

Hidrodinâmica e *ridges*

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Objetivo

Discutir como o efeito *ridge*, observado na função de correlação de 2-partículas, pode ser reproduzido através do modelo hidrodinâmico.

Roteiro

- Cálculo da função de correlação de 2-partículas
- Discutir o dados experimentais
- Mostrar os resultados do **NexSPheRIO**
- Discutir o modelo de **1-tubo**
- Apresentar a conclusão.

feixe
z

y

x

núcleos incidentes

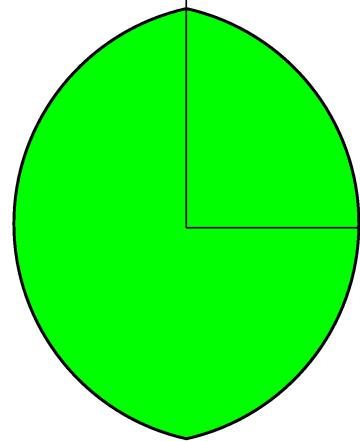
feixe



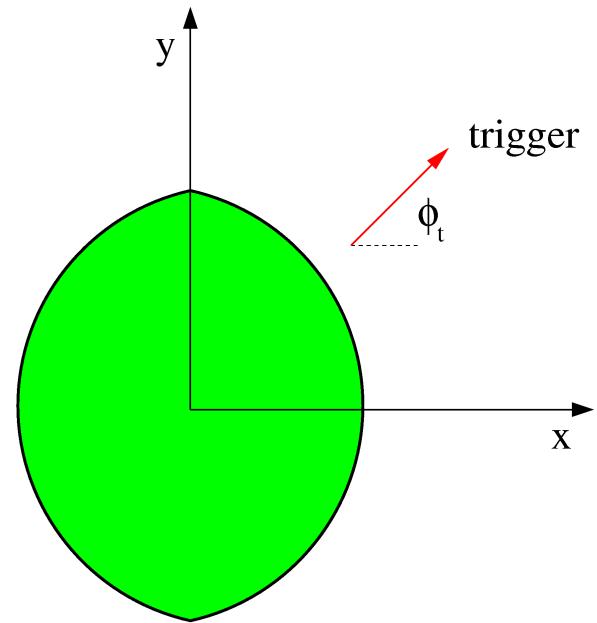
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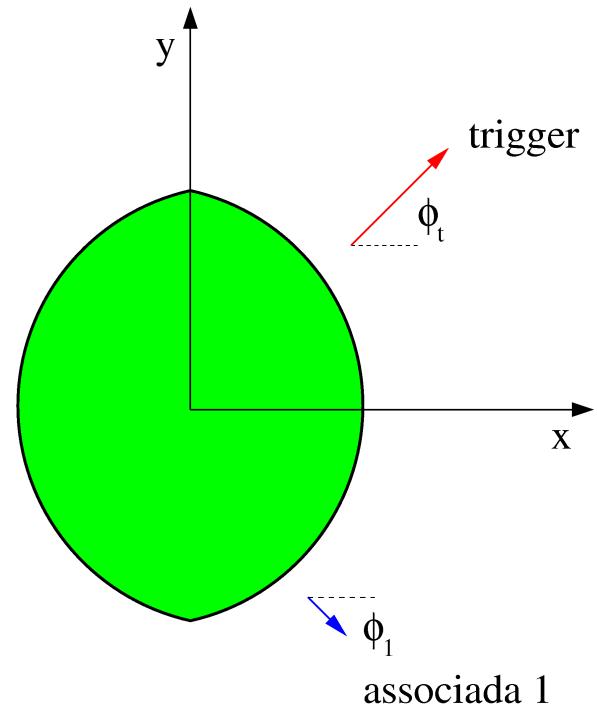
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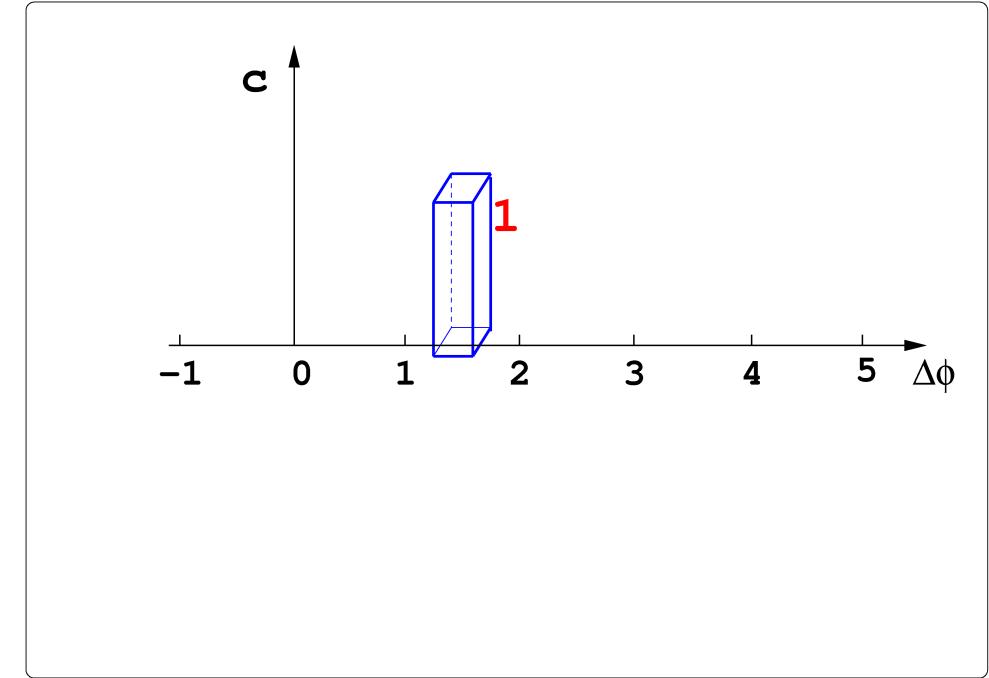
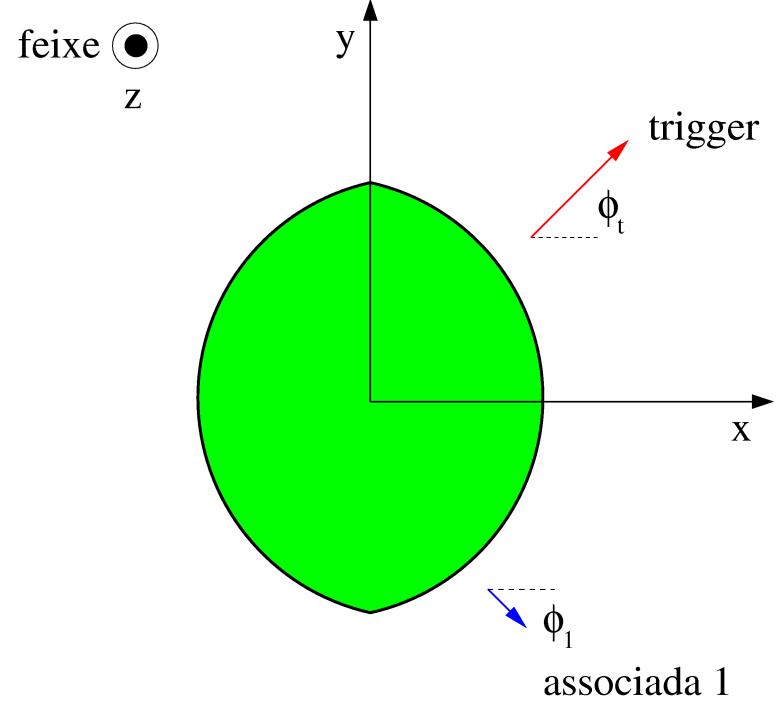


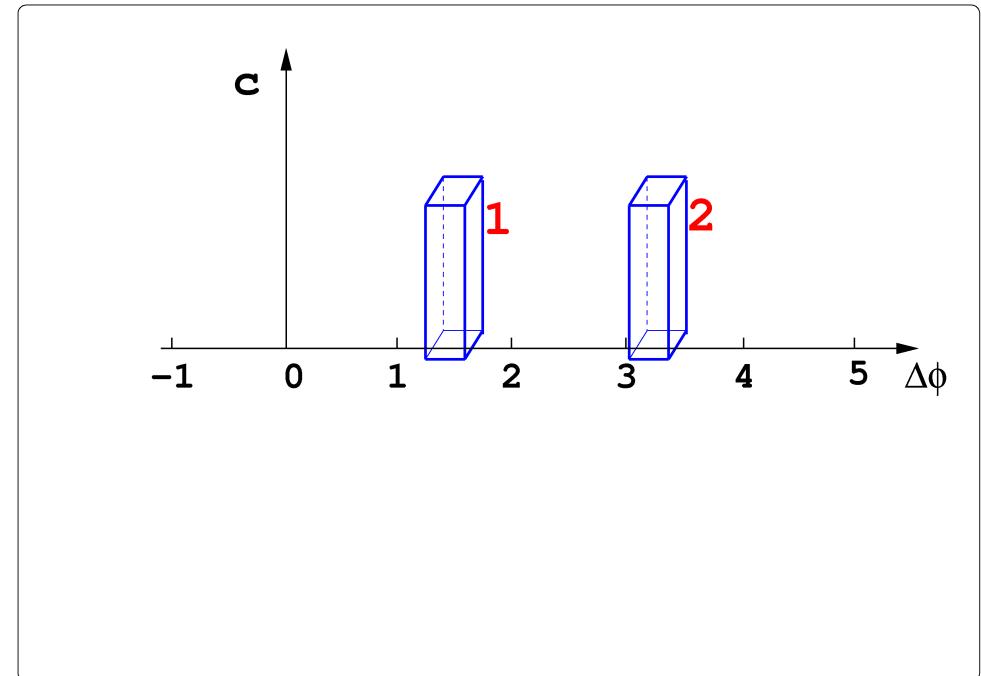
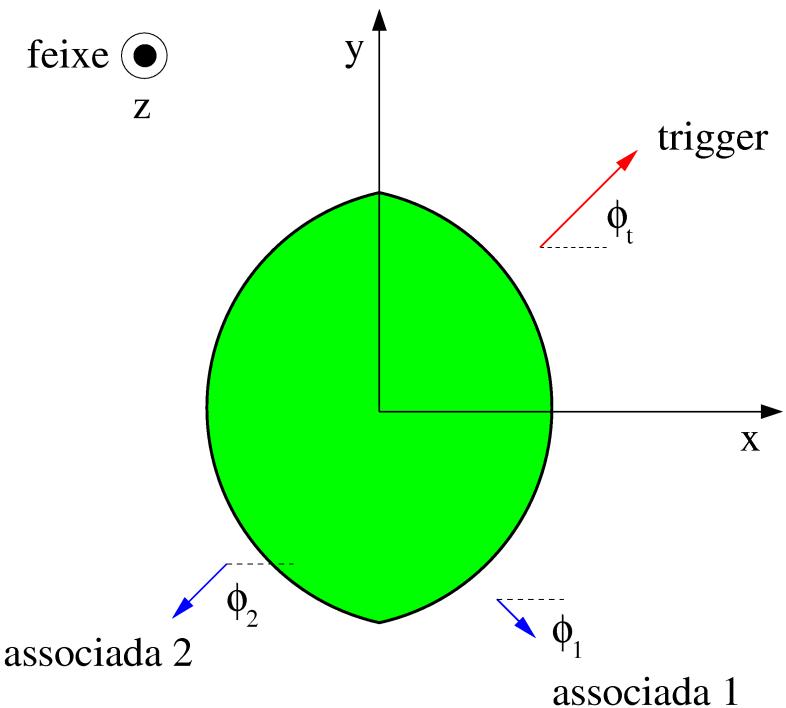
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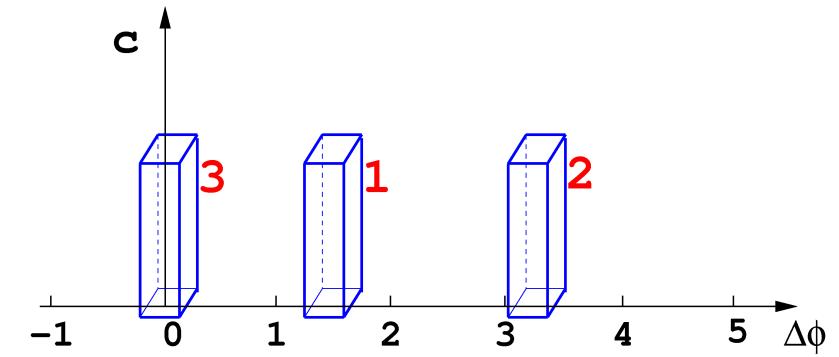
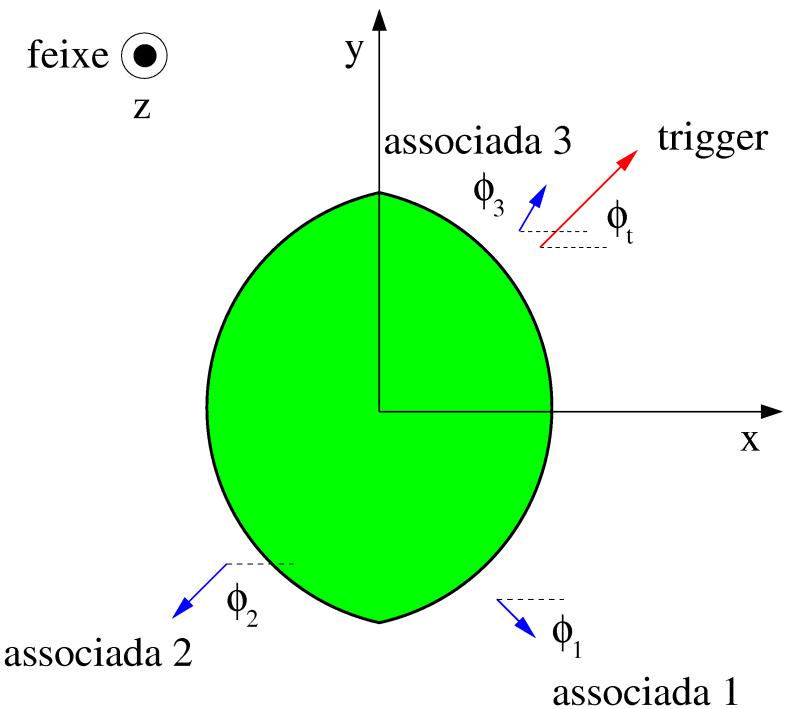


