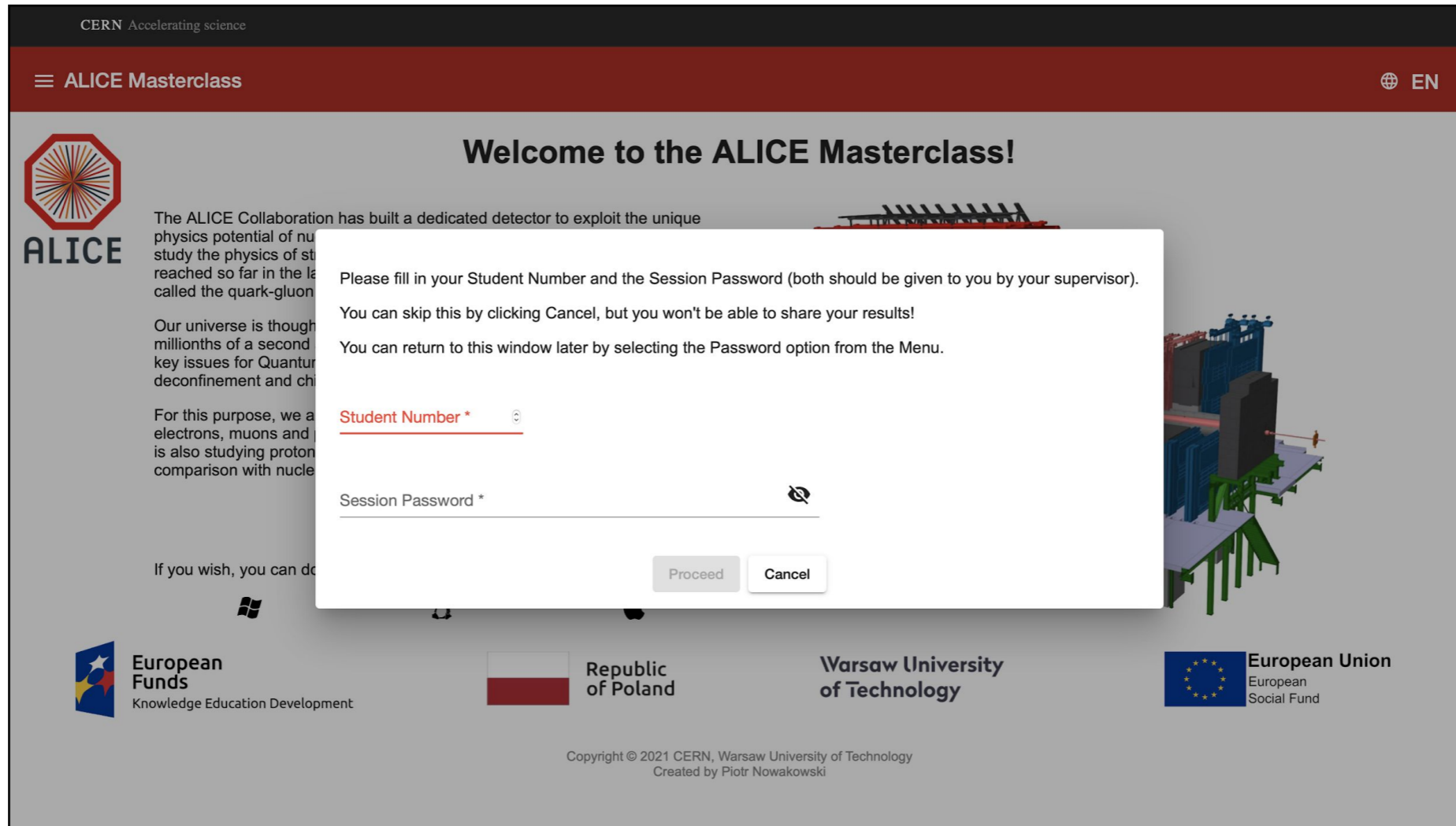


# **Hands-on: ALICE masterclass**

# Hands-on - Part 1

<https://alice-web-masterclass.app.cern.ch/?password=kwisatz-haderach>



The screenshot shows the ALICE Masterclass website interface. At the top, there is a navigation bar with the CERN logo and the text "CERN Accelerating science". Below this, the page title "ALICE Masterclass" is visible. The main content area features the ALICE logo and a welcome message: "Welcome to the ALICE Masterclass!". A central dialog box prompts the user to enter their "Student Number" and "Session Password". The dialog box contains the following text: "Please fill in your Student Number and the Session Password (both should be given to you by your supervisor). You can skip this by clicking Cancel, but you won't be able to share your results! You can return to this window later by selecting the Password option from the Menu." Below the text are two input fields: "Student Number \*" and "Session Password \*". The "Session Password" field has a password icon. At the bottom of the dialog box are two buttons: "Proceed" and "Cancel". The background of the website shows a 3D rendering of the ALICE detector and various logos, including the European Funds, Republic of Poland, Warsaw University of Technology, and European Union.

- Inserite il vostro “Student Number”
  - Corrisponde al numero riportato sulle vostre credenziali WiFi
- Inserite la “Session Password”: **kwisatz-haderach**
  - Se utilizzate il link in alto, dovrebbe essere automaticamente riportata
- Cliccate su “Proceed”

# Hands-on - Part 1

The image shows a screenshot of the ALICE Masterclass website. At the top left, the text "CERN Accelerating science" is visible. The main header is red and contains the text "ALICE Masterclass" and a language selector "EN". The main content area features the heading "Welcome to the ALICE Masterclass!" and several paragraphs of text describing the ALICE Collaboration and its goals. A 3D cutaway diagram of the ALICE detector is shown on the right. At the bottom, there are logos for the European Union, the Republic of Poland, and Warsaw University of Technology. A white menu overlay is positioned in the center, listing "Home", "Strangeness", "Visual Analysis", and "Large Scale Analysis". A blue arrow points from the text "Pulsante per il menù principale" to the hamburger menu icon in the top left corner. A "Password" field is visible at the bottom left of the menu overlay.

CERN Accelerating science

ALICE Masterclass EN

## Welcome to the ALICE Masterclass!

The ALICE Collaboration has built a dedicated detector to exploit the unique physics potential of nucleus-nucleus collisions at LHC energies. Our aim is to study the physics of strongly interacting matter at the highest energy densities reached so far in the laboratory. In such condition, an extreme phase of matter - called the quark-gluon plasma - is formed.

Our universe is thought to have been in such a primordial state for the first few millionths of a second after the Big Bang. The properties of such a phase are key issues for Quantum Chromo Dynamics, the understanding of confinement, deconfinement and chiral phase transitions.

For this purpose, we are carrying out a comprehensive study of the hadrons, electrons, muons and photons produced in the collisions of heavy nuclei. ALICE is also studying proton-proton and proton-nucleus collisions both as a comparison with nucleus-nucleus collisions and in their own right.

If you wish, you can download and use a desktop version of the Masterclass:

Windows Linux macOS

European Funds Knowledge Education Development Republic of Poland

Copyright © 2021 CERN, Warsaw University of Technology Created by Piotr Nowakowski

### Menu

- Home
- Strangeness
- Visual Analysis
- Large Scale Analysis

Password

EN

## Welcome to the ALICE Masterclass!

The ALICE Collaboration has built a dedicated detector to exploit the unique physics potential of nucleus-nucleus collisions at LHC energies. Our aim is to study the physics of strongly interacting matter at the highest energy densities reached so far in the laboratory. In such condition, an extreme phase of matter - called the quark-gluon plasma - is formed.

Our universe is thought to have been in such a primordial state for the first few millionths of a second after the Big Bang. The properties of such a phase are key issues for Quantum Chromo Dynamics, the understanding of confinement, deconfinement and chiral phase transitions.

For this purpose, we are carrying out a comprehensive study of the hadrons, electrons, muons and photons produced in the collisions of heavy nuclei. ALICE is also studying proton-proton and proton-nucleus collisions both as a comparison with nucleus-nucleus collisions and in their own right.

If you wish, you can download and use a desktop version of the Masterclass:

Windows Linux macOS

European Funds Knowledge Education Development Republic of Poland Warsaw University of Technology European Union European Social Fund

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Pulsante per  
il menù  
principale

# Hands-on - Fase 1

**Fase 1**  
Costruire la  
distribuzione di  
massa invariante

**Fase 2**  
Misurare il tasso  
di produzione

The screenshot shows the ALICE Masterclass website interface. A white menu is overlaid on the left side of the page, containing the following items: Menu, Home, Strangeness, Visual Analysis, and Large Scale Analysis. Two blue arrows point from the text on the left to the 'Visual Analysis' and 'Large Scale Analysis' menu items. The main content area of the website has a dark red header with the text 'Welcome to the ALICE Masterclass!' and a globe icon with 'EN'. Below the header, there is a 3D cutaway illustration of the ALICE detector. The footer of the page includes logos for the Republic of Poland, Warsaw University of Technology, and the European Union, along with copyright information: 'Copyright © 2021 CERN, Warsaw University of Technology Created by Piotr Nowakowski'. A 'Password' field is visible at the bottom left of the menu area.

