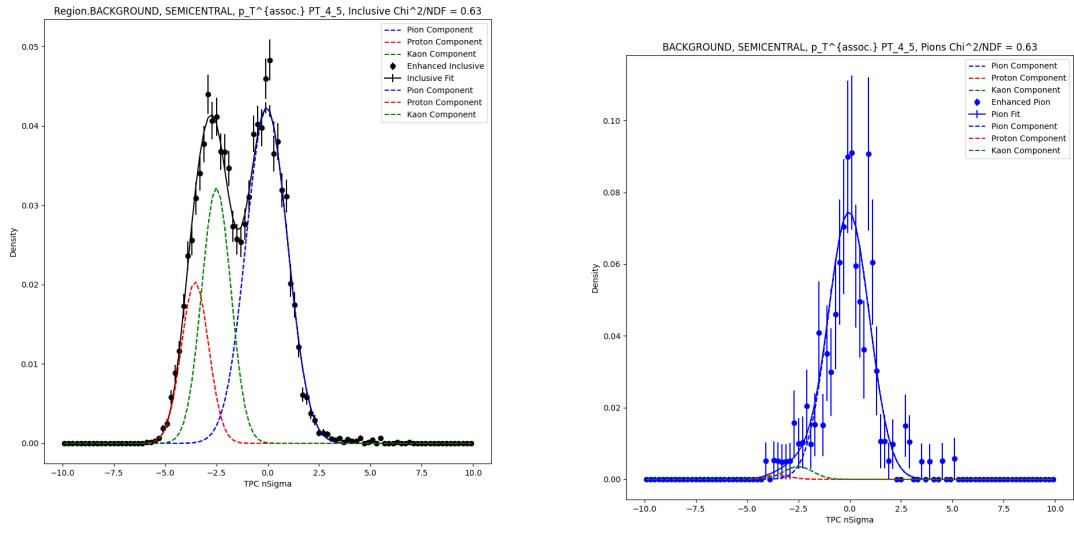


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 AWAY-SIDE region for Kaons.

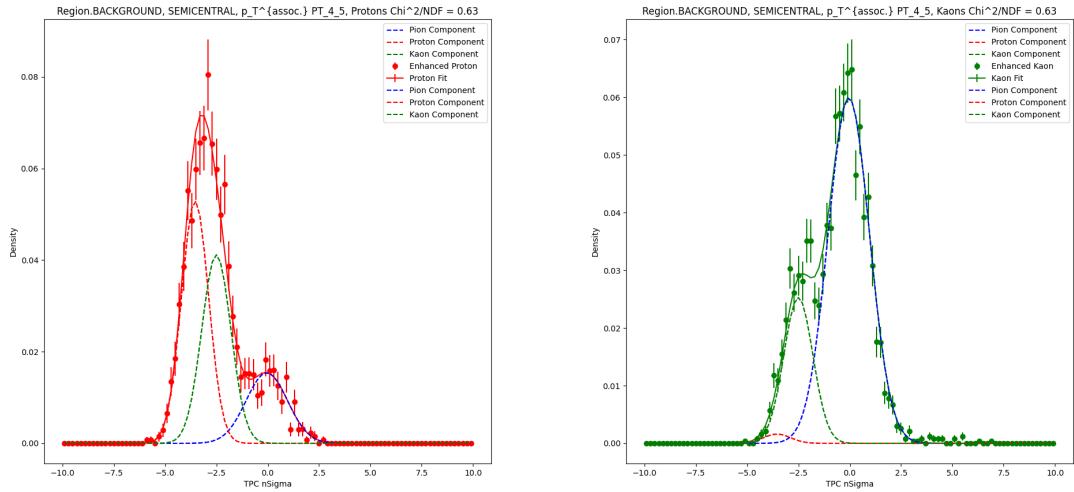
Figure 87: TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

4-5 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 BACKGROUND region for Pions.