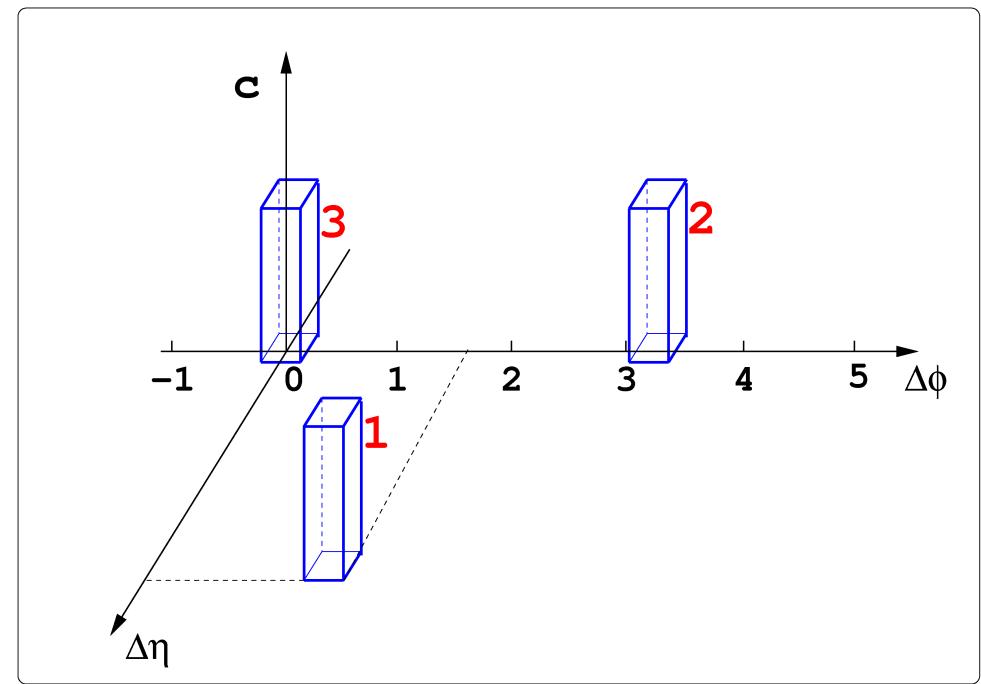
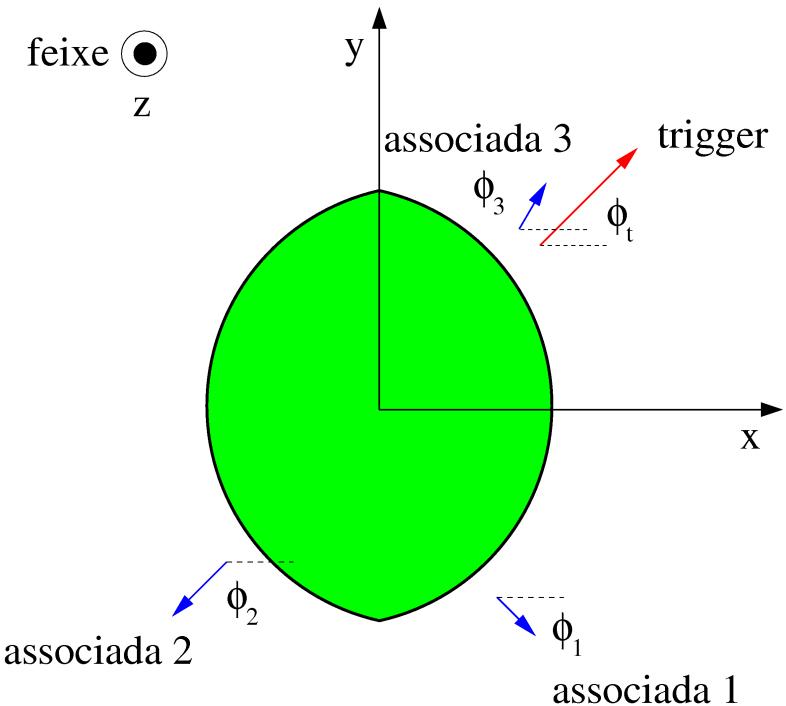
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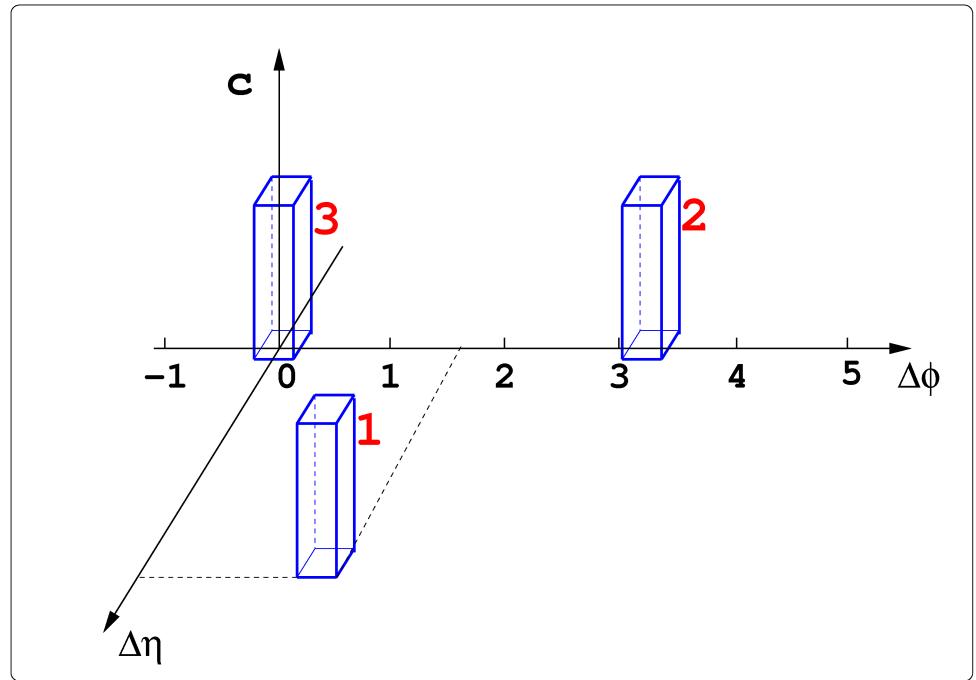
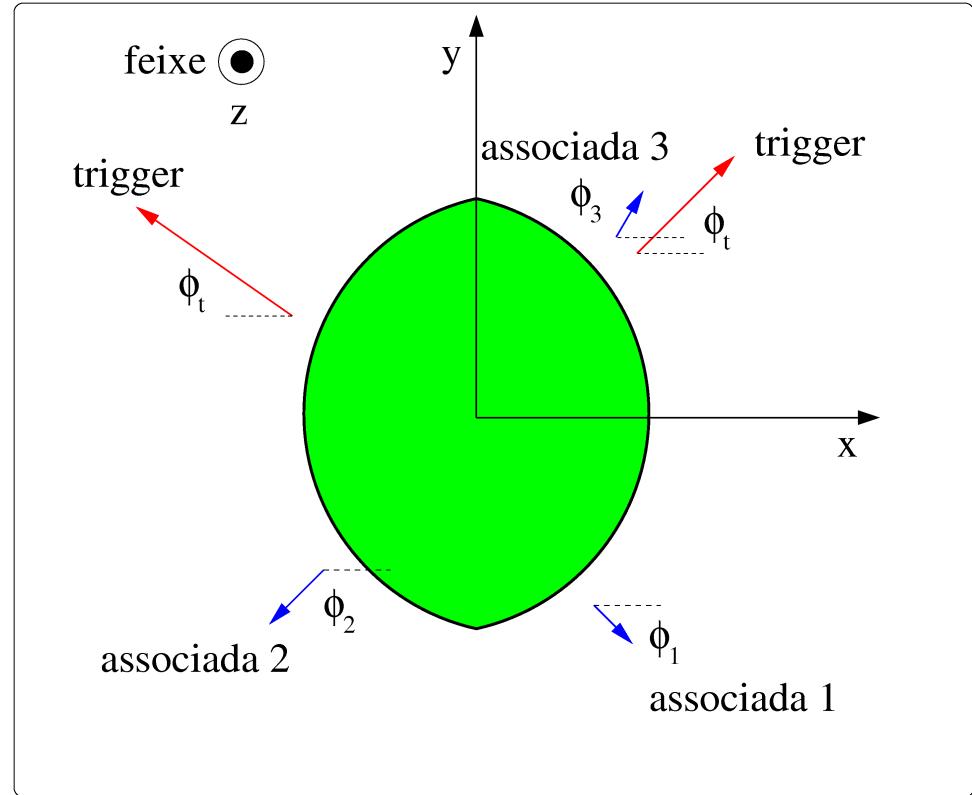


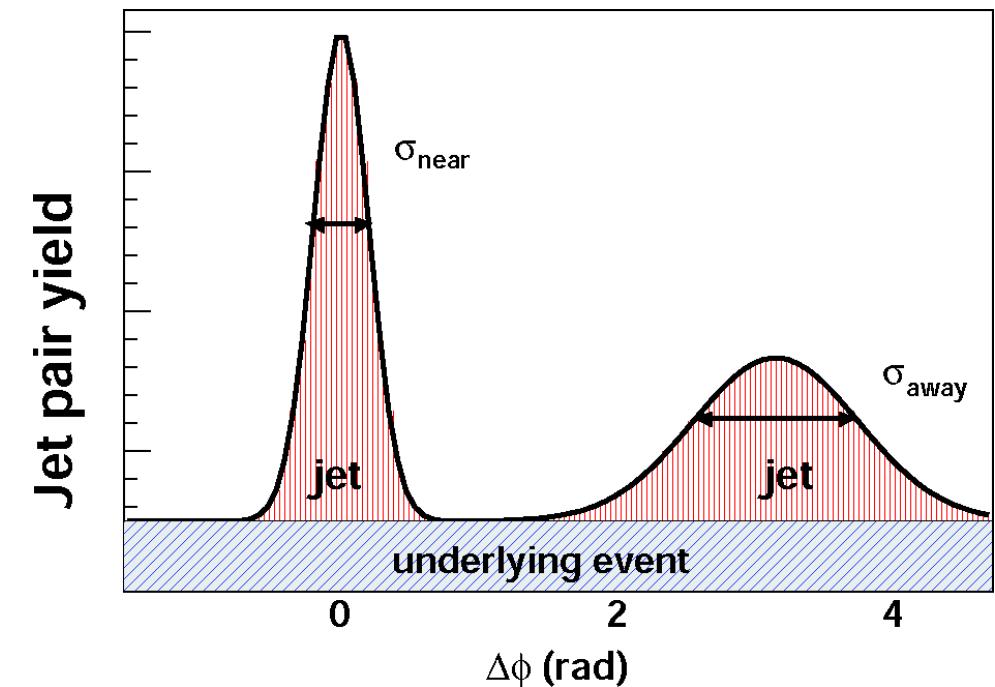
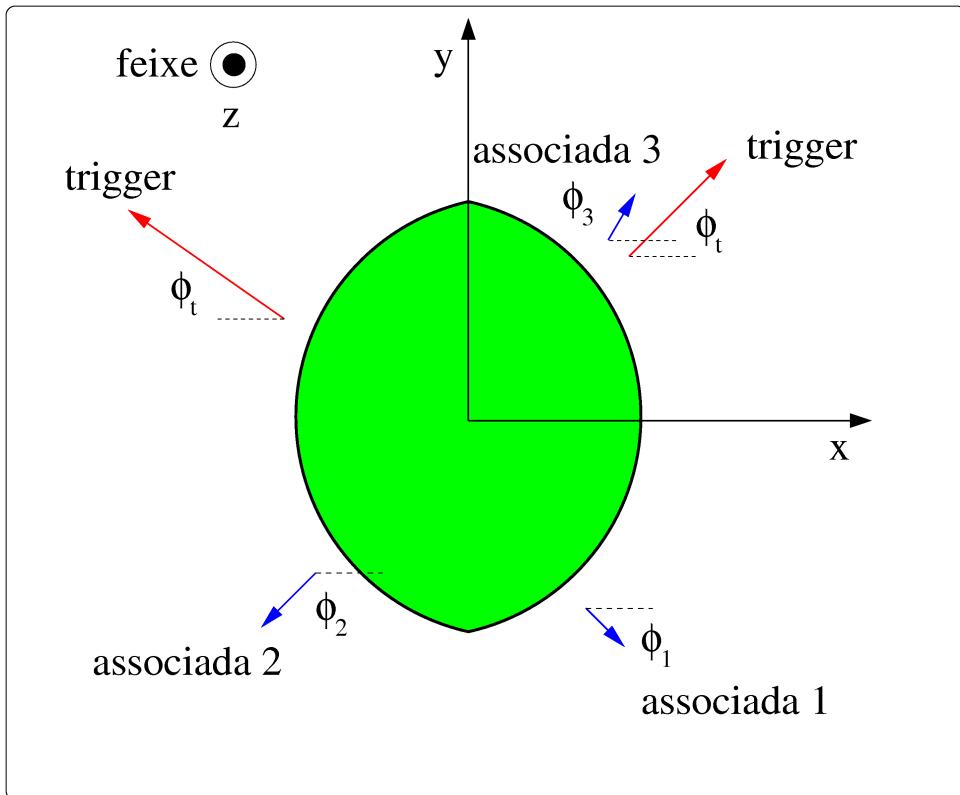