# Hands-on - Fase 1

**Fase 1**  
Costruire la  
distribuzione di  
massa invariante

**Fase 2**  
Misurare il tasso  
di produzione

The screenshot shows the ALICE Masterclass website interface. A white menu is open on the left side, listing: Home, Strangeness, Visual Analysis (highlighted with a blue circle and a blue arrow pointing to the 'Fase 1' text), and Large Scale Analysis (highlighted with a grey circle and a grey arrow pointing to the 'Fase 2' text). The main content area has a dark header with 'EN' in the top right. The main heading is 'Welcome to the ALICE Masterclass!'. Below it, there is introductory text about the ALICE Collaboration and the quark-gluon plasma. A 3D cutaway diagram of the ALICE detector is shown on the right. At the bottom, there are logos for the Republic of Poland, Warsaw University of Technology, and the European Union. A 'Password' field is visible at the bottom left of the menu area.

# Hands-on - Fase 1

19 dataset totali:

Il vostro corrisponde al resto della divisione del vostro “Student Number” per 19

- Student number: 14 → dataset 14
- Student number: 21 → dataset 2
- Student number: 43 → dataset 5

The screenshot shows the ALICE Masterclass interface. At the top, it says "CERN Accelerating science" and "ALICE Masterclass". Below this, there are three views: "3D View", "View 1", and "View 2". A dropdown menu is open over the 3D View, titled "Please select dataset:", with options: "Demo", "Dataset 0", "Dataset 1", "Dataset 2", and "Dataset 3". Below the views is a "Calculator" section with a table for particle properties.

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    |               |               |               |                            |
| (-)    |               |               |               |                            |

| Select particle type | mass (GeV/c <sup>2</sup> ) |
|----------------------|----------------------------|
| $e^-, e^+$           | 0.0005                     |
| $\pi^-, \pi^+$       | 0.1396                     |
| $K_s^0$              | 0.4976                     |

Selezionate il dataset assegnato sulla corrispondente schermata



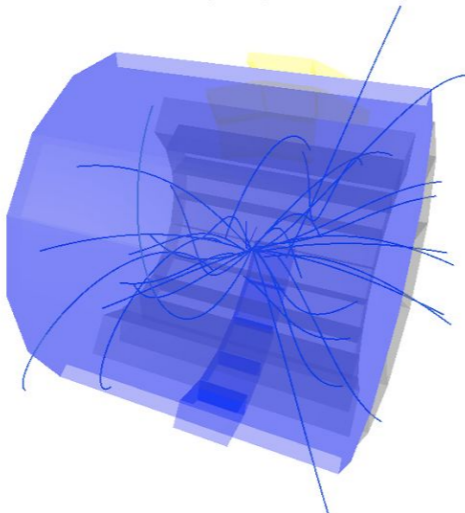
# Hands-on - Fase 1

CERN Accelerating science

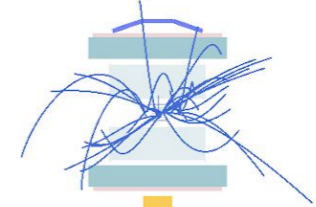
ALICE Masterclass ? EN

### Event 0

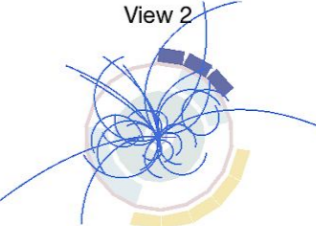
3D View



View 1



View 2



**Calculator**

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    |               |               |               |                            |
| (-)    |               |               |               |                            |

Select particle type

Add

**Particles**

| Type           | mass (GeV/c <sup>2</sup> ) |
|----------------|----------------------------|
| $e^-, e^+$     | 0.0005                     |
| $\pi^-, \pi^+$ | 0.1396                     |
| $K_s^0$        | 0.4976                     |

# Hands-on - Fase 1

CERN Accelerating science

ALICE Masterclass

Event 0

3D View

View 1

View 2

Calculator

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    |               |               |               |                            |
| (-)    |               |               |               |                            |

Select particle type

Add

Particles

| Type           | mass (GeV/c <sup>2</sup> ) |
|----------------|----------------------------|
| $e^-, e^+$     | 0.0005                     |
| $\pi^-, \pi^+$ | 0.1396                     |
| $K_s^0$        | 0.4976                     |

Per esplorare gli  
“eventi” (collisioni)  
utilizzate le frecce



# Hands-on - Fase 1

View 1

View 2

View 1

View 2

Particles

| Type                            | mass (GeV/c <sup>2</sup> ) |
|---------------------------------|----------------------------|
| e <sup>-</sup> , e <sup>+</sup> | 0.0005                     |
| π <sup>-</sup> , π <sup>+</sup> | 0.1396                     |
| K <sub>s</sub> <sup>0</sup>     | 0.4976                     |

**Gli eventi sono caratterizzati da tante “tracce” di colore blu. Una pre-selezione di candidate è stata già fatta.**

# Hands-on - Fase 1

CERN Accelerating science

ALICE Masterclass ? EN

Event 0

3D View

View 1

View 2

Calculator

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    |               |               |               |                            |
| (-)    |               |               |               |                            |

Select particle type

Add

Particles

| Type           | mass (GeV/c <sup>2</sup> ) |
|----------------|----------------------------|
| $e^-, e^+$     | 0.0005                     |
| $\pi^-, \pi^+$ | 0.1396                     |
| $K_s^0$        | 0.4976                     |

Apertura pannello opzioni

# Hands-on - Fase 1

The screenshot displays the ALICE Masterclass interface. At the top, there is a header with the CERN logo and 'Accelerating science'. Below this is a red navigation bar with 'ALICE Masterclass' on the left and a language selector 'EN' on the right. The main area is split into two views: a large 3D visualization of particle tracks on the left and a smaller 'View 2' on the right. A control panel on the right side contains several settings: 'Visibility' (Side Views, Detector, Clusters, Axes, Tracks, Decays), 'Cluster Size' (S, M, L), and 'Track Width' (S, M, L). The 'Decays' option is highlighted with a blue circle and a blue arrow pointing to it. Below the visualization are two panels: 'Calculator' and 'Particles'.

**Calculator**

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    | 0.467         | 0.231         | 0.338         | 0.938                      |
| (-)    | 0.222         | 0.094         | 0.074         | 0.140                      |
| (b)    |               |               |               |                            |
| Total  |               |               |               |                            |

Select particle type  
Anti-Lambda  
Add

**Particles**

| Type                     | mass (GeV/c <sup>2</sup> ) |
|--------------------------|----------------------------|
| $e^-, e^+$               | 0.0005                     |
| $\pi^-, \pi^+$           | 0.1396                     |
| $K_s^0$                  | 0.4976                     |
| $p, \bar{p}$             | 0.9383                     |
| $\Lambda, \bar{\Lambda}$ | 1.1157                     |
| $\Xi, \bar{\Xi}$         | 1.3217                     |

Assicuratevi che l'opzione per visualizzare le candidate ('Decays') sia attiva



# Hands-on - Fase 1

Per rimuovere le tracce blu (se ostruiscono la visuale), disattivate l'opzione 'Tracks'

The screenshot shows the ALICE Masterclass interface. At the top, there is a header with 'CERN Accelerating science' and 'ALICE Masterclass'. Below the header, there are two event displays. The left display shows a complex network of tracks, with some tracks highlighted in red and green. The right display shows a similar network of tracks, but with a 'View 2' label. To the right of the event displays is a 'Visibility' control panel with several options: 'Side Views', 'Detector', 'Clusters', 'Axes', 'Tracks', and 'Decays'. Below the event displays, there are three panels: 'Calculator', 'Particles', and 'Add'. The 'Calculator' panel has a table with columns for Charge,  $p_x$  (GeV/c),  $p_y$  (GeV/c),  $p_z$  (GeV/c), and mass (GeV/c<sup>2</sup>). The 'Particles' panel has a table with columns for Type and mass (GeV/c<sup>2</sup>). The 'Add' panel has a dropdown menu for 'Select particle type' and an 'Add' button.