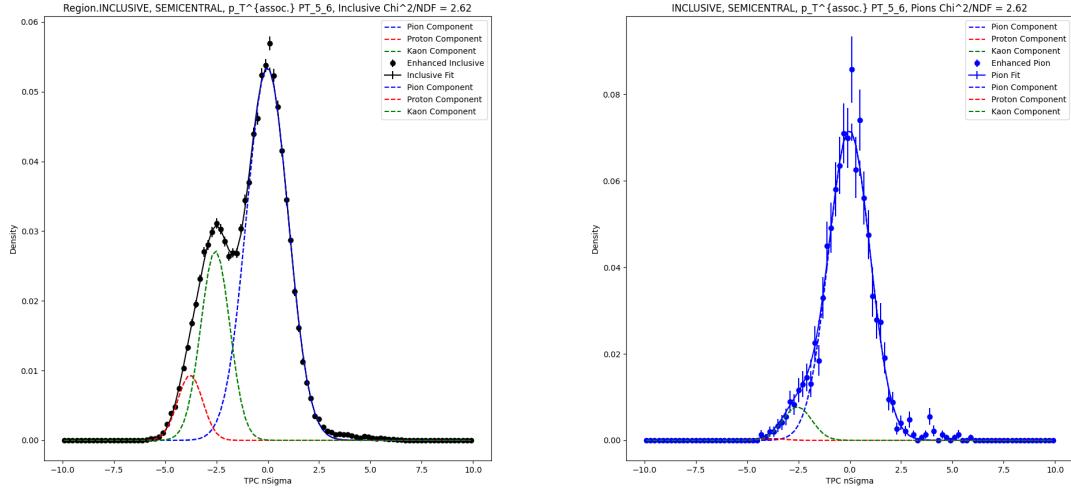


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 BACKGROUND region for Protons.

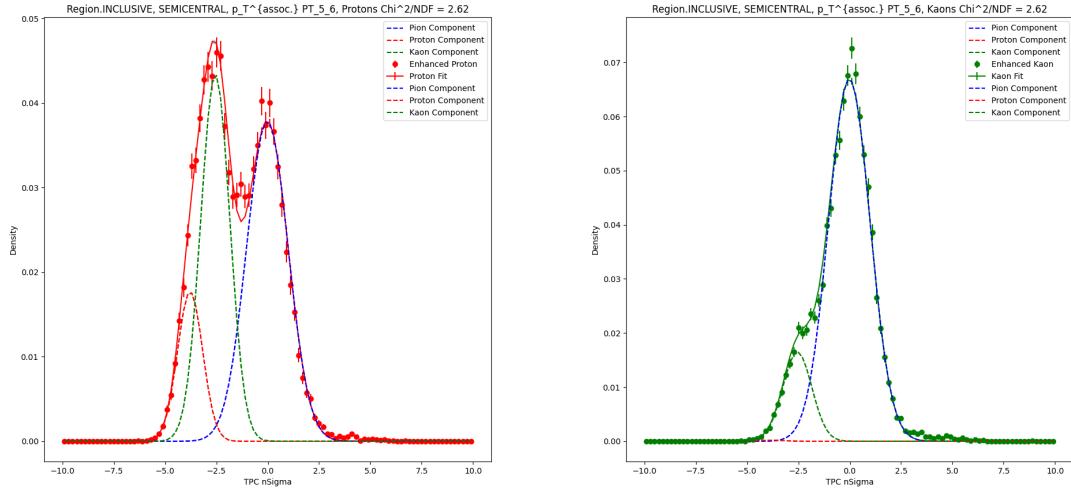
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 BACKGROUND region for Kaons.

Figure 88: TPC $n\sigma$ fits for SEMICENTRAL PT-4-5 BACKGROUND region.