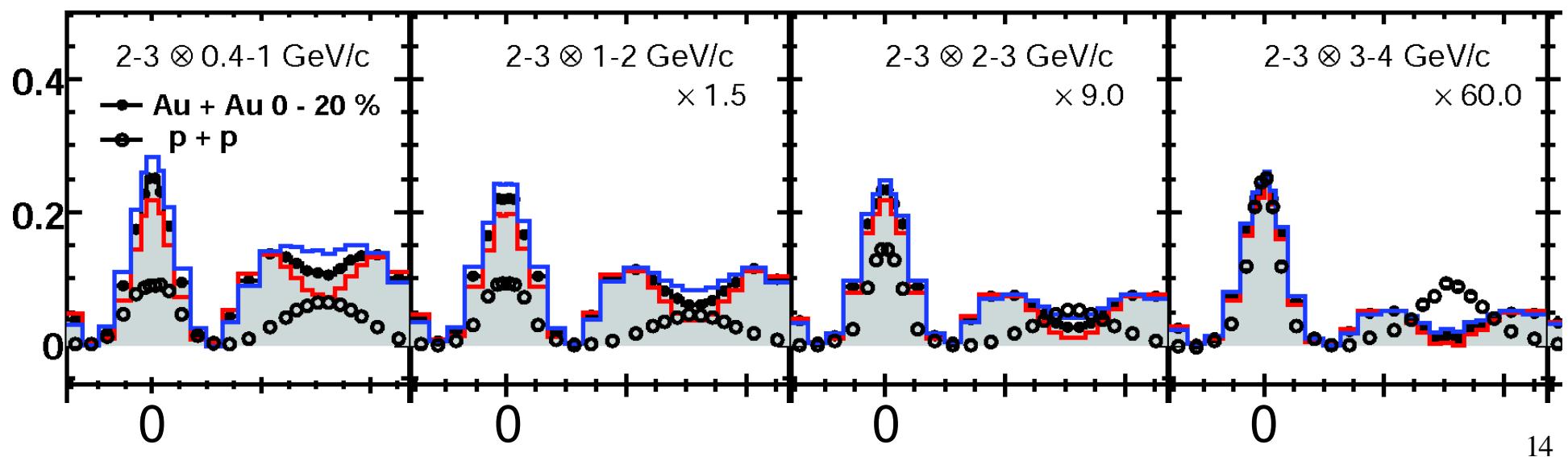
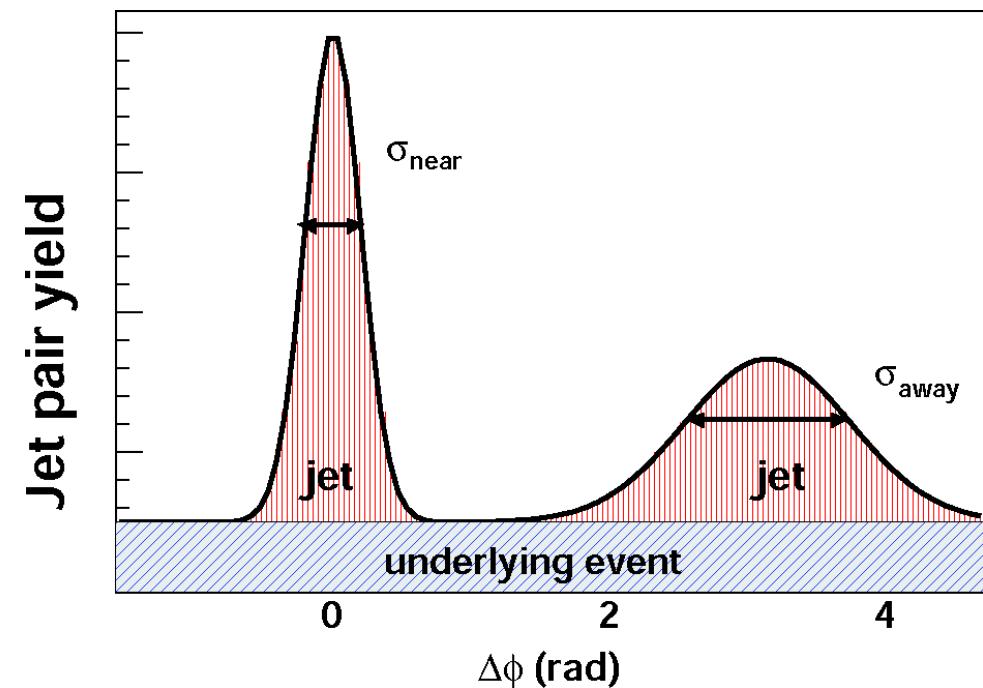
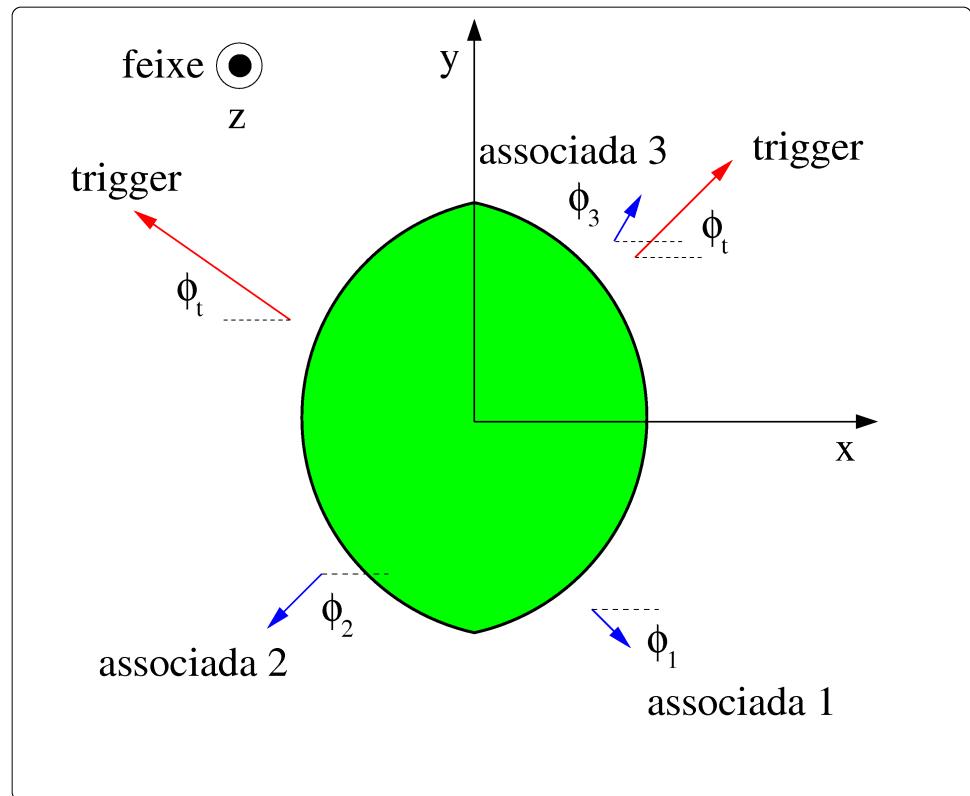


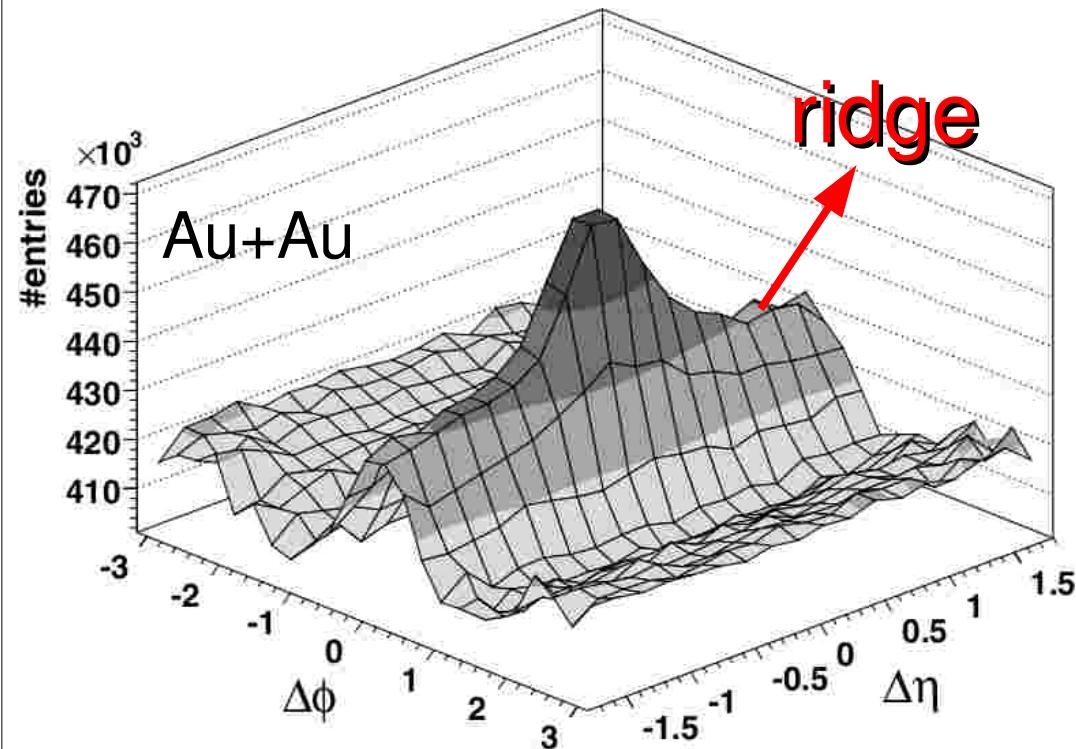
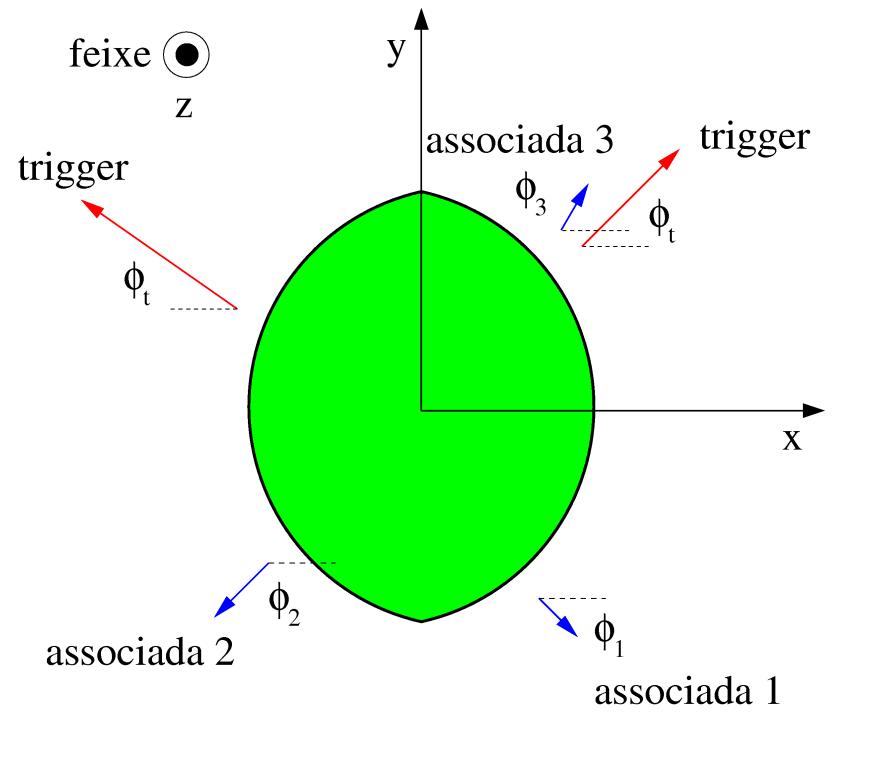






Inicialmente, o estudo da função de correlação de 2-partículas era motivado pela física de **jatos**.