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    | 0.467         | 0.231         | 0.338         | 0.938                      |
| (-)    | 0.222         | 0.094         | 0.074         | 0.140                      |
| (b)    |               |               |               |                            |
| Total  |               |               |               |                            |

| Type                     | mass (GeV/c <sup>2</sup> ) |
|--------------------------|----------------------------|
| $e^-, e^+$               | 0.0005                     |
| $\pi^-, \pi^+$           | 0.1396                     |
| $K_s^0$                  | 0.4976                     |
| $p, \bar{p}$             | 0.9383                     |
| $\Lambda, \bar{\Lambda}$ | 1.1157                     |
| $\Xi, \bar{\Xi}$         | 1.3217                     |

Selezionate le tracce figlie (rossa e verde) cliccando nell'event display

# Hands-on - Fase 1

CERN Accelerating science

ALICE Masterclass

Visibility

- Side Views
- Detector
- Clusters
- Axes
- Tracks
- Decays

Cluster Size

S M L

Track Width

S M L

Calculator

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    | 0.467         | 0.231         | 0.338         | 0.938                      |
| (-)    | 0.222         | 0.094         | 0.074         | 0.140                      |
| (b)    |               |               |               |                            |
| Total  |               |               |               |                            |

Select particle type  
Anti-Lambda

Add

Particles

| Type                     | mass (GeV/c <sup>2</sup> ) |
|--------------------------|----------------------------|
| $e^-, e^+$               | 0.0005                     |
| $\pi^-, \pi^+$           | 0.1396                     |
| $K_s^0$                  | 0.4976                     |
| $p, \bar{p}$             | 0.9383                     |
| $\Lambda, \bar{\Lambda}$ | 1.1157                     |
| $\Xi, \bar{\Xi}$         | 1.3217                     |

Potete identificare la natura delle figlie confrontando il valore della massa.



# Hands-on - Fase 1

The screenshot displays the ALICE Masterclass interface. At the top, there is a header with the CERN logo and 'Accelerating science'. Below this is a red navigation bar with 'ALICE Masterclass' on the left and a language selector 'EN' on the right. The main area is split into two views: a large 3D visualization of particle tracks on the left and a smaller 'View 2' on the right. A control panel on the right side includes sections for 'Visibility' (Side Views, Detector, Clusters, Axes, Tracks, Decays), 'Cluster Size' (S, M, L), and 'Track Width' (S, M, L). Below the visualization is a 'Calculator' section with a table of particle properties and a 'Particles' section with a list of particle types and their masses. A blue box highlights the 'Select particle type' dropdown menu in the calculator, which is currently set to 'Anti-Lambda', and an arrow points to the 'Add' button below it.

Calculator

| Charge | $p_x$ (GeV/c) | $p_y$ (GeV/c) | $p_z$ (GeV/c) | mass (GeV/c <sup>2</sup> ) |
|--------|---------------|---------------|---------------|----------------------------|
| (+)    | 0.467         | 0.231         | 0.338         | 0.938                      |
| (-)    | 0.222         | 0.094         | 0.074         | 0.140                      |
| (b)    |               |               |               |                            |
| Total  |               |               |               |                            |

Select particle type  
Anti-Lambda  
Add

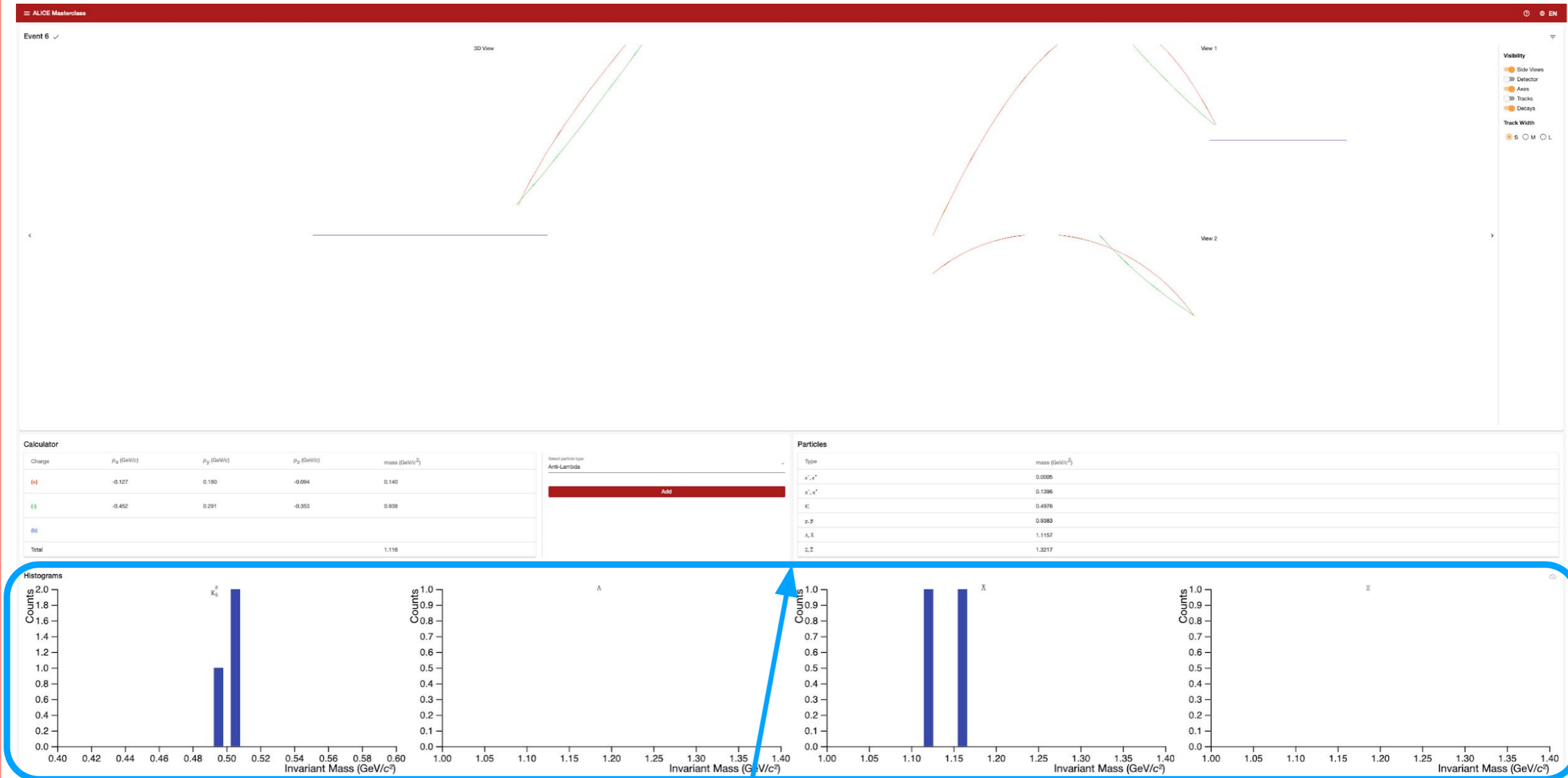
Particles

| Type                     | mass (GeV/c <sup>2</sup> ) |
|--------------------------|----------------------------|
| $e^-, e^+$               | 0.0005                     |
| $\pi^-, \pi^+$           | 0.1396                     |
| $K_s^0$                  | 0.4976                     |
| $p, \bar{p}$             | 0.9383                     |
| $\Lambda, \bar{\Lambda}$ | 1.1157                     |
| $\Xi, \bar{\Xi}$         | 1.3217                     |

Quando avete identificato la natura della particella madre, selezionate nell'elenco ed aggiungete.