3.7 SEMICENTRAL PT-5-6

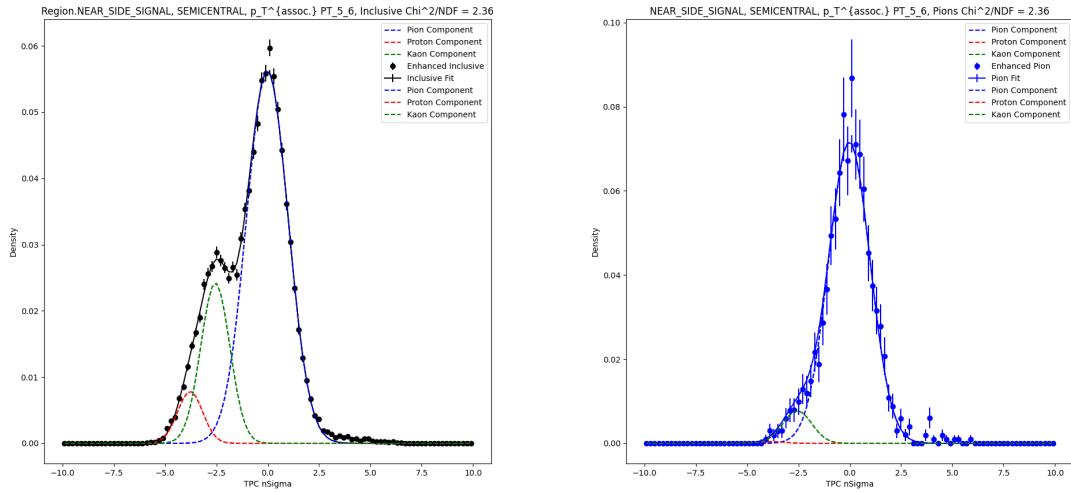


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 INCLUSIVE region for Pions.

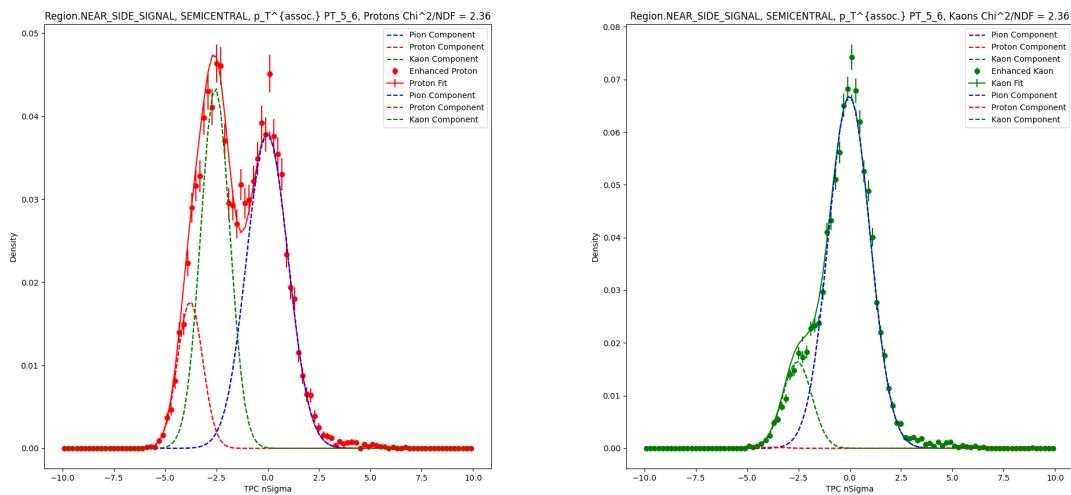


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 INCLUSIVE region for Kaons.

Figure 89: TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 INCLUSIVE region.

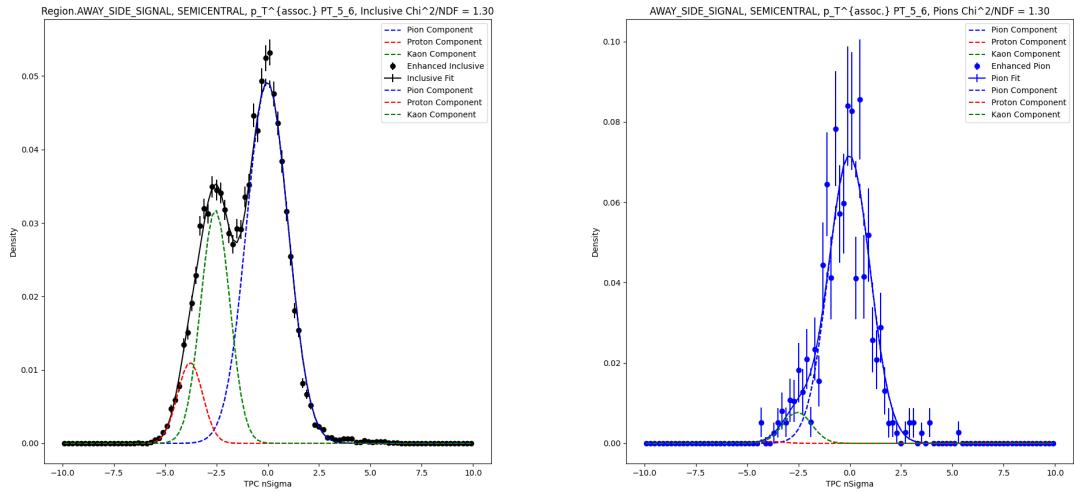


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 NEAR-SIDE region for Pions.