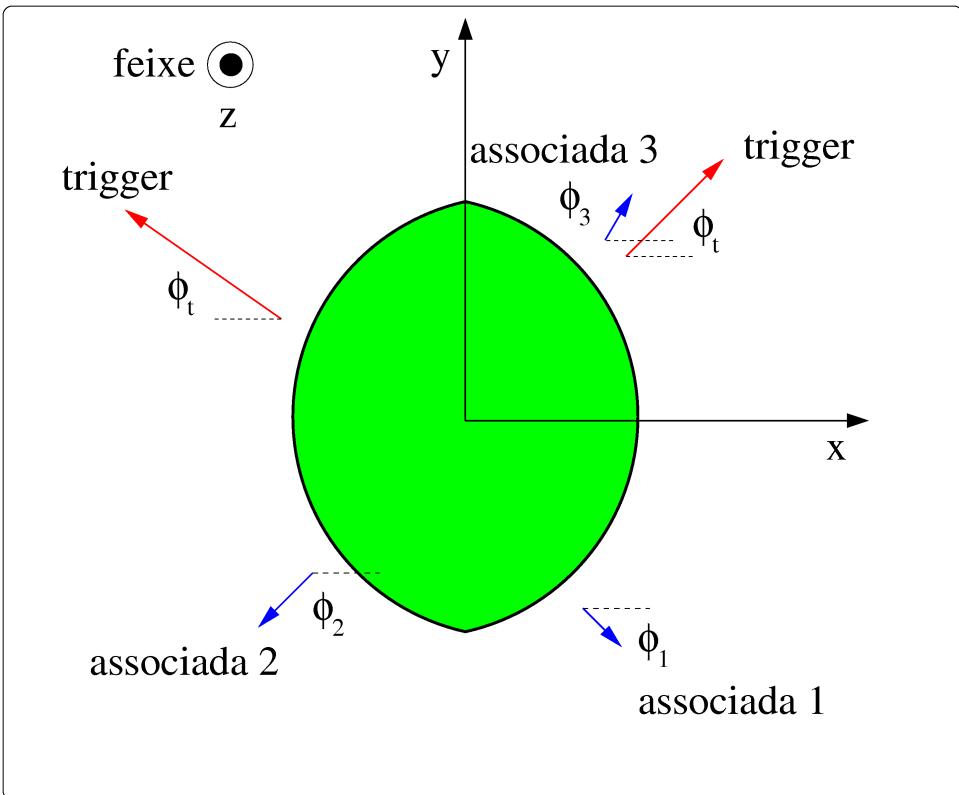




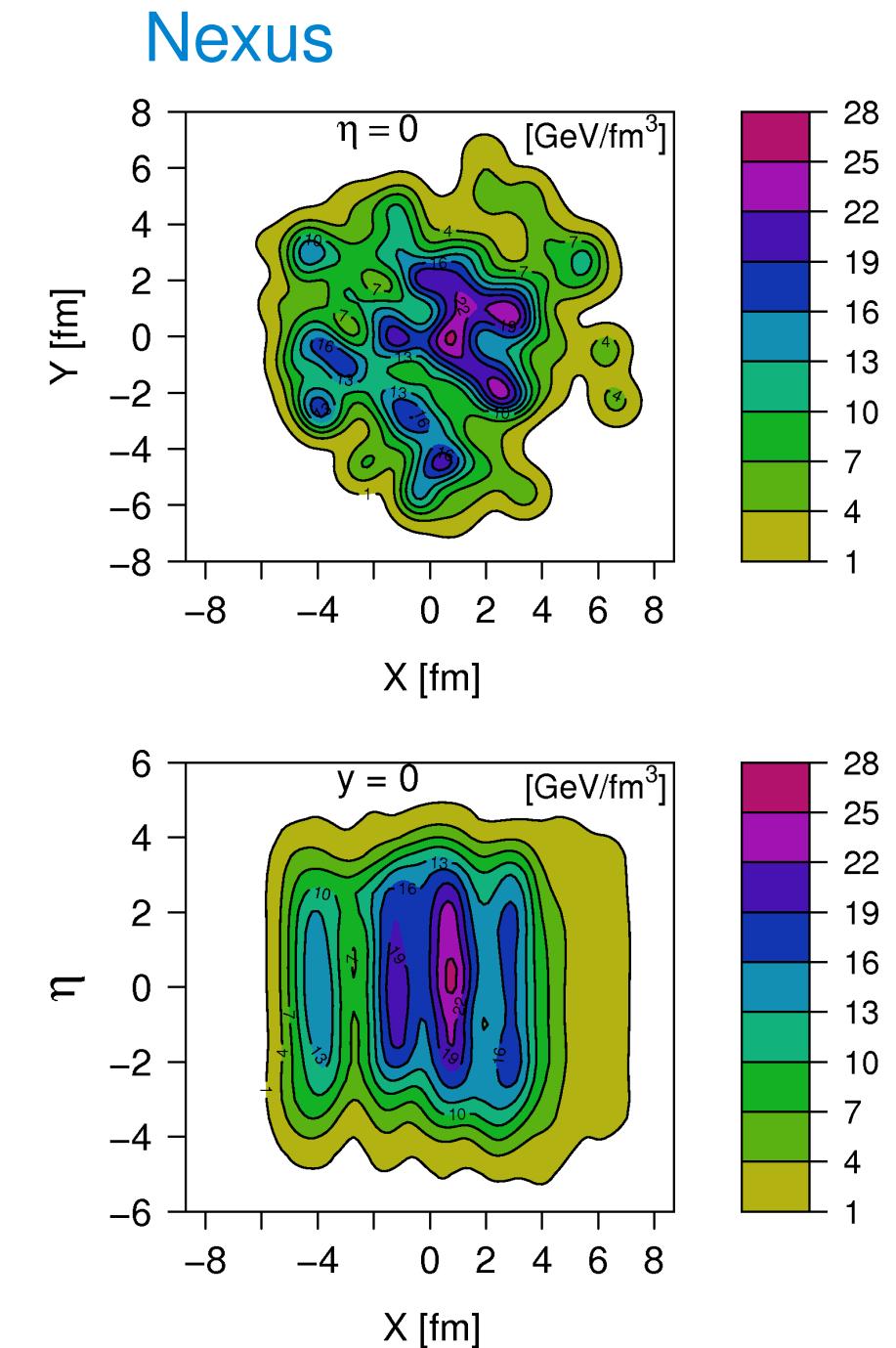
Estruturas não esperadas na função de correlação:

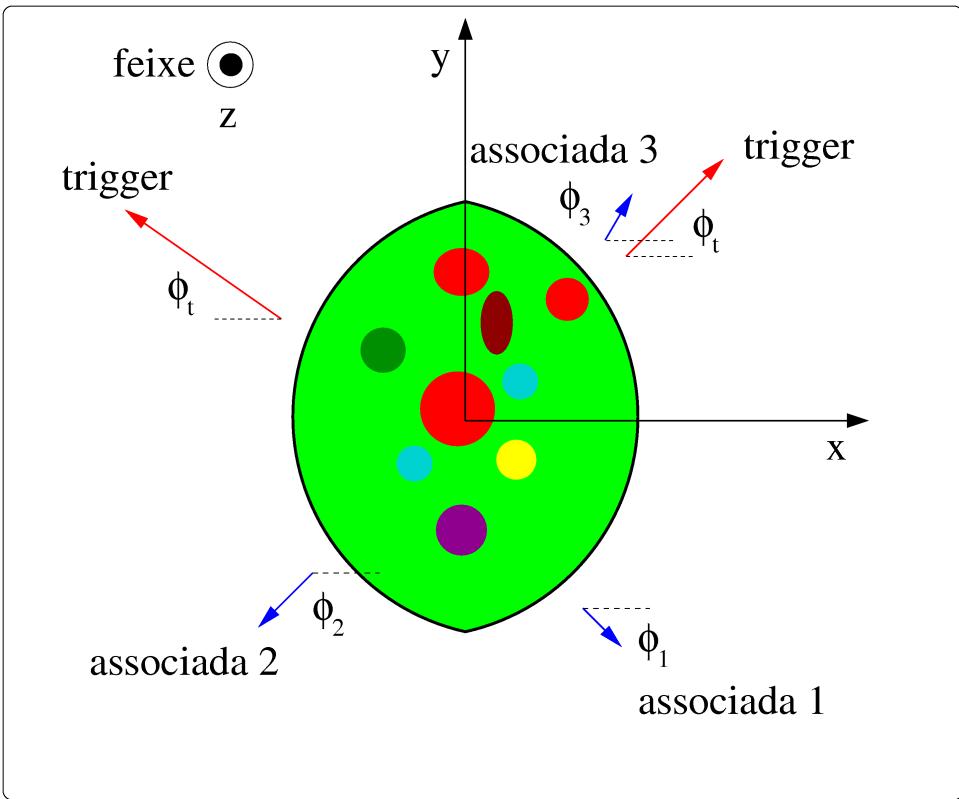
- ridge
- estrutura *away-side* com dois picos.

Hidrodinâmica com condições iniciais médias não produz nenhum resultado interessante.