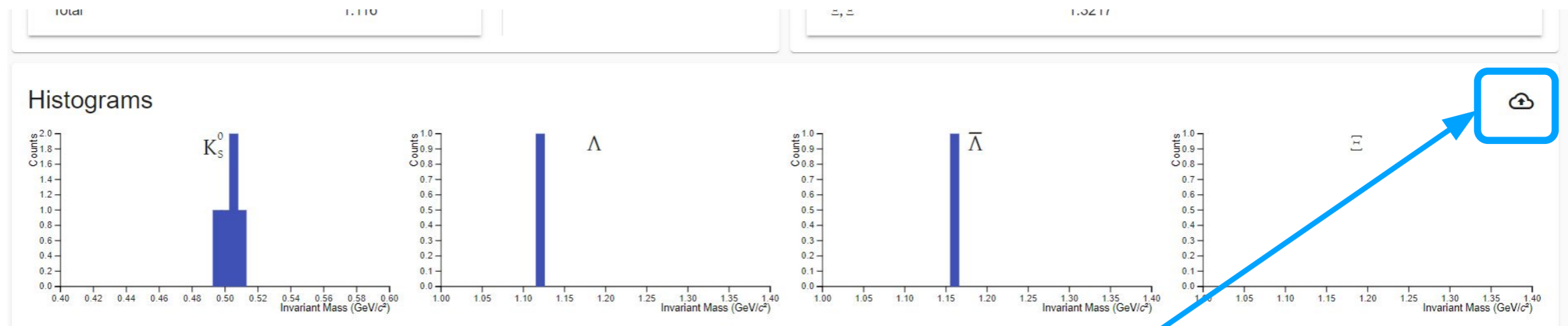


# Hands-on - Fase 1



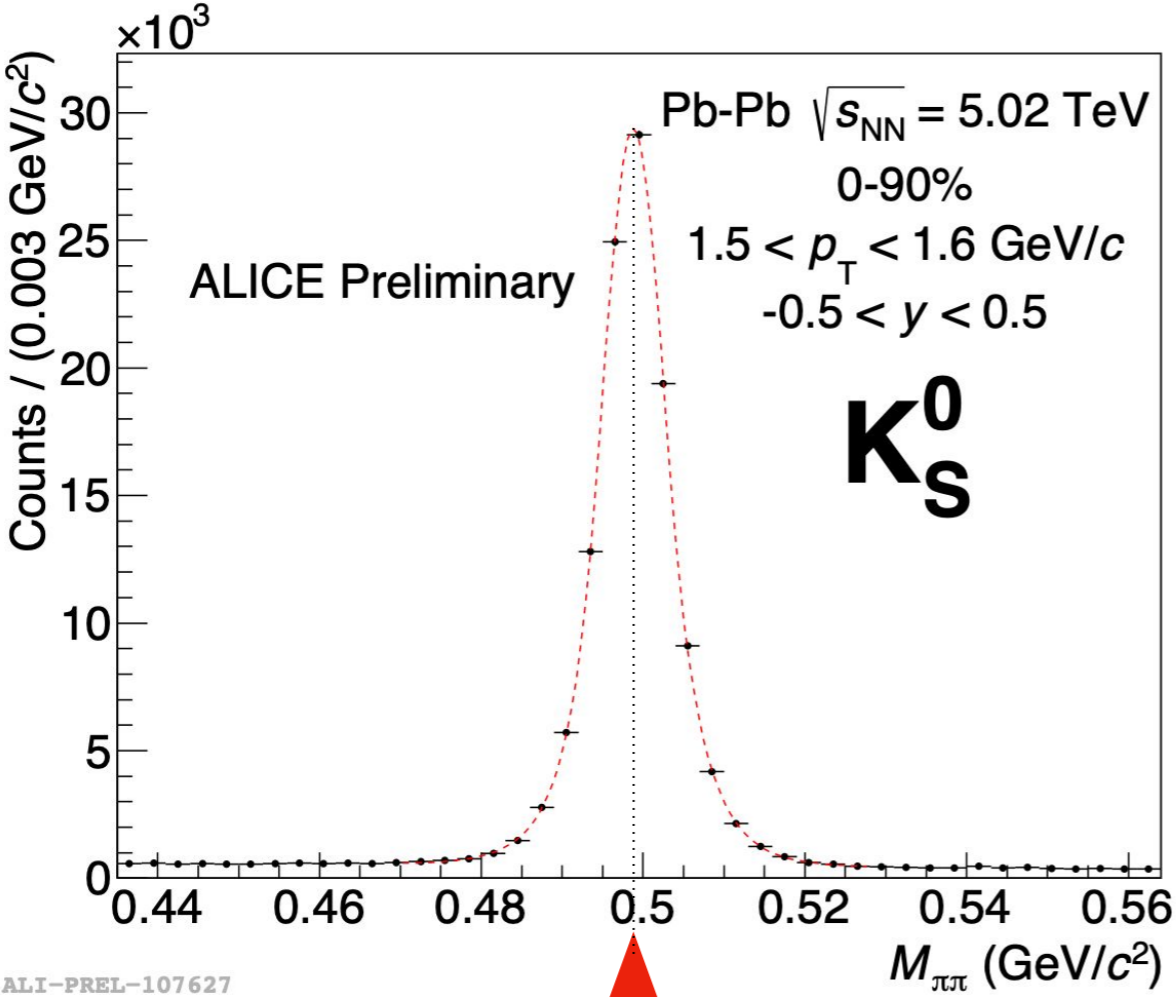
Aggiungendo candidate, queste vi compariranno nei rispettivi plot di massa invariante

# Hands-on - Fase 1

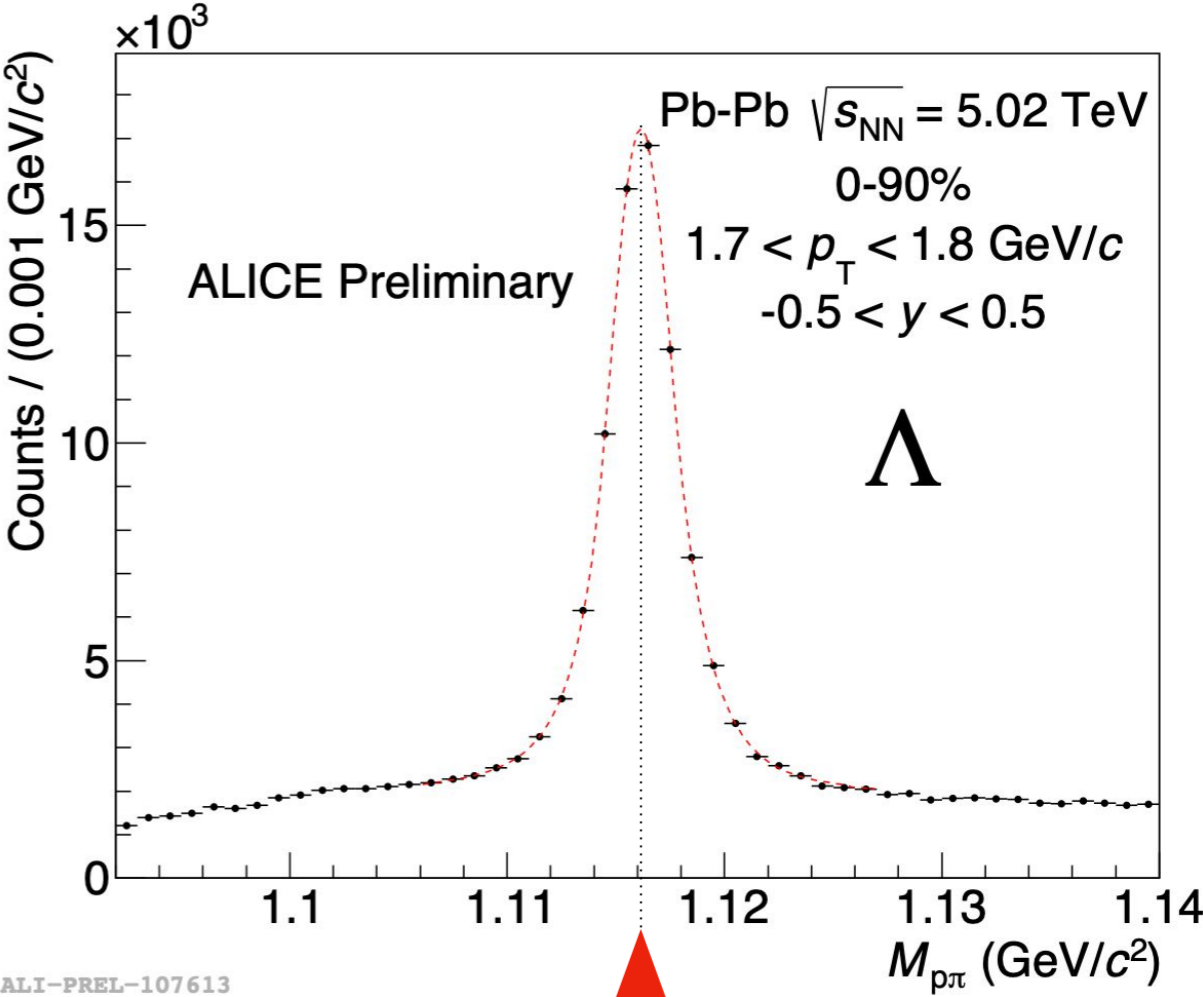


**Quando avete terminato di analizzare l'intero dataset (e solo allora), cliccate sull'icona in alto a destra per condividere i risultati**

# Hands-on - Part 1



MASSA 497,614  $\pm$  0,024 MeV/c<sup>2</sup>



MASSA 1115,683  $\pm$  0,006 MeV/c<sup>2</sup>

# Hands-on - Fase 2

<https://alice-web-masterclass.app.cern.ch/?password=kwisatz-haderach>

**Fase 1**  
Costruire la  
distribuzione di  
massa invariante

**Fase 2**  
Misurare il tasso  
di produzione

The screenshot shows the ALICE Masterclass website interface. A white menu is open on the left side, listing options: Home, Strangeness, Visual Analysis, and Large Scale Analysis. A grey arrow points from the text 'Fase 1' to the 'Visual Analysis' menu item. A blue arrow points from the text 'Fase 2' to the 'Large Scale Analysis' menu item, which is highlighted with a blue circle. The main content area features a dark header with 'Welcome to the ALICE Masterclass!' and a globe icon labeled 'EN'. Below the header, there is introductory text about the ALICE Collaboration and a 3D cutaway diagram of the ALICE detector. At the bottom, there are logos for the Republic of Poland, Warsaw University of Technology, and the European Union. A 'Password' field is visible at the bottom left of the menu area.