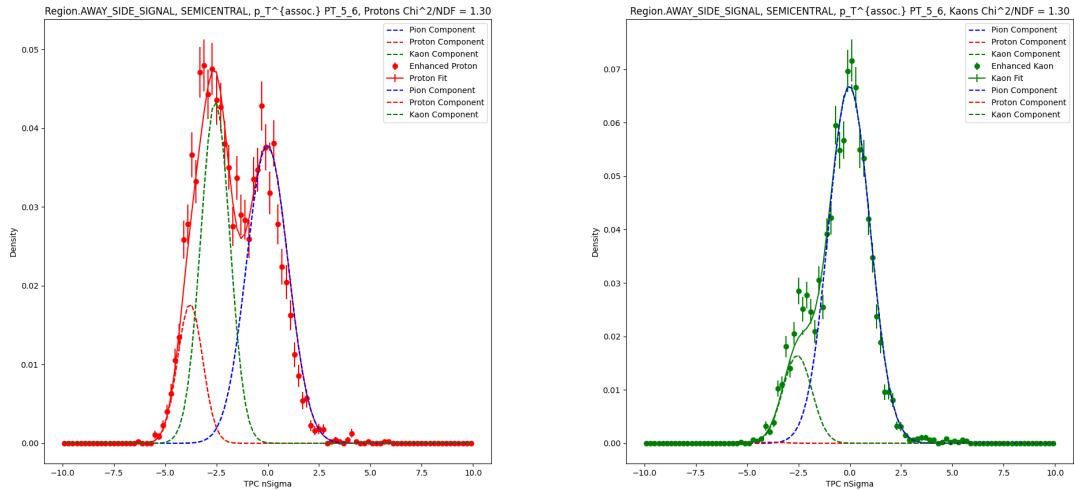


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 NEAR-SIDE region for Kaons.

Figure 90: TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 NEAR-SIDE region.

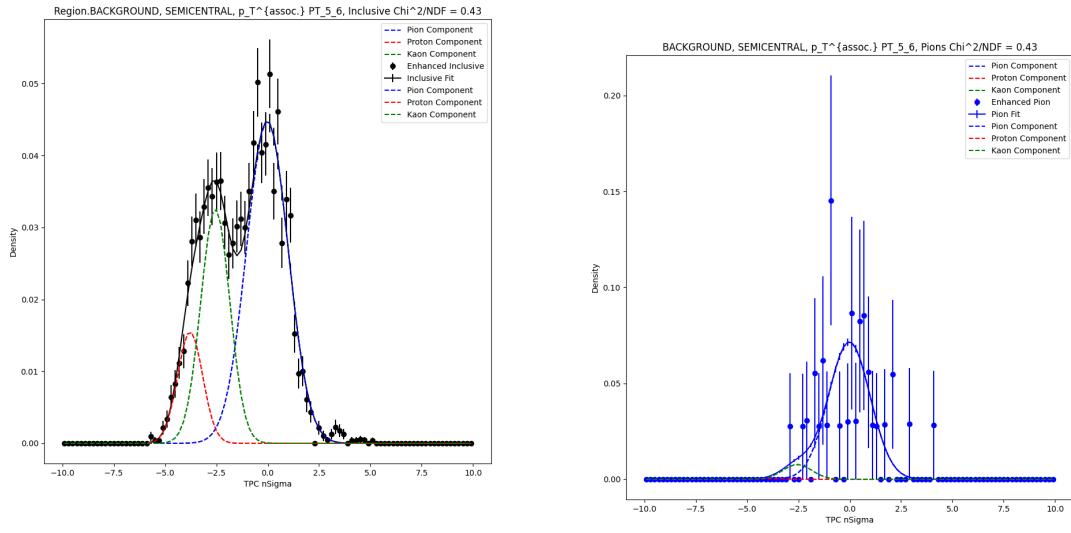


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 AWAY-SIDE region for Kaons.