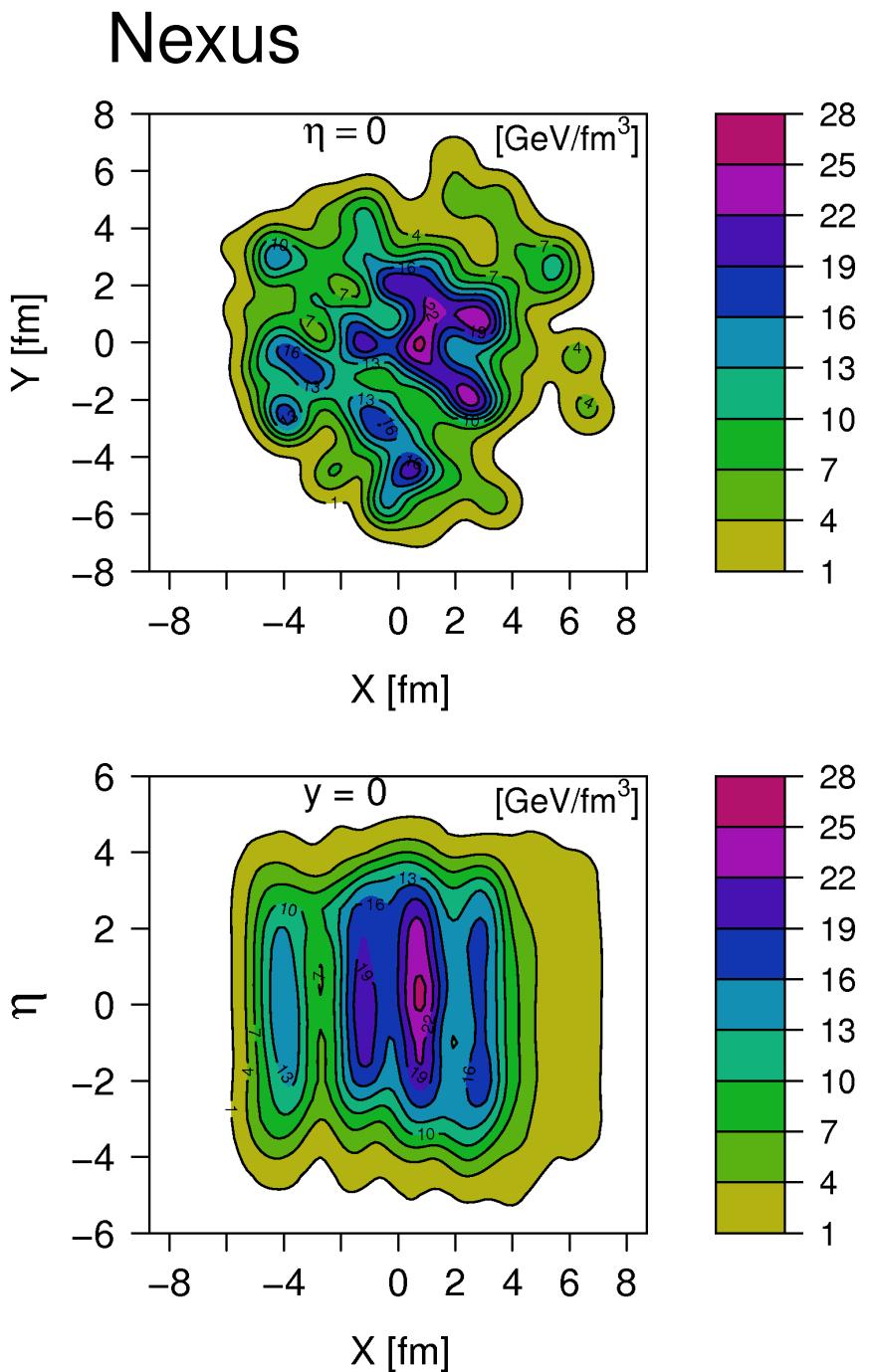


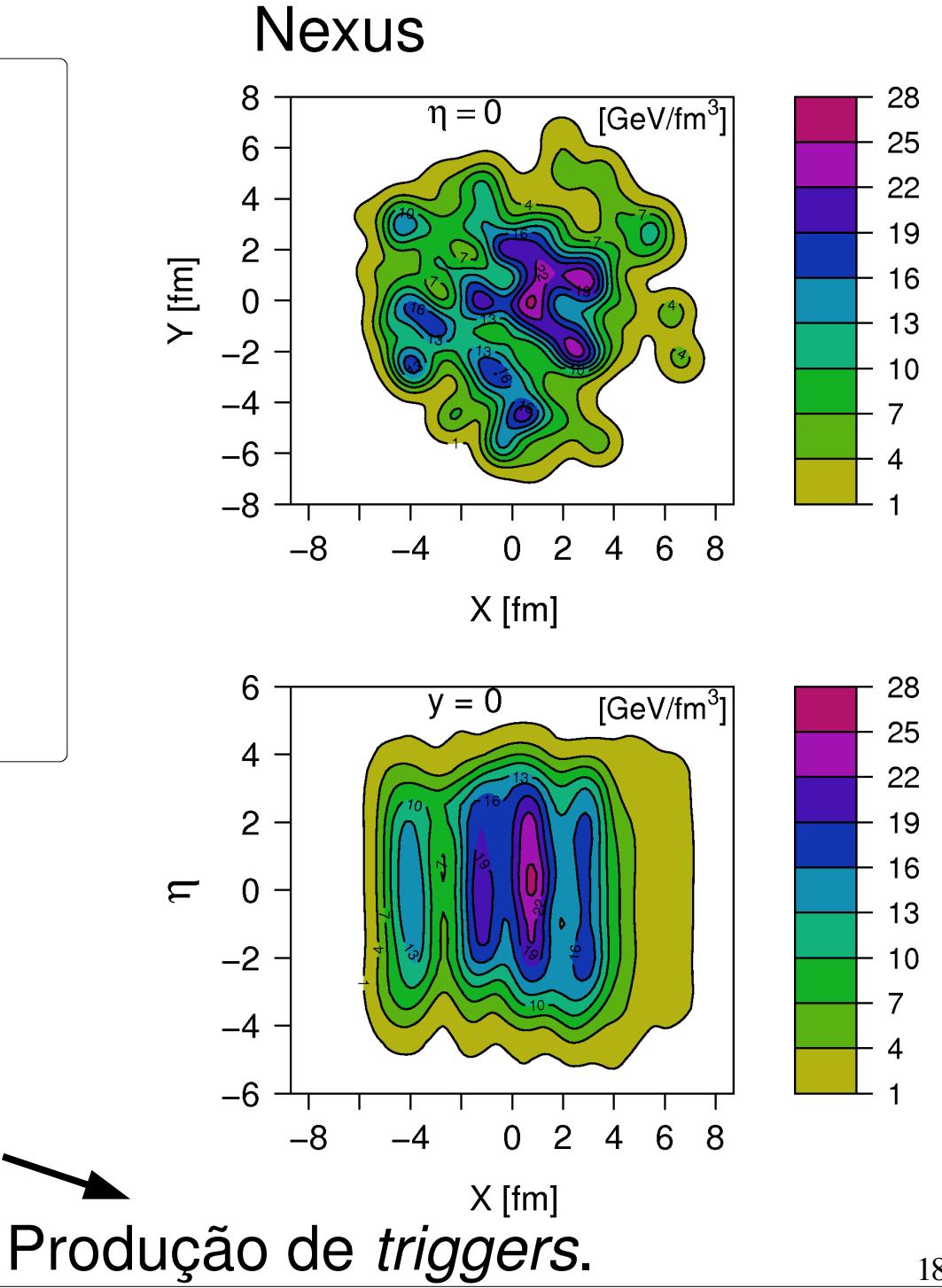
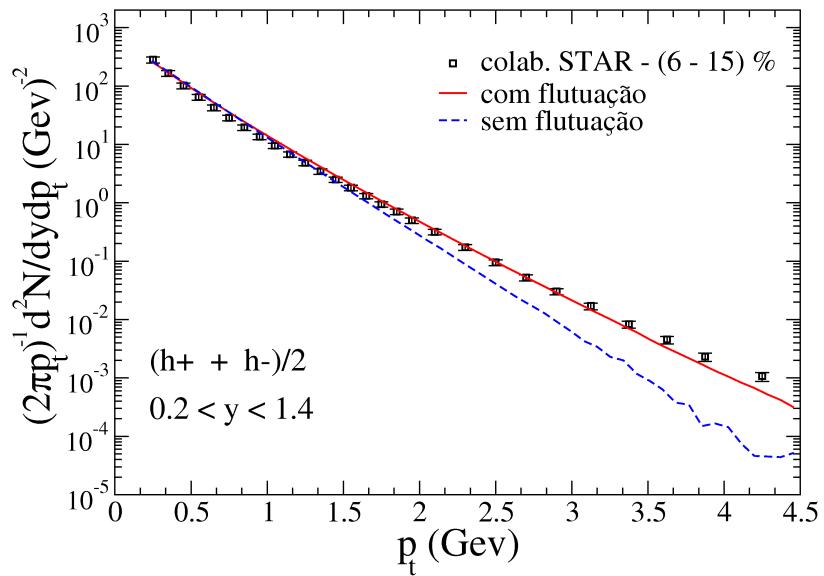
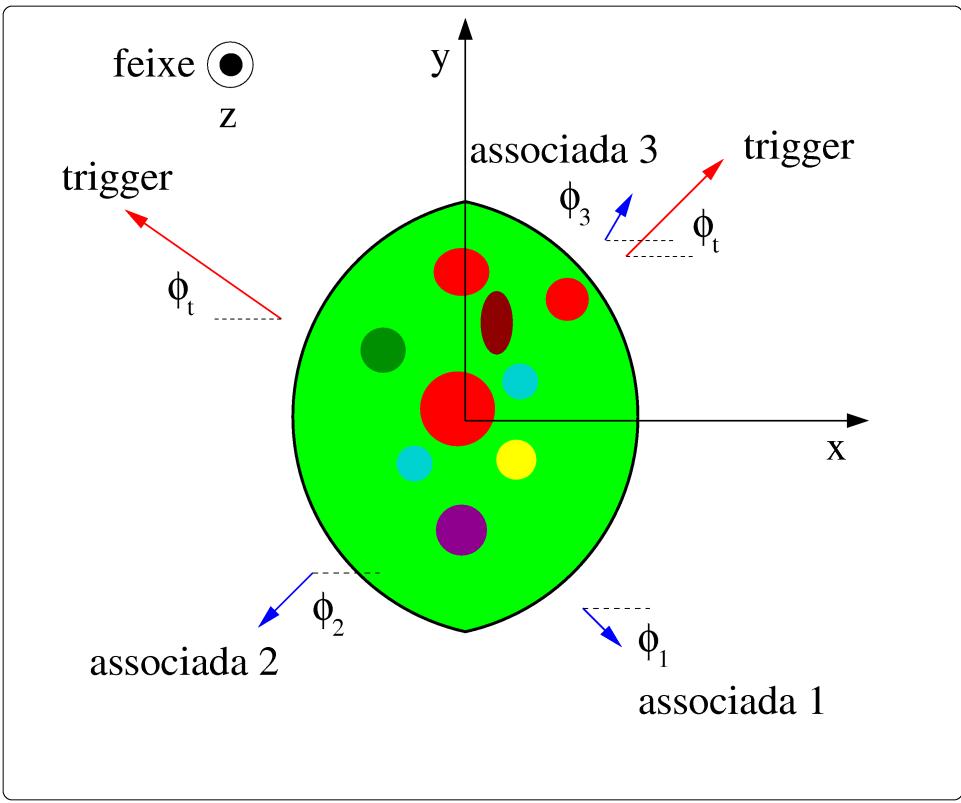
Nexus: condições iniciais com estrutura tubular e flutuantes evento a evento.

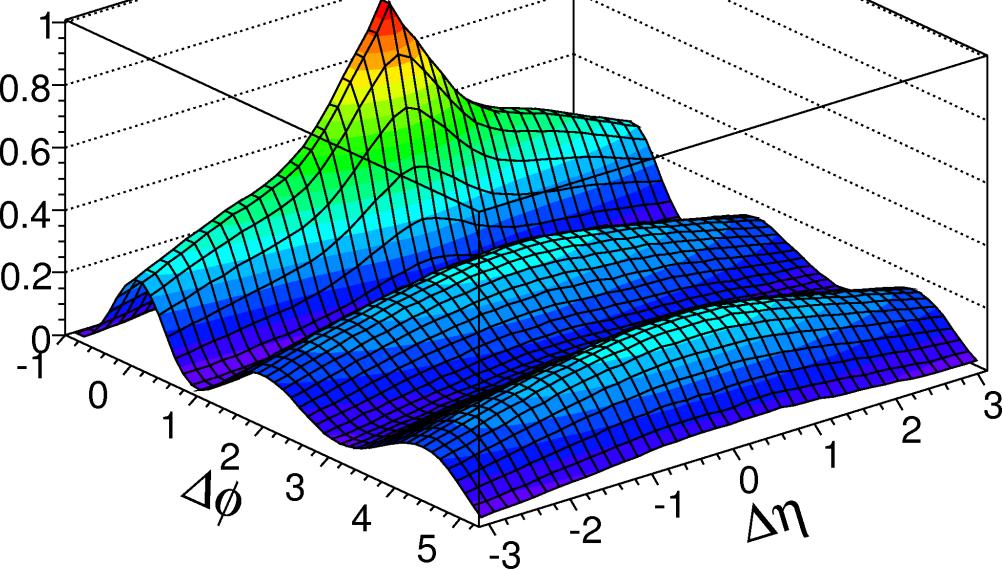




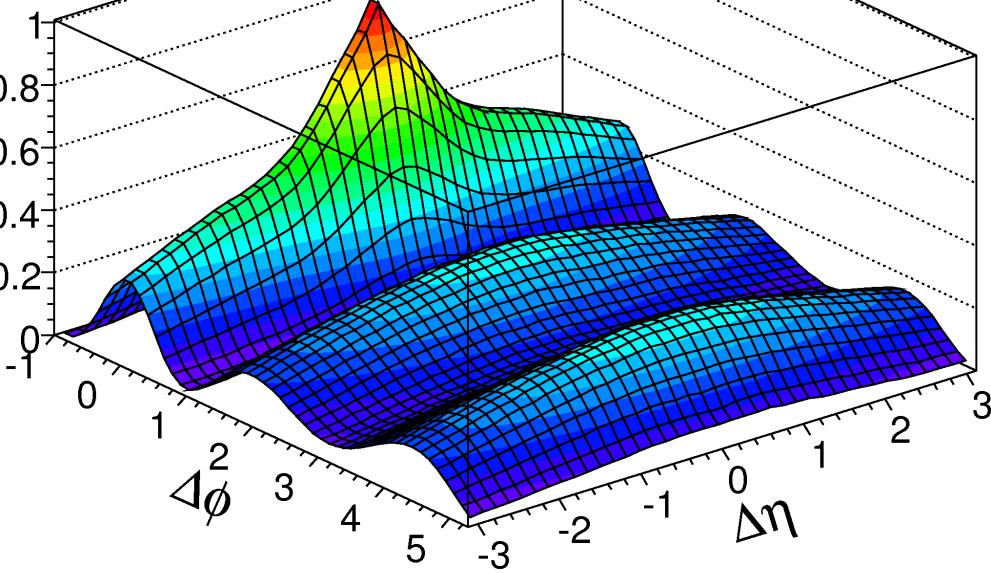
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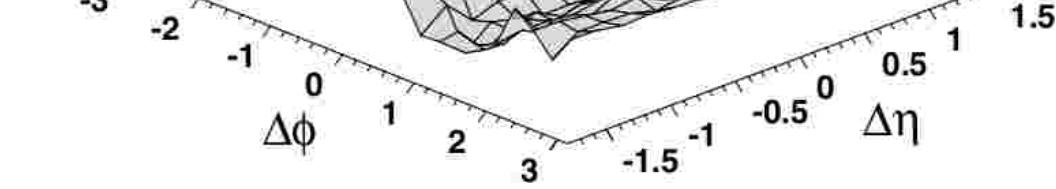