# Hands-on - Fase 2

The screenshot shows the ALICE Masterclass web interface. At the top, there is a navigation bar with the ALICE Masterclass logo and language options (EN). Below this is a 'Histogram Selector' panel with a dropdown menu showing 'Kaon', 'Lambda', and 'Anti-Lambda'. A blue arrow points from the 'Kaon' option to the main plot area. The plot shows 'Counts' on the y-axis (ranging from 0.0 to 1.0) and 'Invariant Mass (GeV/c²)' on the x-axis (ranging from 0.0 to 1.0). A blue line is drawn across the plot, starting from the top left and sloping downwards to the right. Below the plot is a 'Fit Selector' panel with 'Signal' and 'Backg.' options, each with a slider set to 0. To the right of the plot is a 'Results' table with columns for 'Type', 'Collision', 'Centrality', and 'Signal'. The table is currently empty.

**Selezionare la particella da analizzare**

# Hands-on - Fase 2

The screenshot shows the ALICE Masterclass web interface. The browser address bar is `alice-web-masterclass.app.cern.ch`. The page has a red header with "ALICE Masterclass" and "EN".

**Histogram Selector:** A dropdown menu is open, showing options for collision systems and centralities. The "pp 0%" option is highlighted with a blue box and a blue arrow pointing to it. Other options include "Pb-Pb 0% - 10%", "Pb-Pb 10% - 20%", "Pb-Pb 20% - 30%", and "Pb-Pb 30% - 40%".

**Histogram Display:** A plot of "Counts" vs "Invariant Mass ( $\text{GeV}/c^2$ )". The y-axis ranges from 0.0 to 1.0, and the x-axis ranges from 0.0 to 1.0. A blue diagonal line is drawn across the plot.

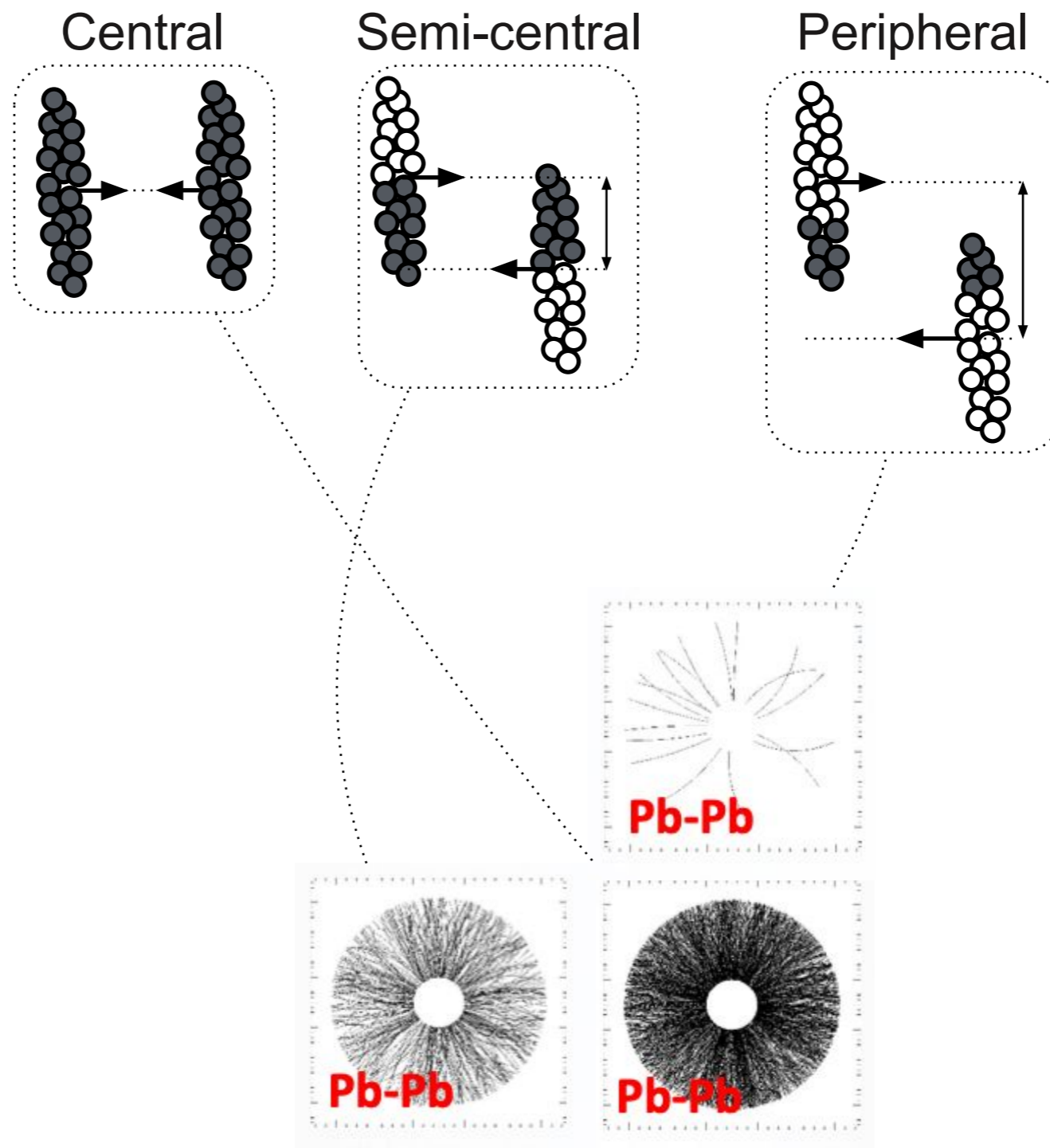
**Fit Selector:** Two sliders are visible: "Signal" and "Backg.". Both are set to 0. To the right, there are two buttons: "Fit" and "Accept".

**Results:** A table with columns "Type", "Collision", "Centrality", and "Signal". The table is currently empty.

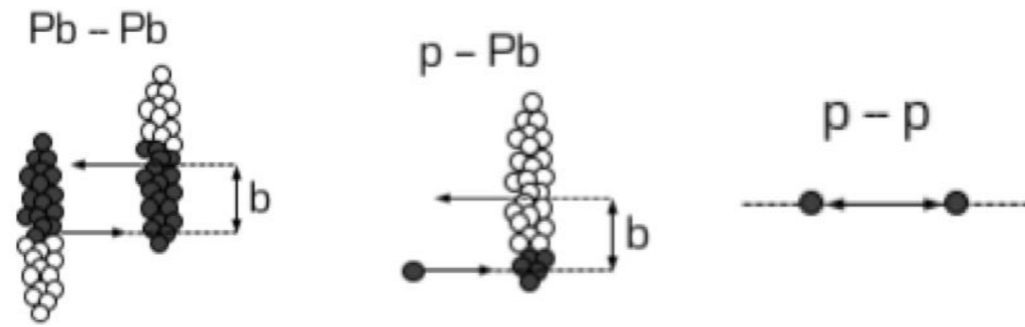
**Selezionare la particella da analizzare**