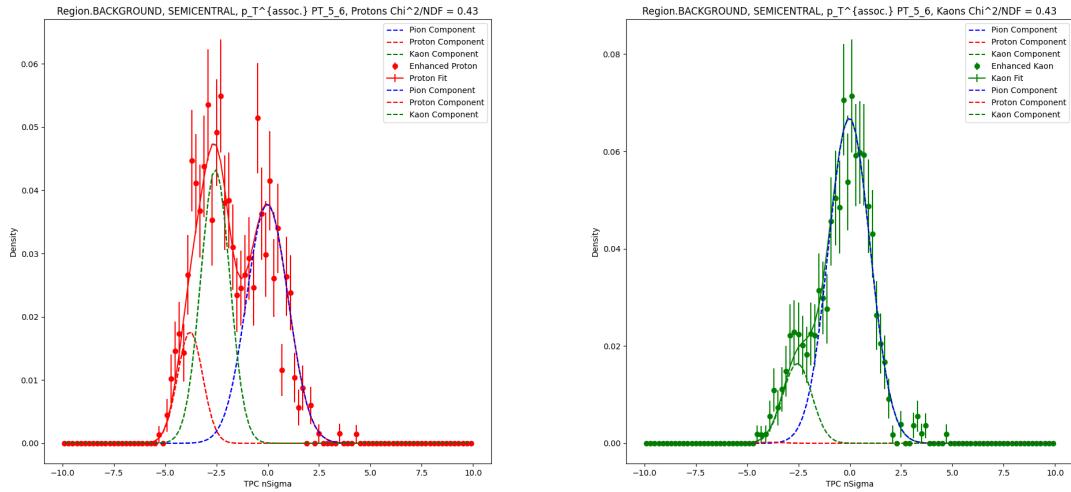
Figure 91: TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

5-6 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 BACKGROUND region for Pions.

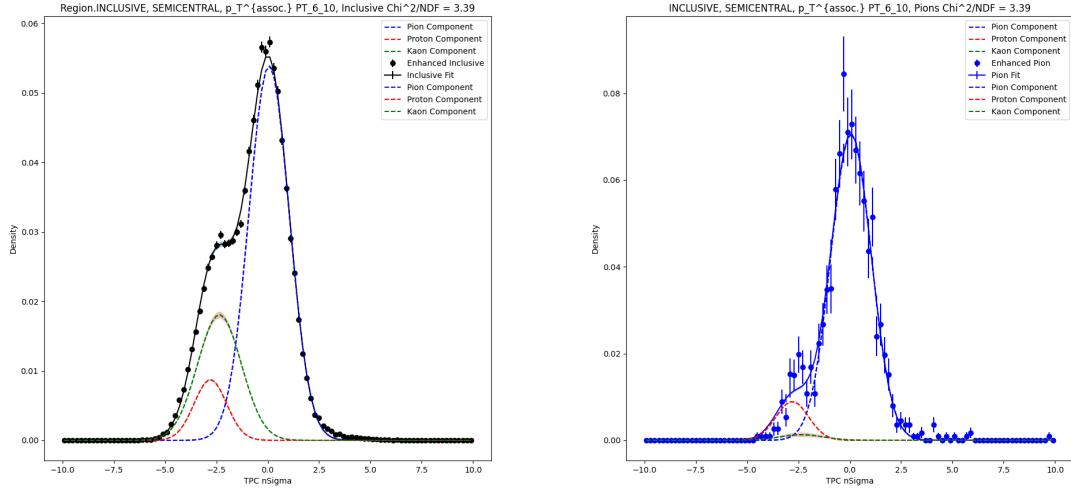


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 BACKGROUND region for Protons.