$C(\Delta\phi, \Delta\eta)$ 

(0-6)%

 $C(\Delta\phi, \Delta\eta)$ 

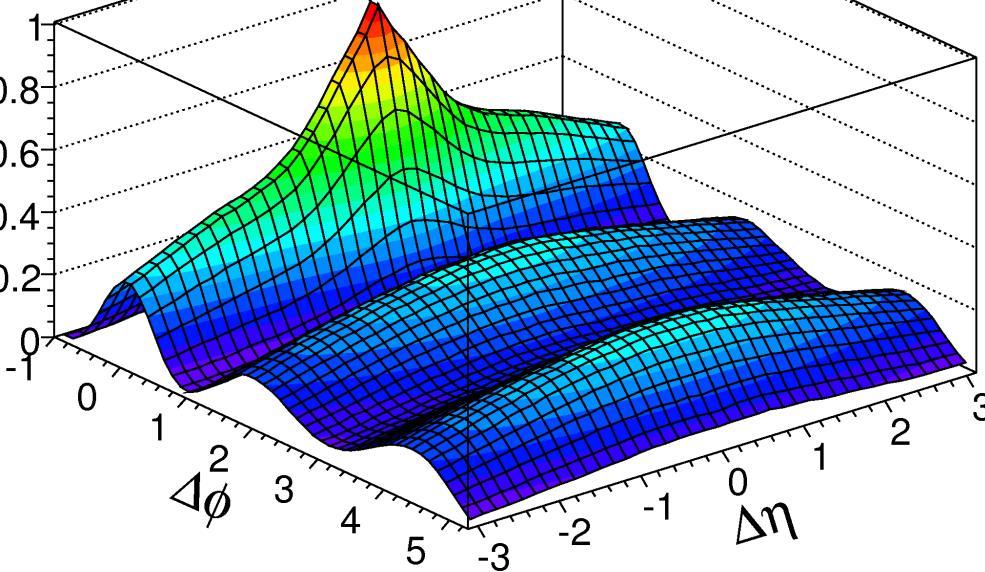
#entries

 $\times 10^3$ 470
460
450
440
430
420
410

NexSPheRIO

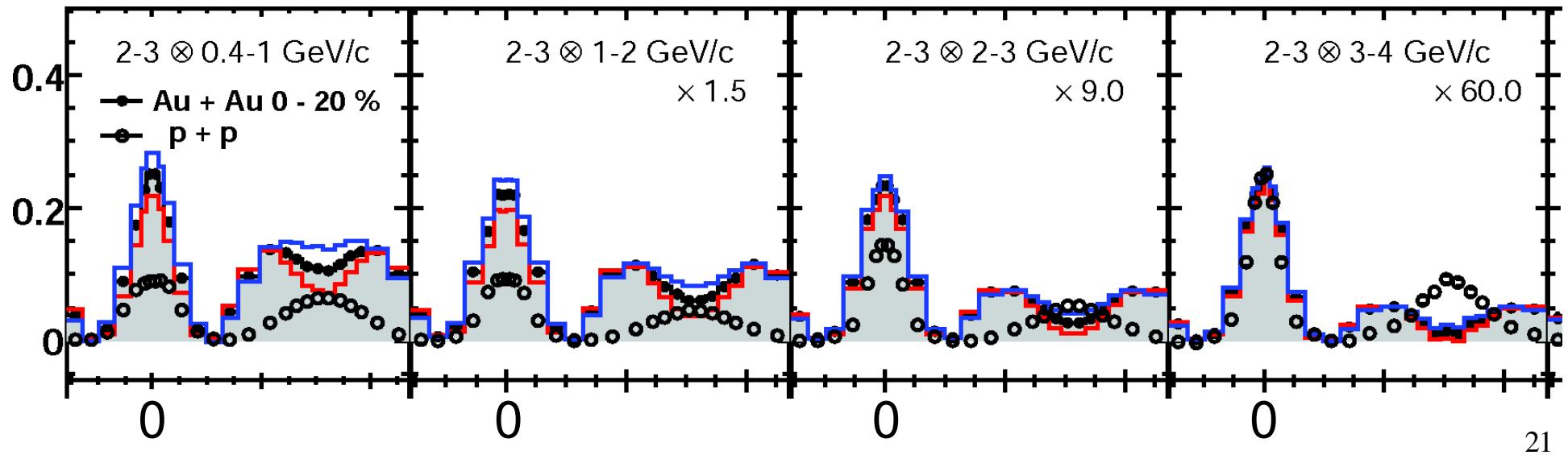
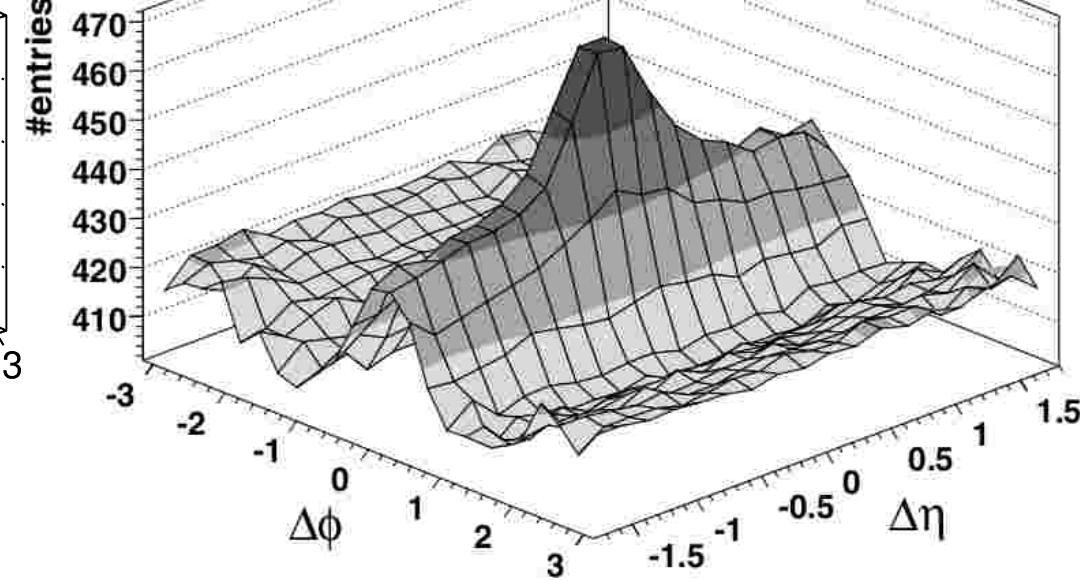
(0-6)%

$C(\Delta\phi, \Delta\eta)$

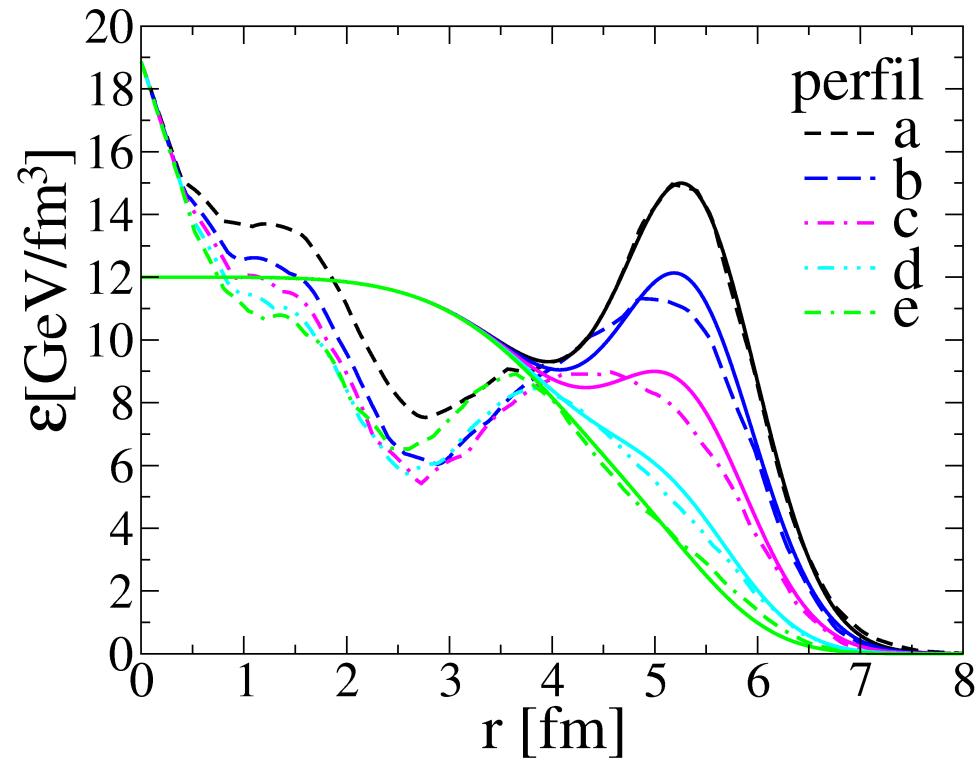
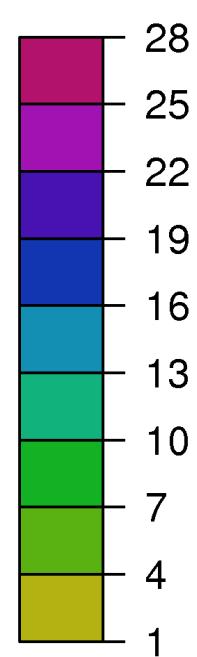
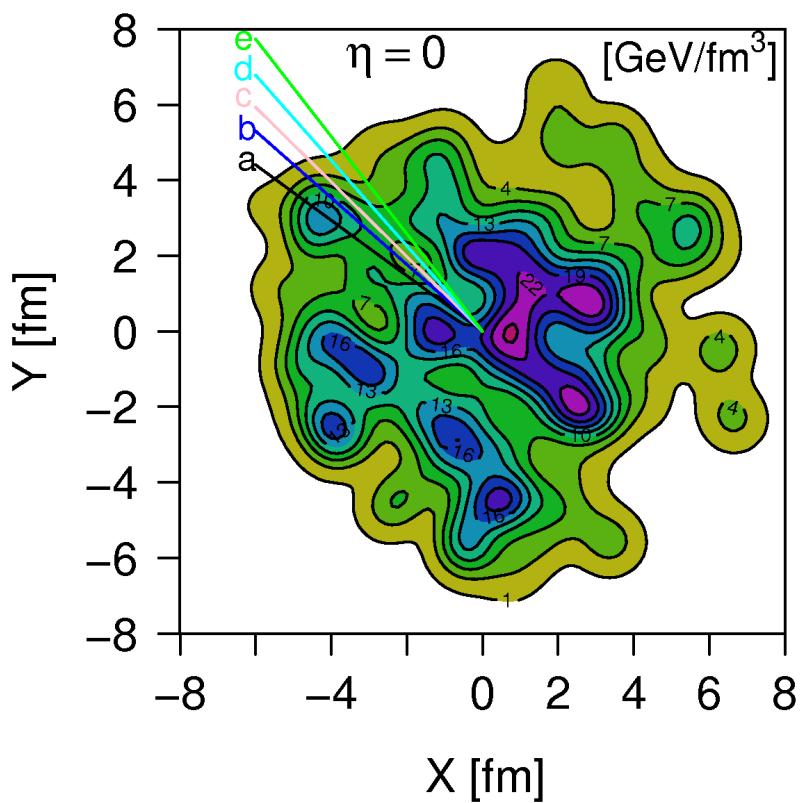


#entries

$\times 10^3$



Modelo de 1-tubo



Parametrização:

$$\epsilon_0 = 12 \exp(-0.0004r^5) + \frac{34}{0.845 \pi} \exp\left[\frac{-\left(\vec{r} - \vec{r}_0\right)^2}{0.845}\right]$$

onde $r_0 = 5.4 \text{ fm}$.