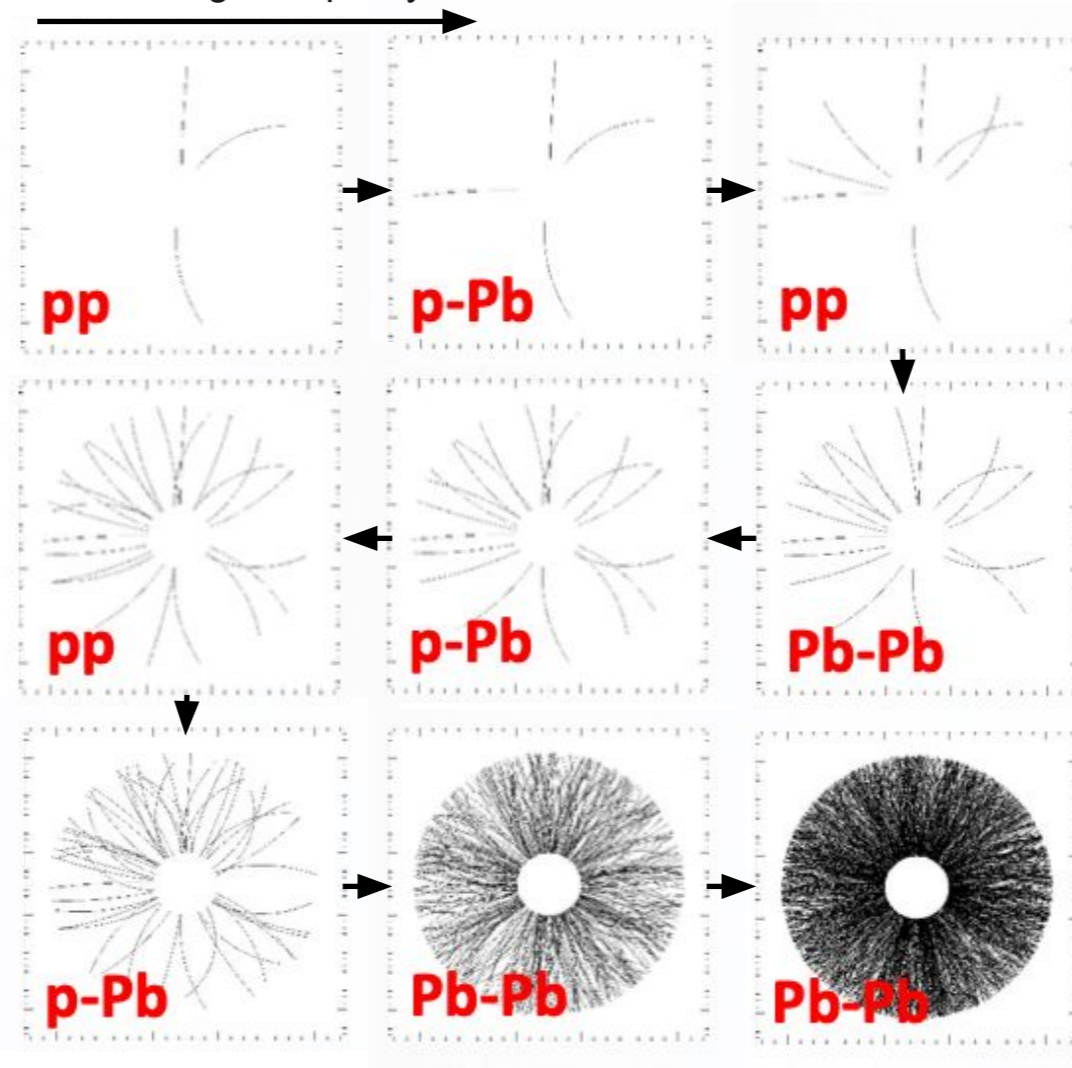
# Hands-on - Fase 2



# Hands-on - Fase 2



Increasing multiplicity  $\rightarrow$



# Hands-on - Fase 2

The screenshot shows the ALICE Masterclass web interface. The browser address bar displays `alice-web-masterclass.app.cern.ch`. The page header includes the CERN logo and "ALICE Masterclass" navigation. The main content area is divided into three sections:

- Histogram Selector:** Contains dropdown menus for "Select particle type" (set to "Lambda") and "Select collision & centrality" (set to "pp 0%"). A red button labeled "Open histogram" is circled in blue.
- Histogram Display:** A plot with "Counts" on the y-axis (0.0 to 1.0) and "Invariant Mass (GeV/c<sup>2</sup>)" on the x-axis (0.0 to 1.0). A blue arrow points from the "Open histogram" button to this plot area.
- Fit Selector:** Features two sliders: "Signal" (0 to 1) and "Backg." (0 to 1). Below the sliders are "Fit" and "Accept" buttons.

On the right side, there is a "Results" table with columns for "Type", "Collision", "Centrality", and "Signal". The table is currently empty, and the footer indicates "Items per page: 5 0 of 0".

**Aprite gli istogrammi**

# Hands-on - Fase 2

alice-web-masterclass.app.cern.ch

INFN CERN ALICE EPIC Poliba Uniba Microsoft Office Synology Google Dropbox iCloud Rep Fb YT TV-Radio

keynot... Keynot... GitHub... Tutorial... Creatin... Getting... Part Bo... ITS OB... Techni... https://... (16) C... ALICE...

CERN Accelerating science

ALICE Masterclass EN

### Histogram Selector

Select particle type: Lambda  
Select collision & centrality: pp 0%  
**Open histogram**

### Histogram Display

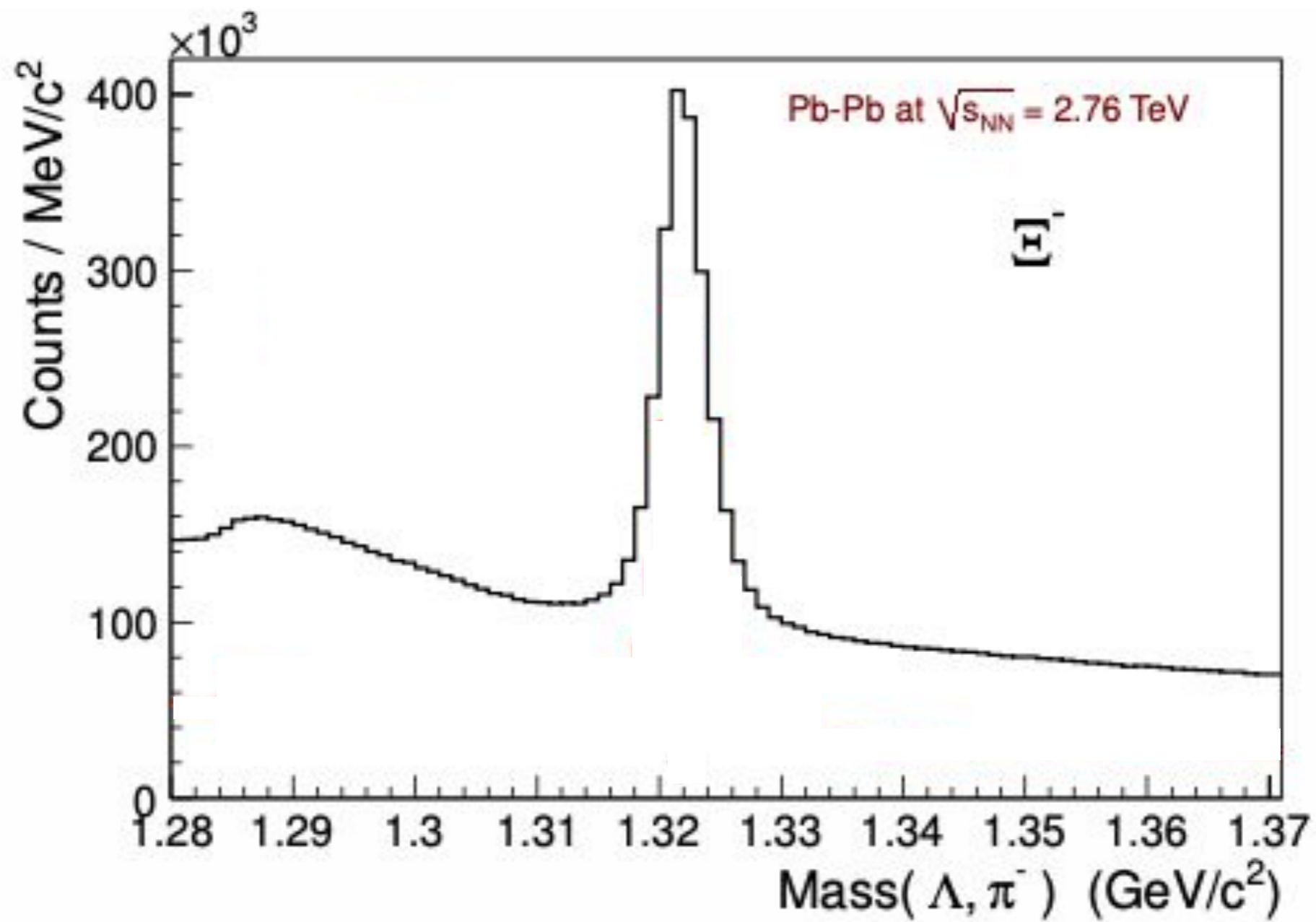
| Type | Collision | Centrality | Signal |
|------|-----------|------------|--------|
|------|-----------|------------|--------|

