

Wizualizacja danych

Wykład 9: Wizualizacje 3D

Mariusz Tarnopolski

Instytut Astronomii UMK

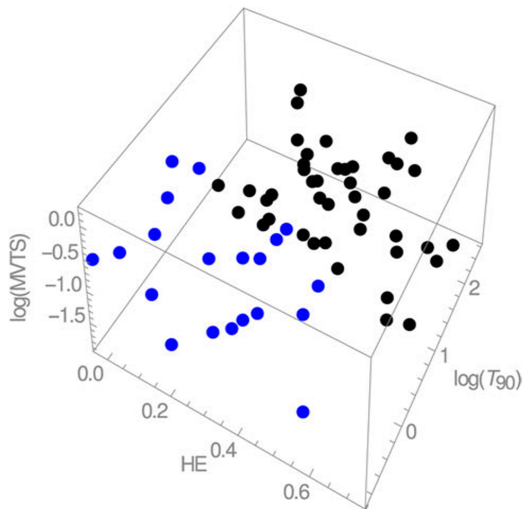
DataViz, 2024/2025



- Punkty
- Powierzchnie
- Obszary
- Warianty
- Animacje
- Interakcje

Punkty

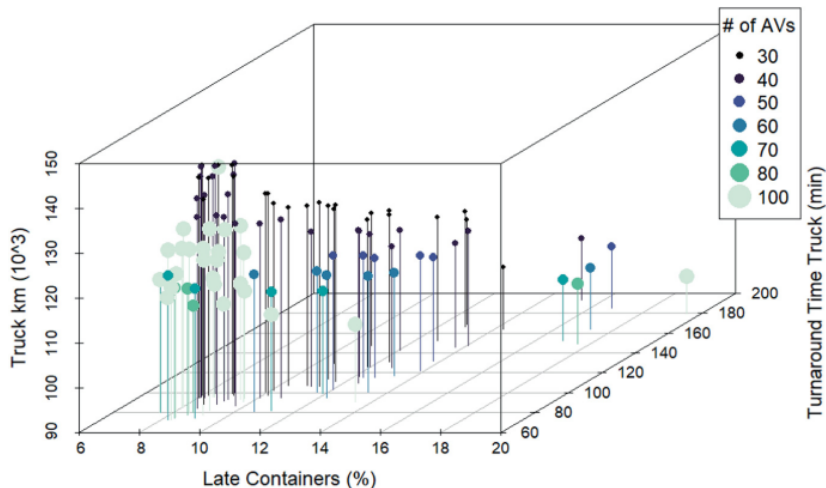
Por. wykład 2, slajdy 11–17



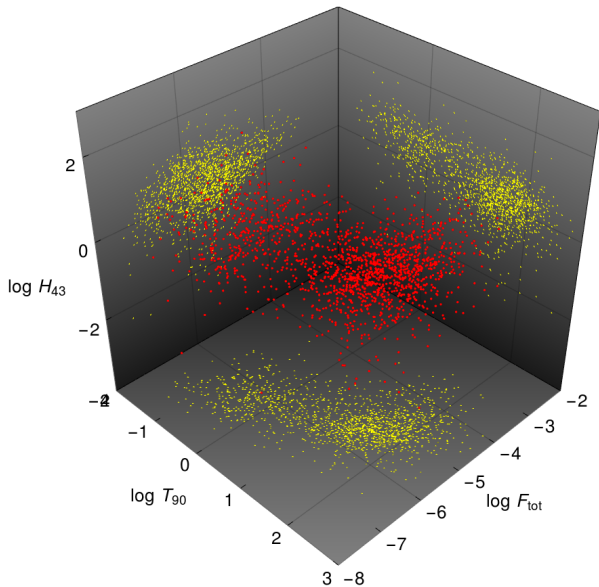
<https://doi.org/10.1093/mnras/stv2061>

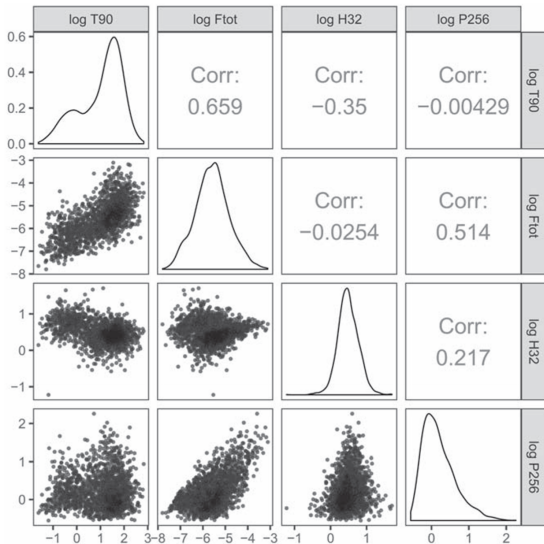
Punkty