Parametrização:

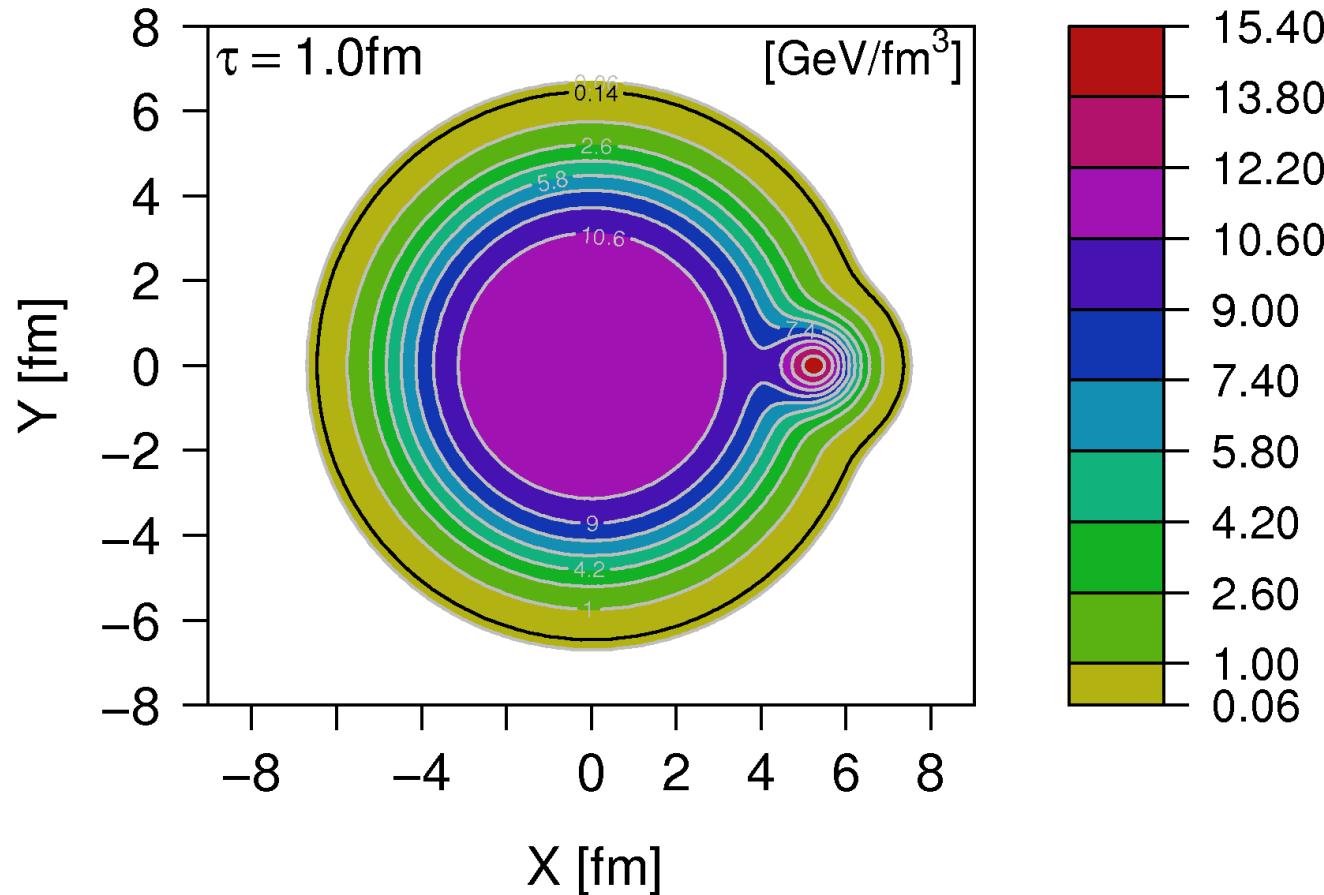
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$$n_B = 0,$$

e

$$v_0^T = 0.$$



Parametrização:

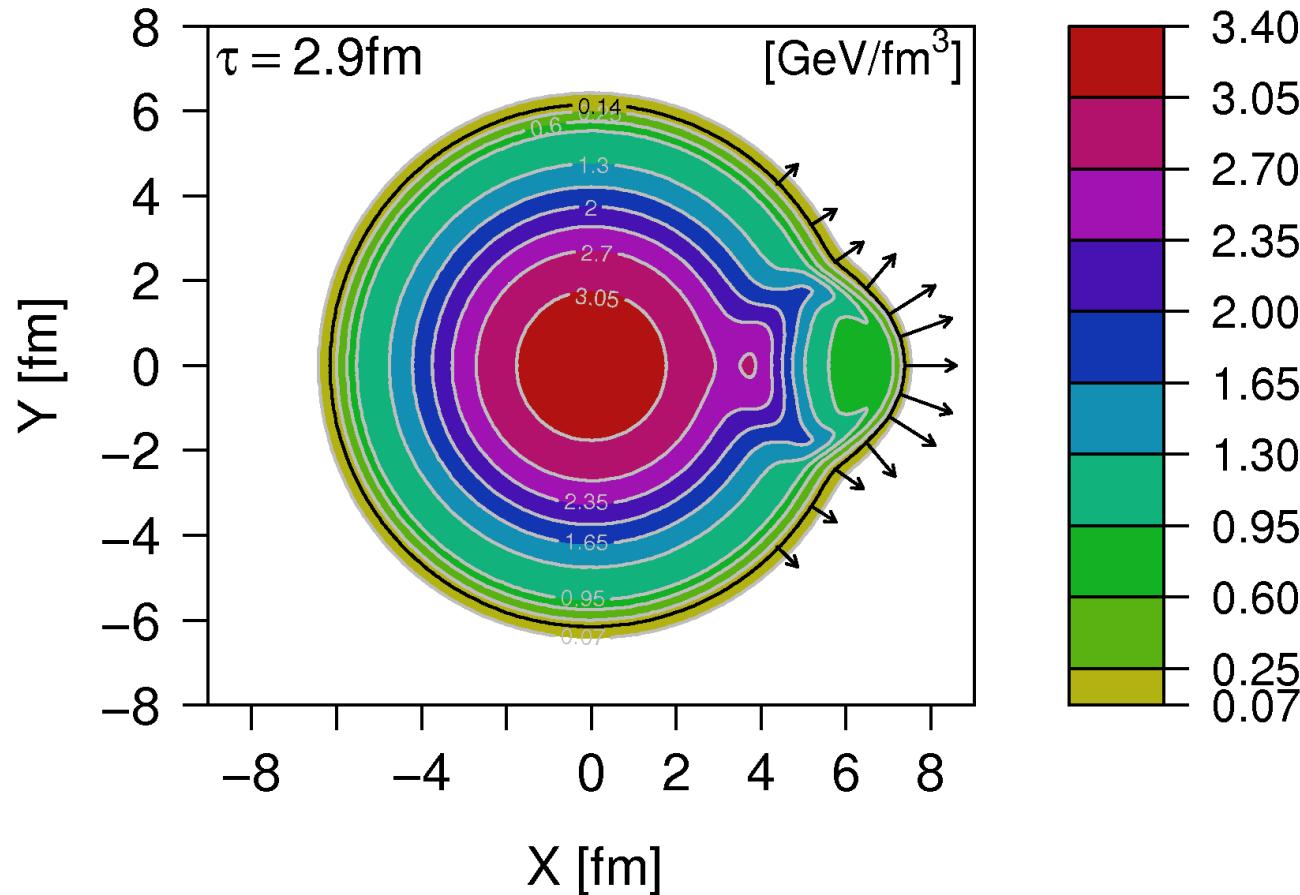
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e

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Parametrização:

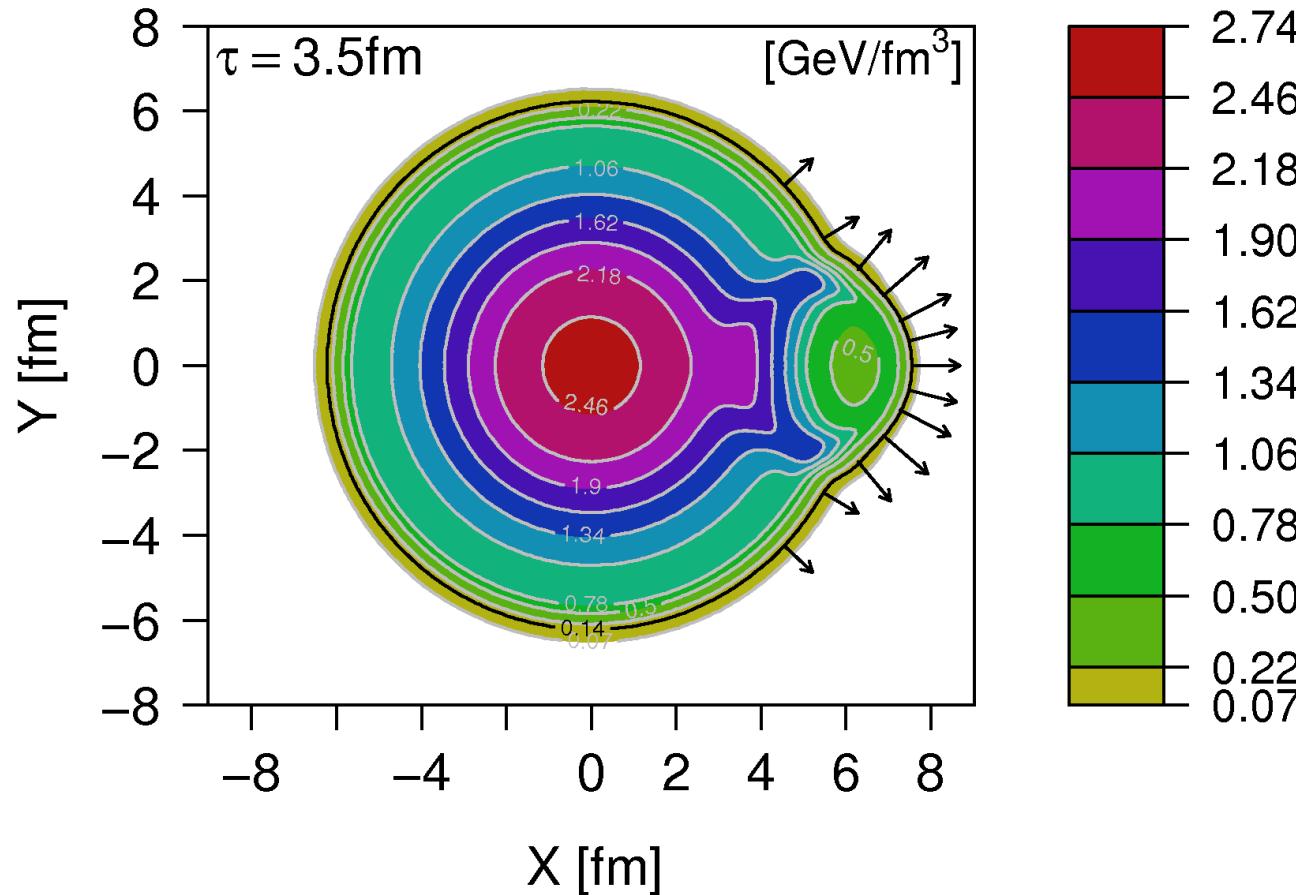
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Parametrização:

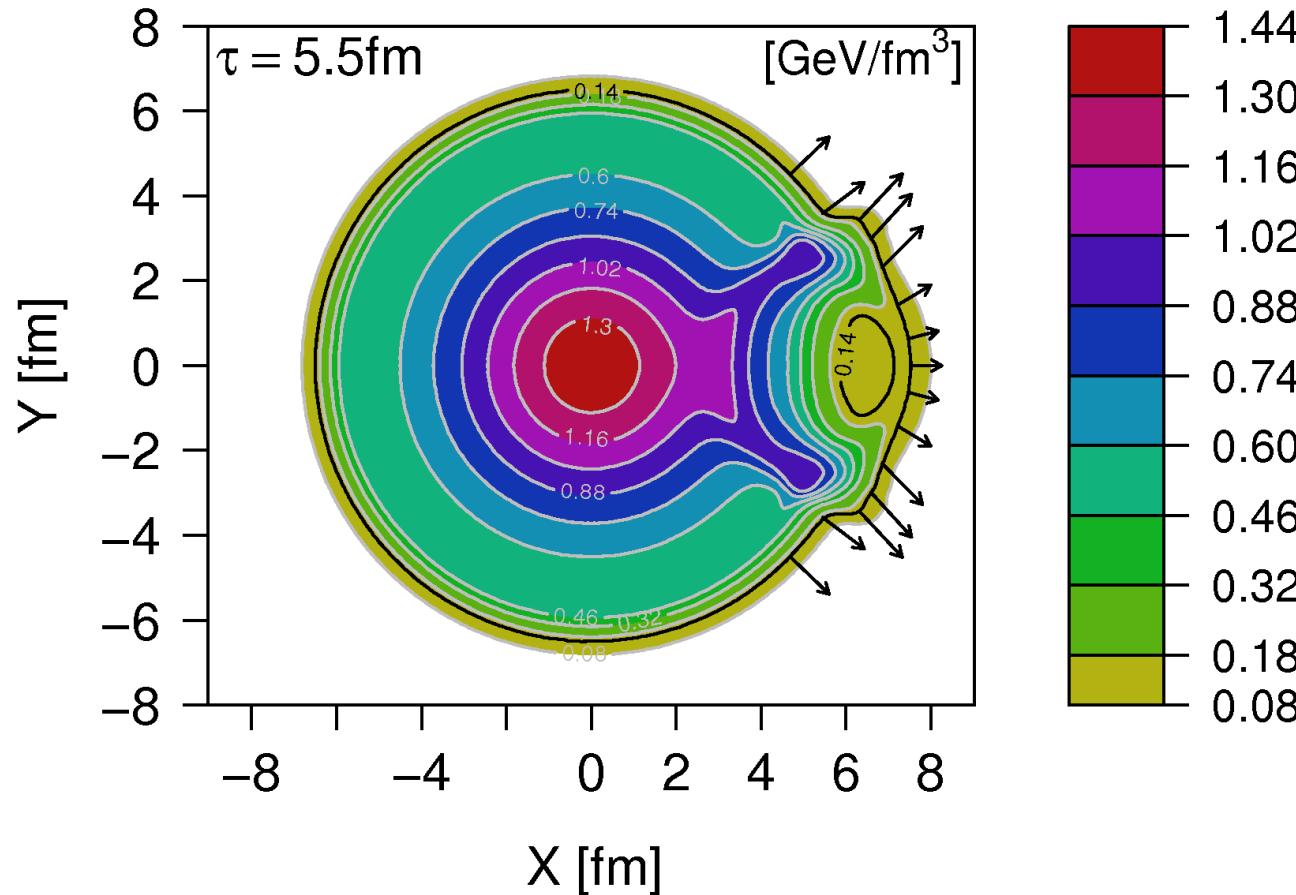
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Parametrização:

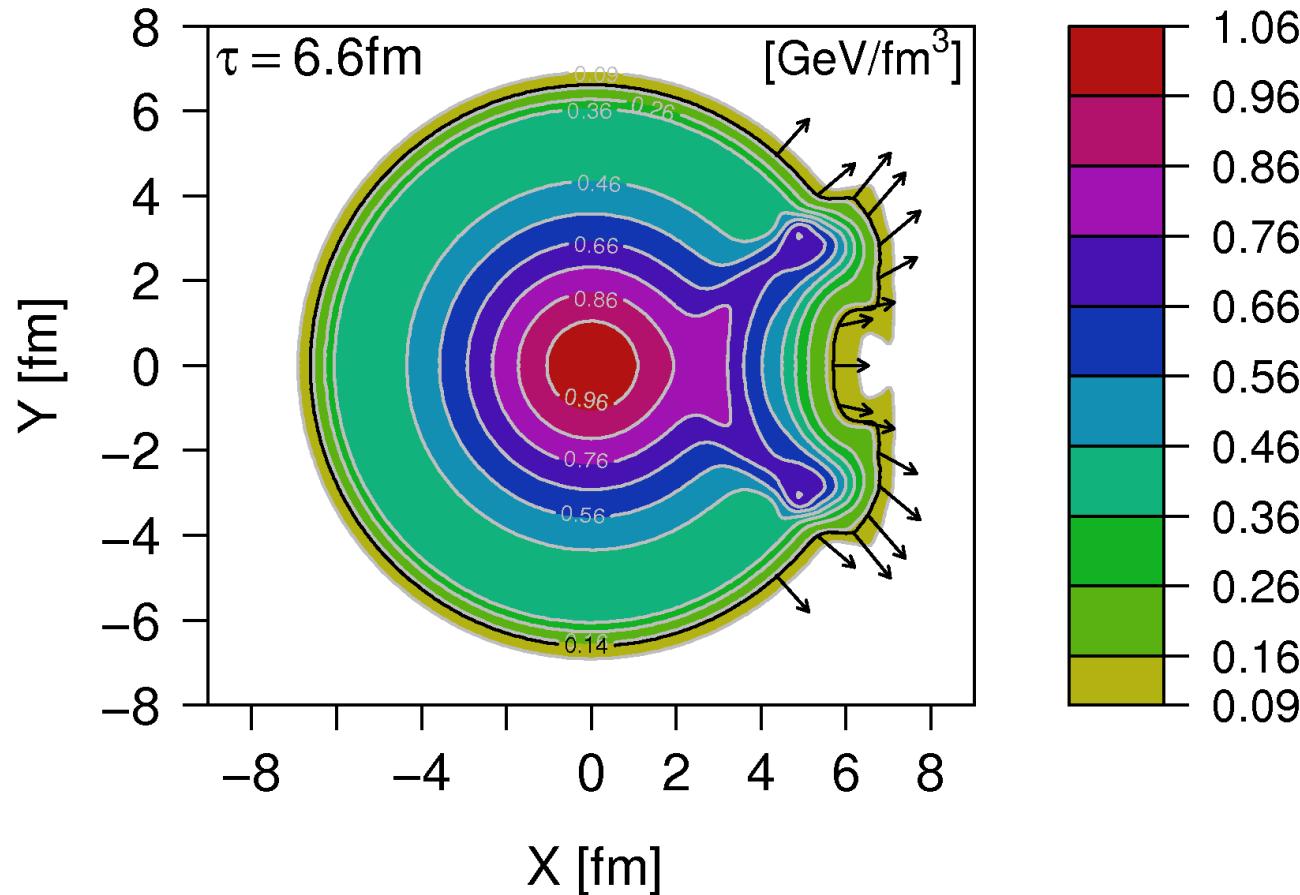
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$$n_B = 0,$$

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Parametrização:

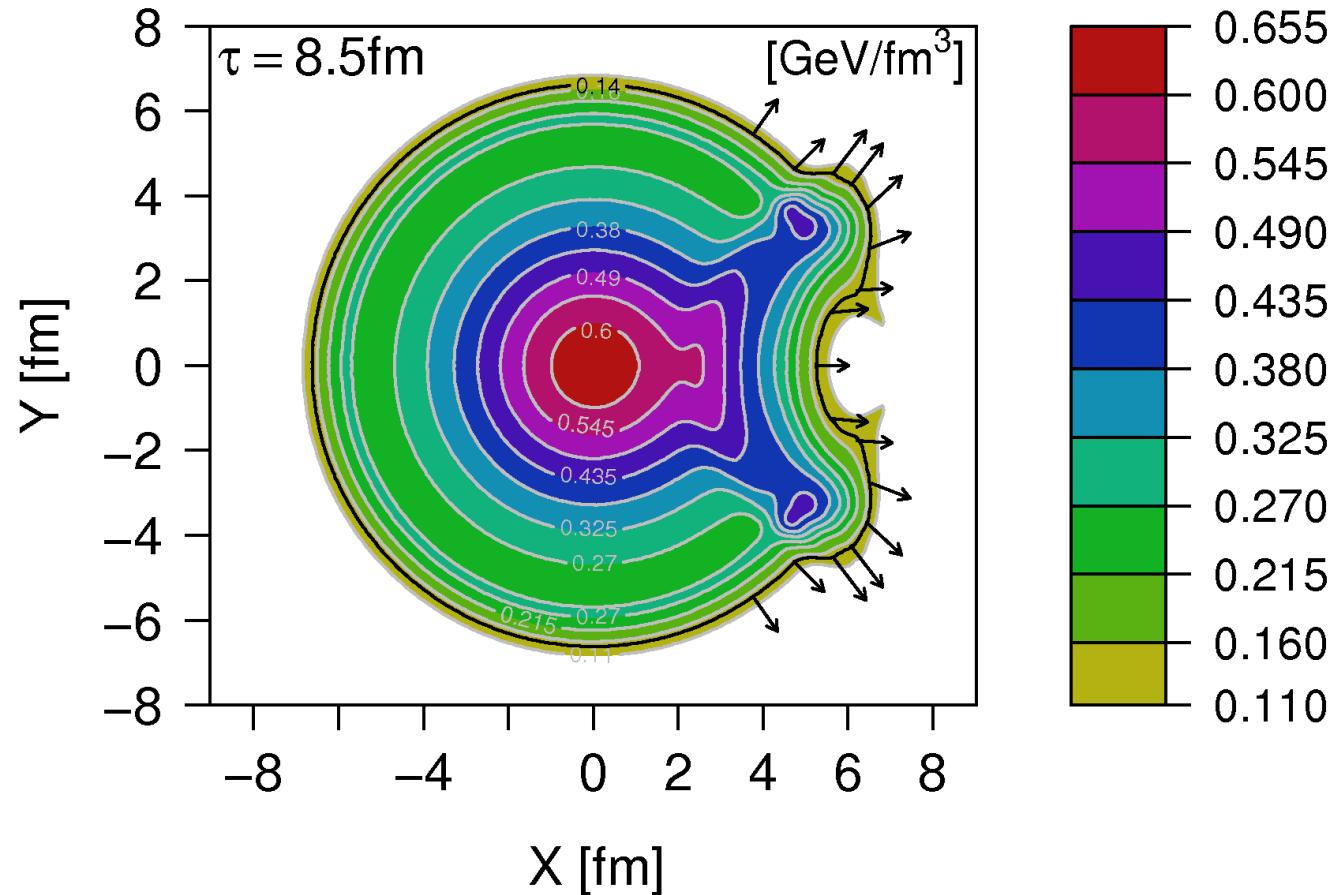
Modelo de 1-tubo

$$\epsilon_0 = 12 \exp(-0.0004r^5) + \frac{34}{0.845\pi} \exp\left[\frac{-\left(\vec{r} - \vec{r}_0\right)^2}{0.845}\right],$$

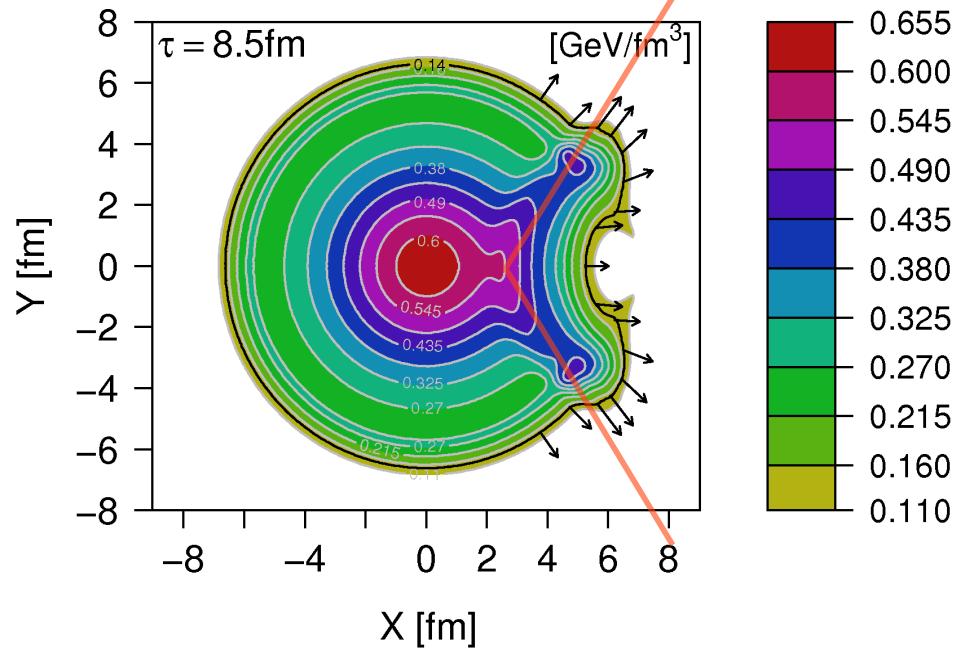
$$n_B = 0,$$

e

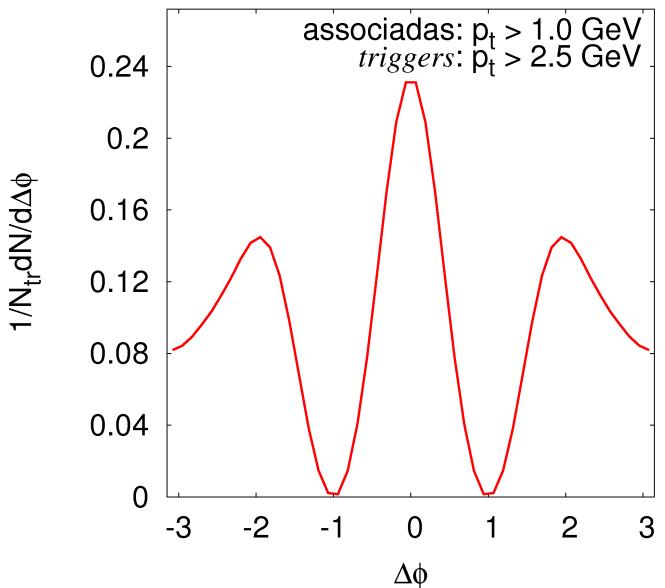
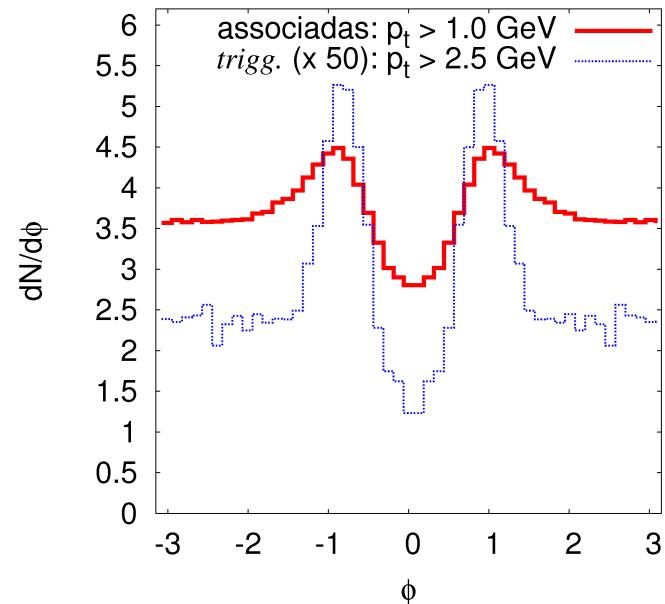
$$\nu_0^T = 0.$$



Modelo de 1-tubo



A distribuição azimutal de partículas apresenta **dois picos** simétricos em relação à posição do **tubo**.



Conclusão

Os cálculos hidrodinâmicos, partindo-se de condições iniciais com estrutura tubular e flutuantes evento a evento, têm mostrado que é possível entender, de maneira unificada, o **near-side ridge** e a estrutura **away-side** com dois picos.