Items per page: 5 0 of 0

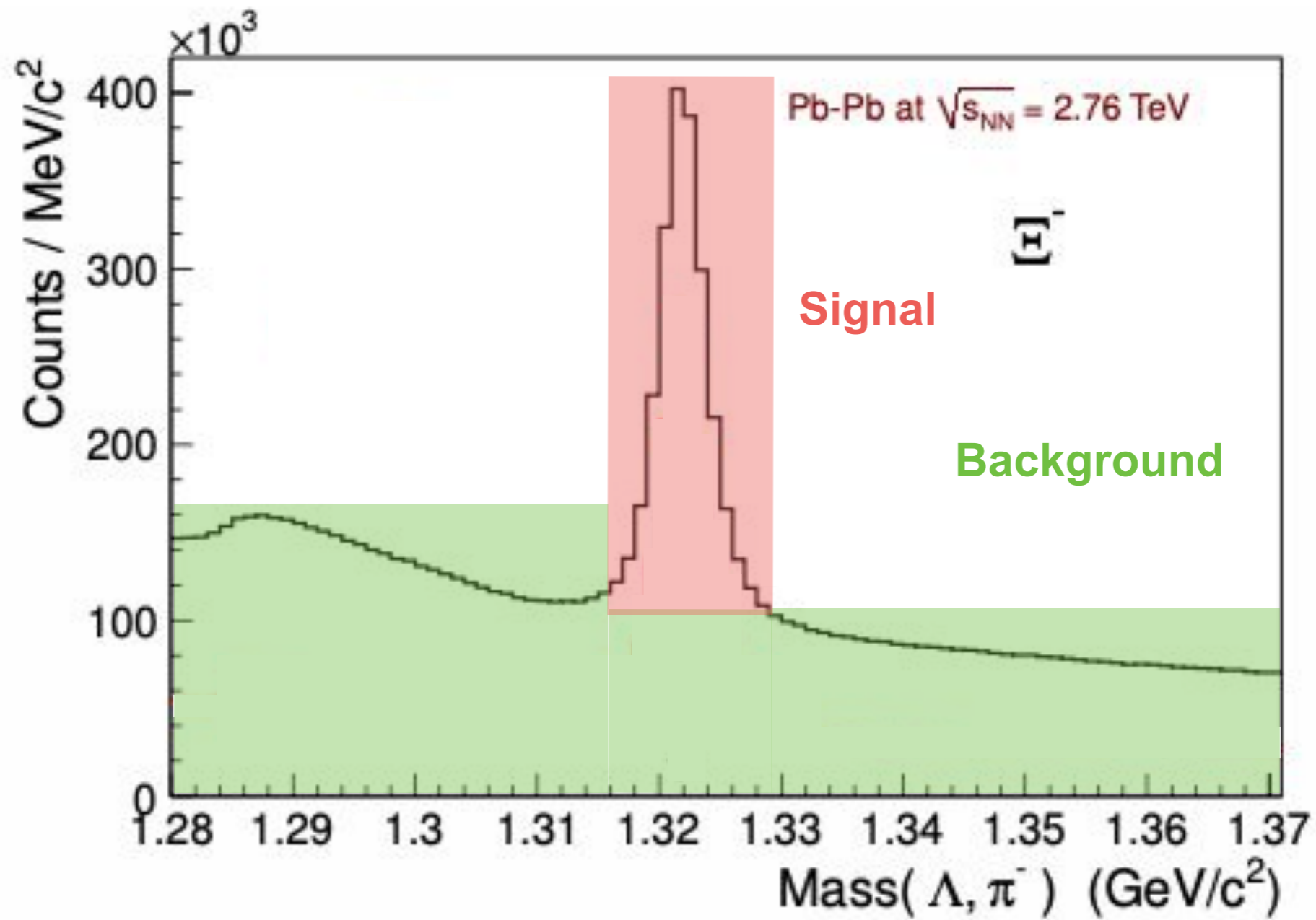
### Fit Selector

|        |       |   |            |
|--------|-------|---|------------|
| Signal | 1 - 1 | 2 | <b>Fit</b> |
| Backg. | 1 - 1 | 2 | Accept     |

# Hands-on - Fase 2



# Hands-on - Fase 2





# Hands-on - Fase 2

The screenshot shows the ALICE Masterclass web interface. At the top, there is a navigation bar with the ALICE Masterclass logo and a search icon. Below this is a "Histogram Selector" section with dropdown menus for "Select particle type" (set to Lambda) and "Select collision & centrality" (set to pp 0%), and an "Open histogram" button. The main content area is divided into two panels: "Histogram Display" and "Results".

The "Histogram Display" panel shows a histogram of "Counts" versus "Invariant Mass (GeV/c<sup>2</sup>)". The x-axis ranges from 1.0 to 2.0 GeV/c<sup>2</sup>, and the y-axis ranges from 0 to 50. A prominent peak is visible at approximately 1.03 GeV/c<sup>2</sup>.

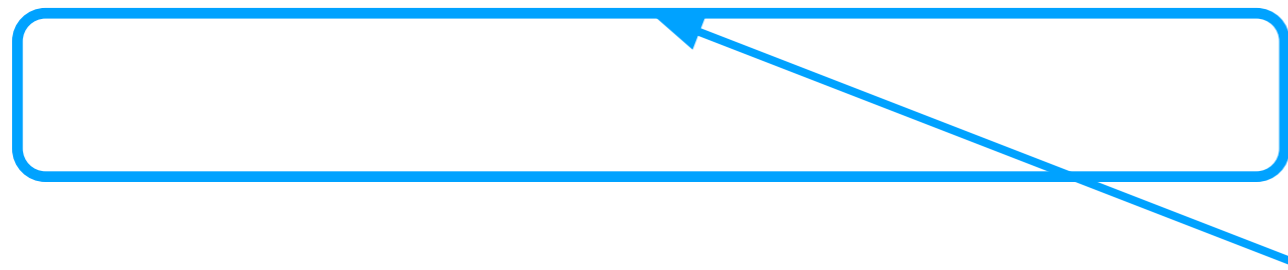
The "Results" panel shows a table with columns for "Type", "Collision", "Centrality", and "Signal". The table is currently empty, and the "Items per page" is set to 5.

Below the histogram, there is a "Fit Selector" section. It features two horizontal sliders: "Signal" and "Backg.". The "Signal" slider is set to 1.03, and the "Backg." slider is set to 1.02. A blue box highlights the "Fit Selector" section, and a blue arrow points from the text below to the "Signal" slider.

At the bottom of the interface, there are two buttons: "Fit" (highlighted in red) and "Accept".

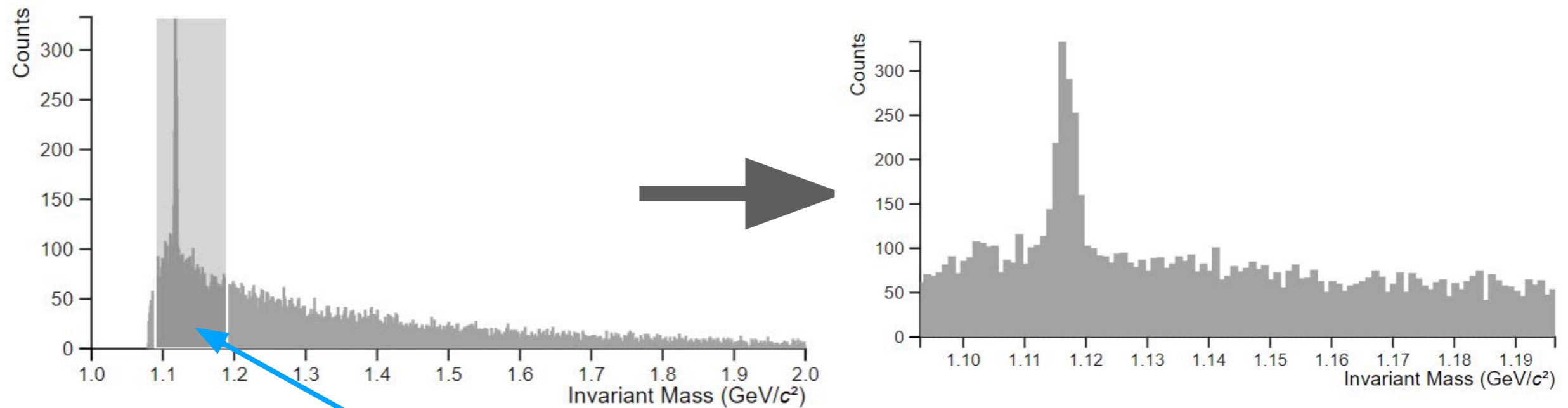
**Modificare gli intervalli di massa invariante nei quali vi aspettate di trovare le vere candidate (il picco di segnale) e quelle non vere (il fondo combinatorio) e procedete con il fit.**

## Hands-on - Fase 2



**Modificare gli intervalli di massa invariante nei quali vi aspettate di trovare le vere candidate (il picco di segnale) e quelle non vere (il fondo combinatorio) e procedete con il fit.**

## Hands-on - Fase 2



**Potete anche cliccare e trascinare il cursore su una regione dell'asse x per effettuare uno zoom della distribuzione in tale regione**

# Hands-on - Fase 2

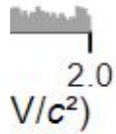
The screenshot shows the ALICE Masterclass web interface. At the top, there is a browser address bar with the URL `alice-web-masterclass.app.cern.ch`. Below the browser, there is a navigation bar with the CERN logo and the text "Accelerating science". The main content area is divided into several sections:

- Histogram Selector:** A dropdown menu for "Select particle type" is set to "Kaon", and another dropdown for "Select collision & centrality" is set to "pp 0%". An "Open histogram" button is visible.
- Histogram Display:** A plot showing the distribution of Kaon particles. The x-axis is labeled "Invariant Mass (GeV/c<sup>2</sup>)" and ranges from 0.0 to 1.0. The y-axis is labeled "Count" and ranges from 0 to 45. A grey histogram shows the data, and a blue curve represents the fit. A red vertical line is drawn at approximately 0.4967 GeV/c<sup>2</sup>.
- Results:** A table showing the results of the fit. The table has four columns: Type, Collision, Centrality, and Signal. The data row shows: Type: Lambda, Collision: pp, Centrality: 0%, Signal: 285. Below the table, there are navigation controls: "Items per page: 5", "1 - 1 of 1", and navigation arrows.
- Fit Selector:** A horizontal bar with two rows: "Signal" and "Backg.". The "Signal" row has a value of 0.42 and a slider at 0.54. The "Backg." row has a value of 0.31 and a slider at 0.86. A red bar at the bottom of the Fit Selector is labeled "Fit" and "Accept". A blue arrow points to the "Accept" button.