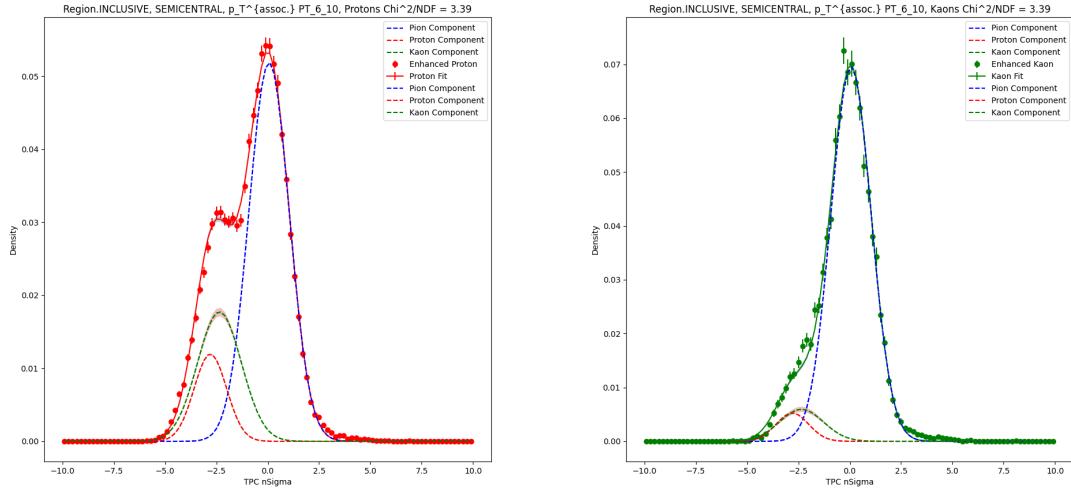
(d) TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 BACKGROUND region for Kaons.

Figure 92: TPC $n\sigma$ fits for SEMICENTRAL PT-5-6 BACKGROUND region.

3.8 SEMICENTRAL PT-6-10

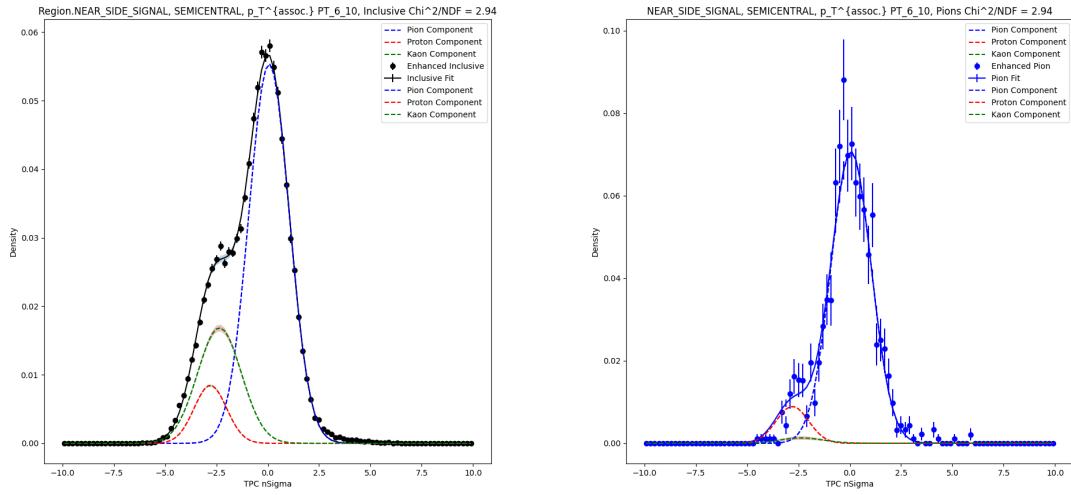


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 INCLUSIVE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 INCLUSIVE region for Pions.

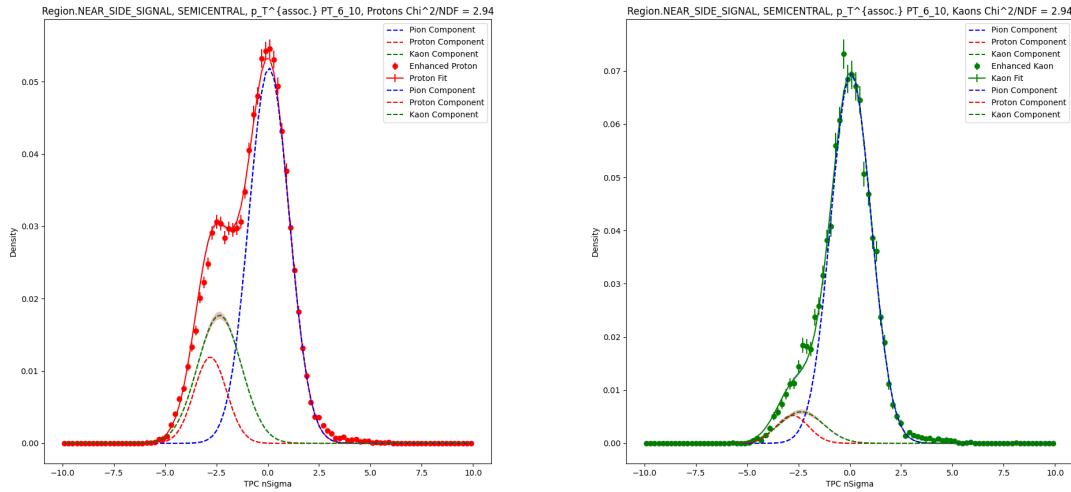


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 INCLUSIVE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 INCLUSIVE region for Kaons.