Lollipop plot

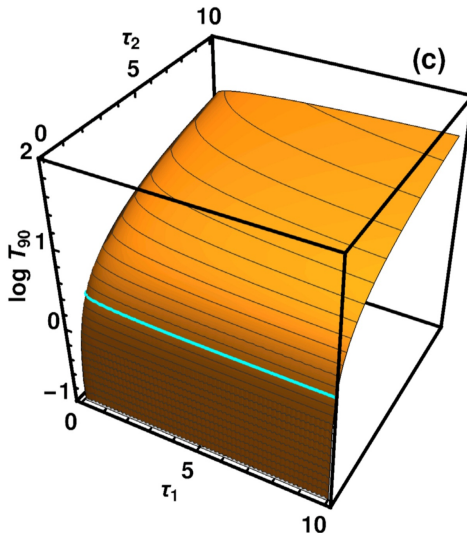


https://doi.org/10.1007/978-3-031-61589-4_18

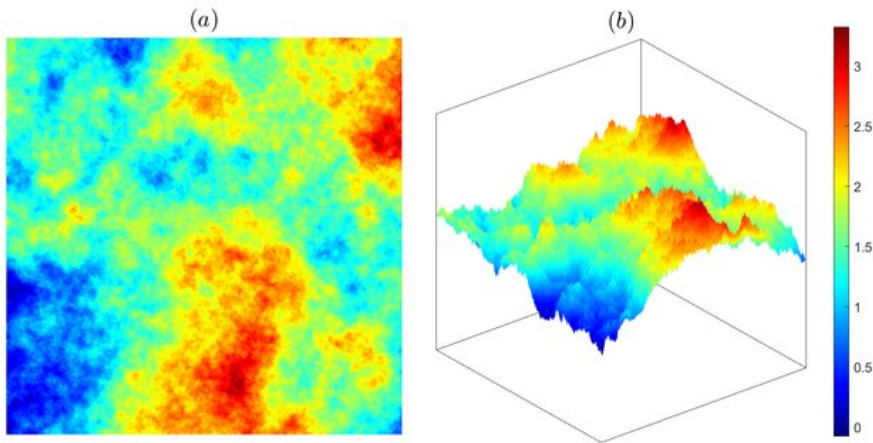




<https://doi.org/10.3847/1538-4357/aaf1c5>



<https://doi.org/10.1093/mnras/stab2232>

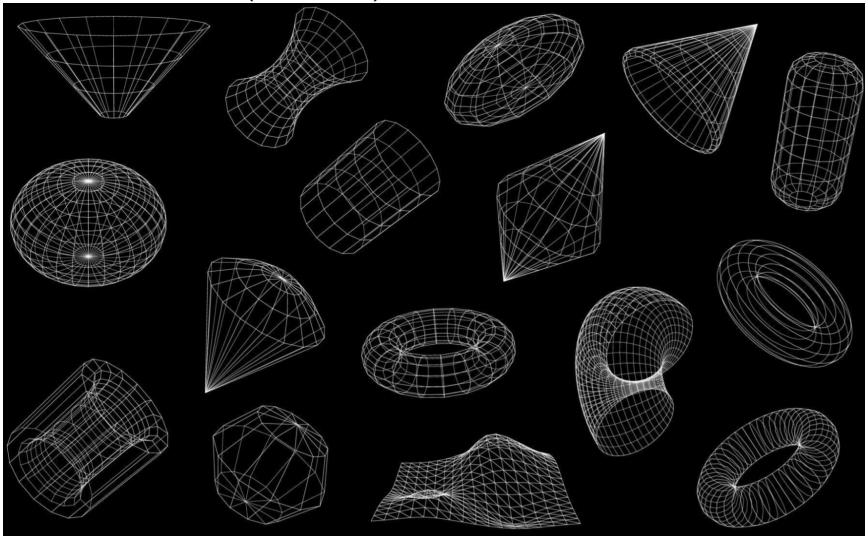


Rainbow X (por. wykład 6, slajd 2).

<https://arxiv.org/abs/2409.15327>

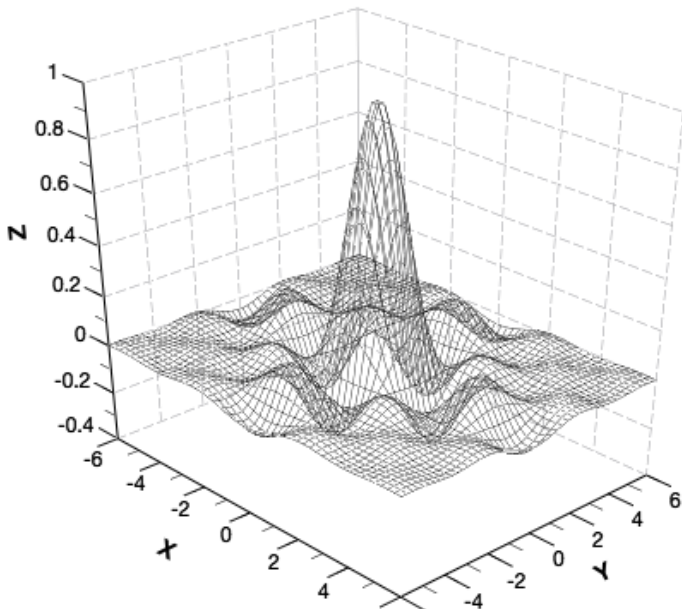
Powierzchnie

Wykres szkieletowy (wireframe):