**Se siete contenti del lavoro fatto “accettate” il valore trovato e ripetete l’operazione per tutti i sistemi e per più particelle**

# Hands-on - Fase 2

Total: 3314  
Signal:  $1159 \pm 9$   
Background: 2155  
 $\mu : 1.1161$   
 $\sigma : 0.0020$




2.0  
V/c<sup>2</sup>)

### Results

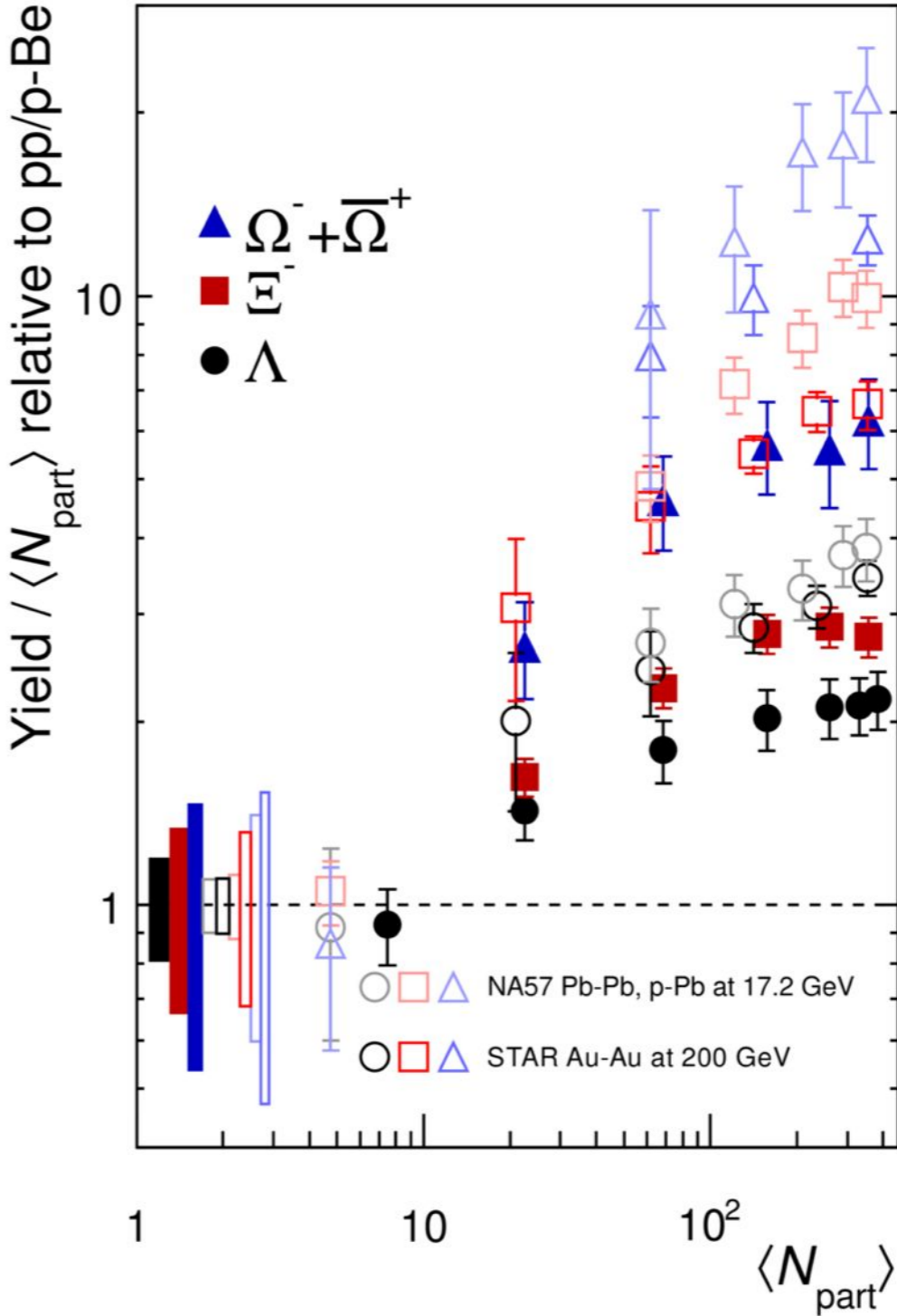
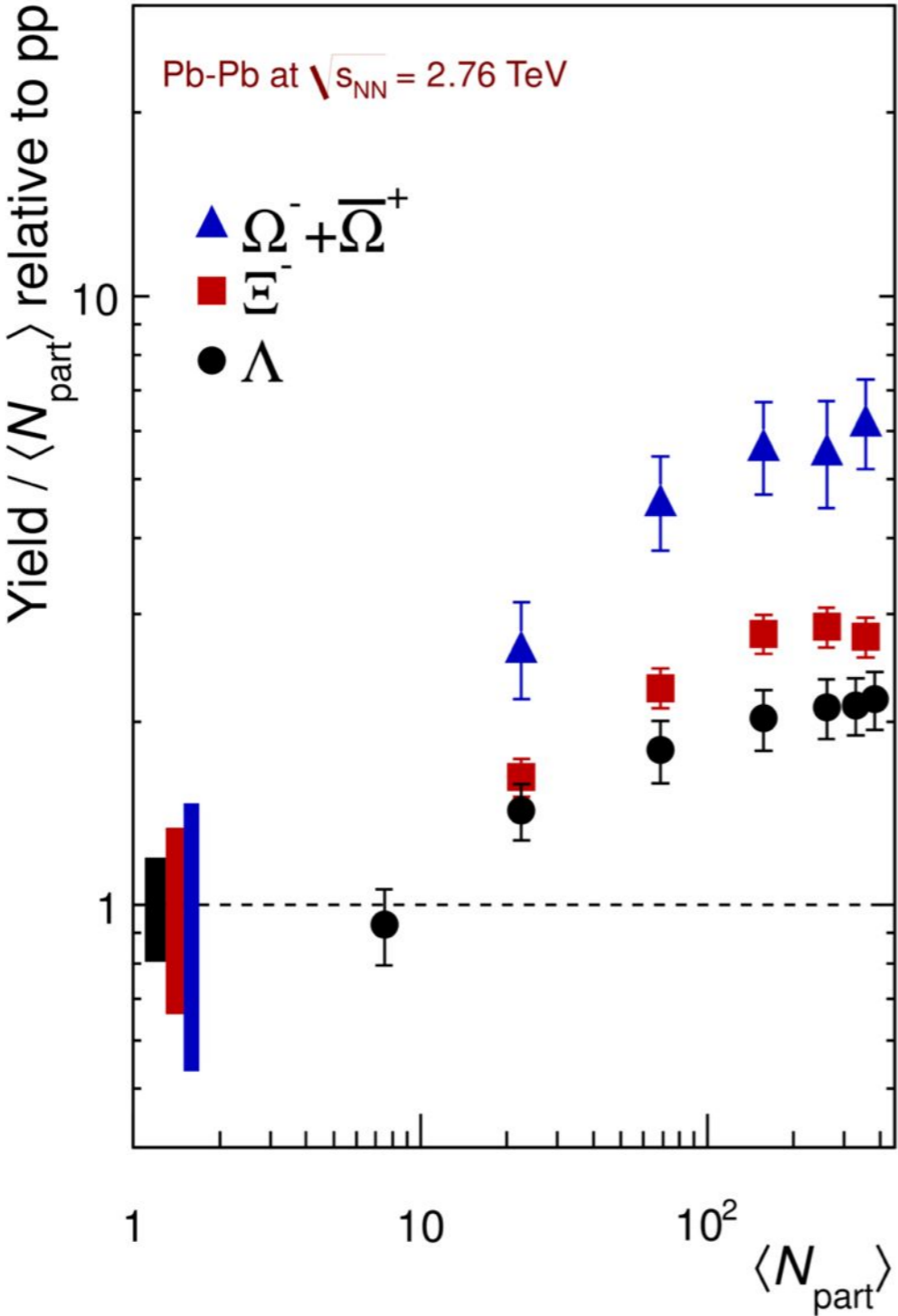
| Type   | Collision | Centrality | Signal |
|--------|-----------|------------|--------|
| Lambda | Pb-Pb     | 20% - 30%  | 998    |
| Lambda | Pb-Pb     | 10% - 20%  | 1321   |
| Lambda | Pb-Pb     | 0% - 10%   | 1159   |

Items per page: 5    1 - 3 of 3    |< < > >|



**Quando avete completato tutti i fit, cliccate sull'icona evidenziata per condividere i risultati**

# Hands-on - Part 3



ALI-DER-80680