Figure 93: TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 INCLUSIVE region.

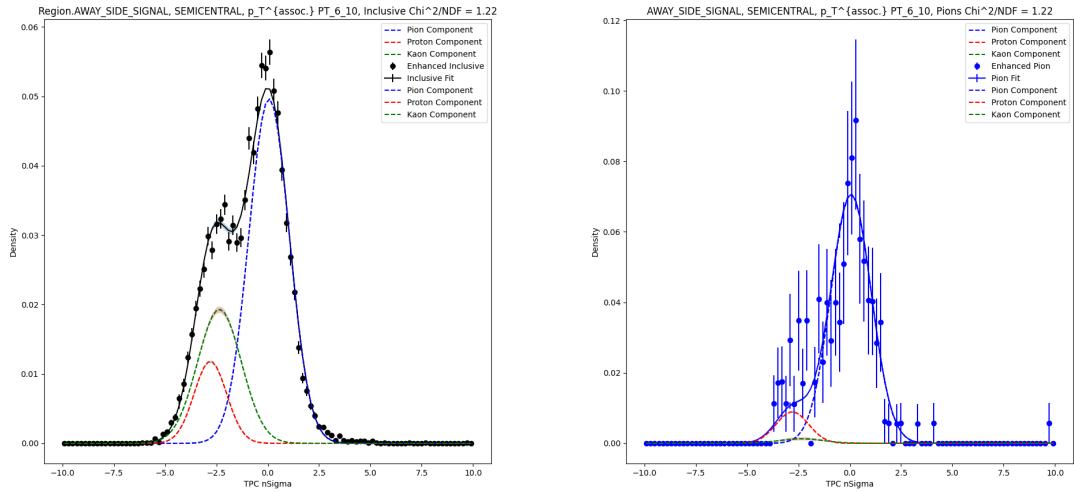


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 NEAR-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 NEAR-SIDE region for Pions.

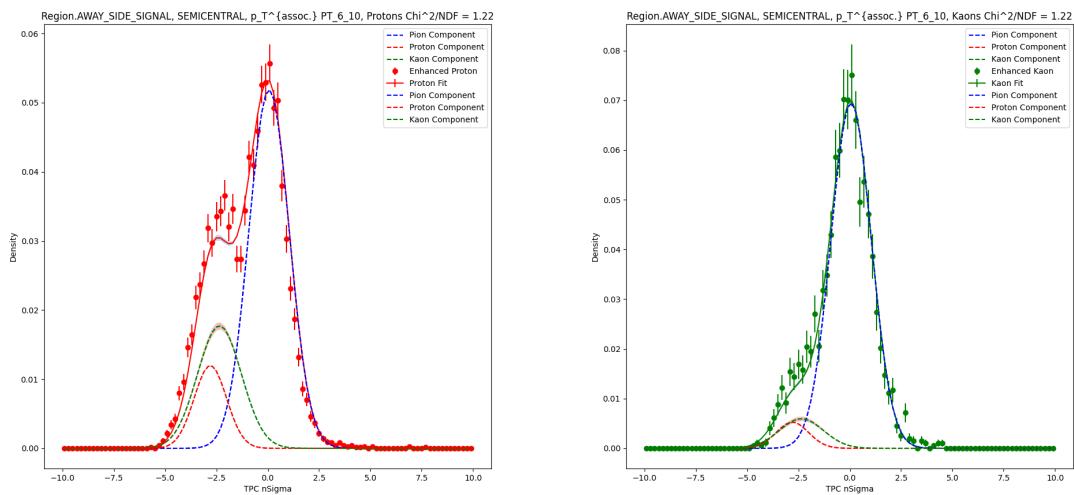


(c) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 NEAR-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 NEAR-SIDE region for Kaons.

Figure 94: TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 NEAR-SIDE region.

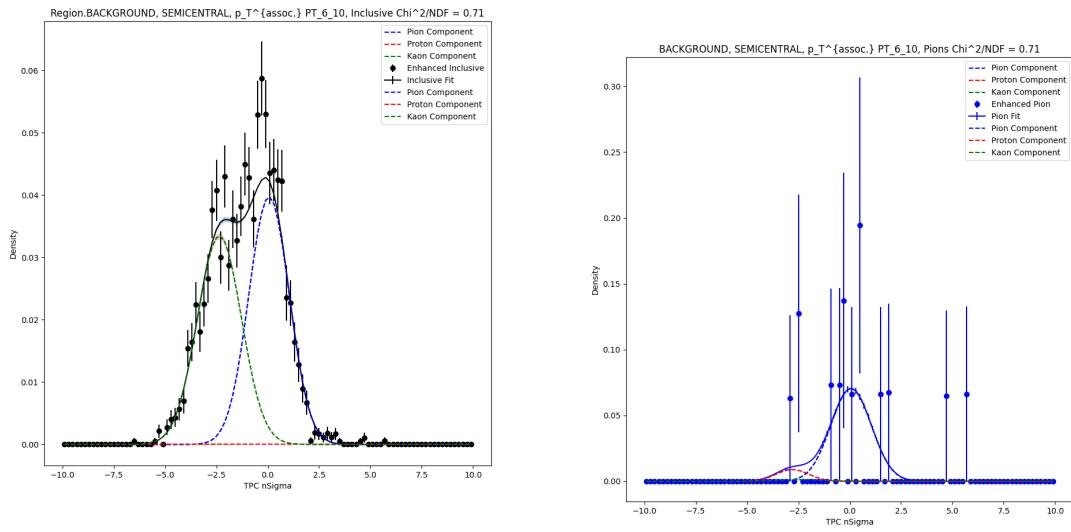


(a) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 AWAY-SIDE region for Inclusive particles. (b) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 AWAY-SIDE region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 AWAY-SIDE region for Protons. (d) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 AWAY-SIDE region for Kaons.

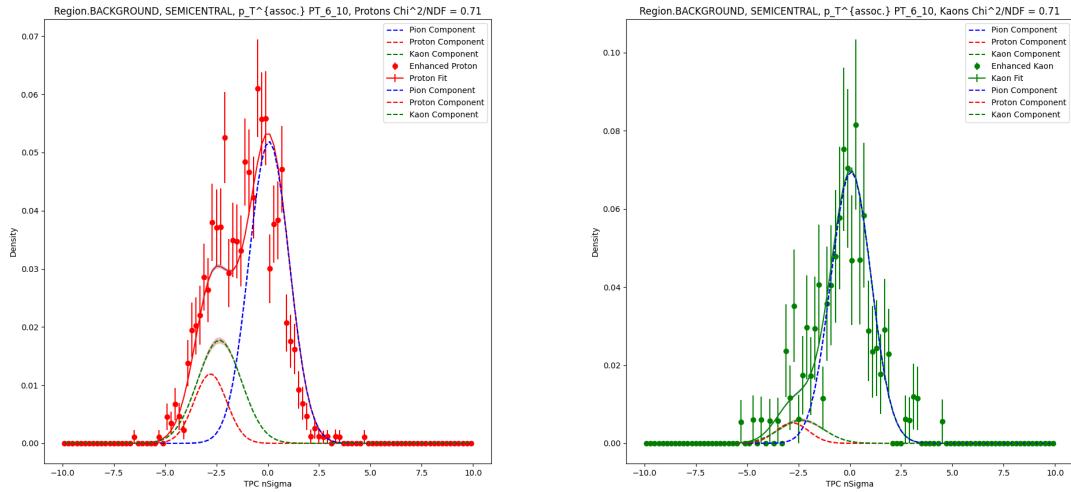
Figure 95: TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 AWAY-SIDE region.



(a) TPC $n\sigma$ fits for SEMICENTRAL PT-

6-10 BACKGROUND region for Inclusive particles.

(b) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 BACKGROUND region for Pions.



(c) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 BACKGROUND region for Protons.

(d) TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 BACKGROUND region for Kaons.

Figure 96: TPC $n\sigma$ fits for SEMICENTRAL PT-6-10 BACKGROUND region.

Vita

Vita goes here...