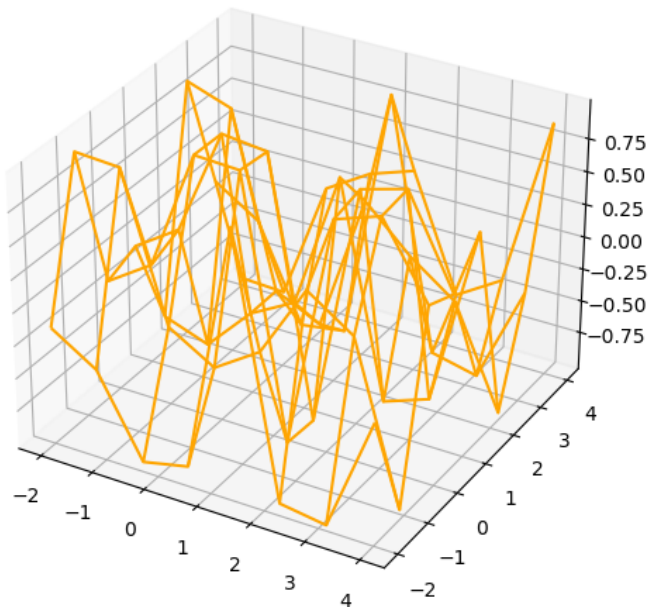


https://en.m.wikipedia.org/wiki/Wire-frame_model

Powierzchnie

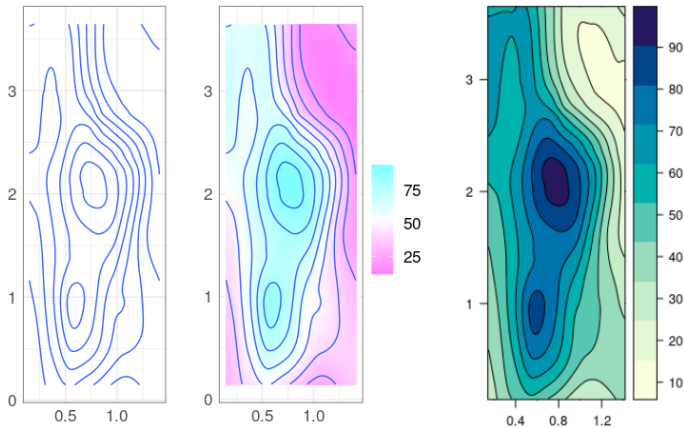


X



Powierzchnie

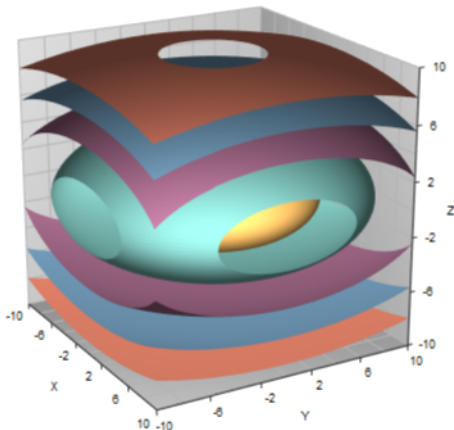
Wykres izopowierzchni (*isosurface plot*) $f(x, y, z) = \text{const.}$ — 3D analog wykresu konturowego izolinii (*contour plot*) $f(x, y) = \text{const.}$:



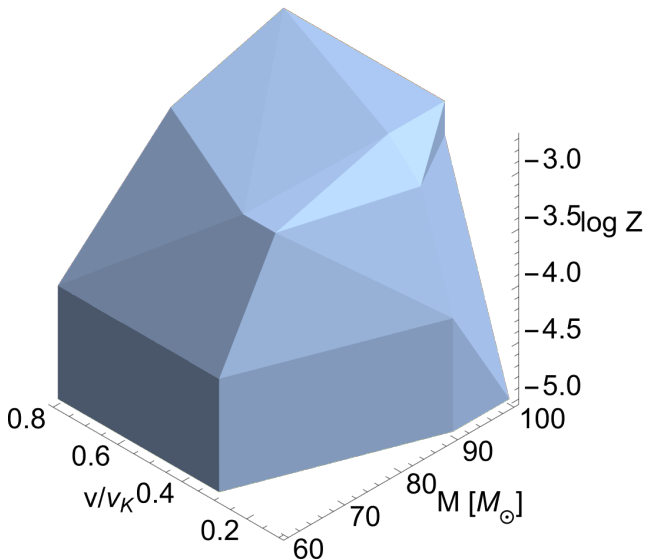
<https://www.teraplot.com/isosurface-plots>

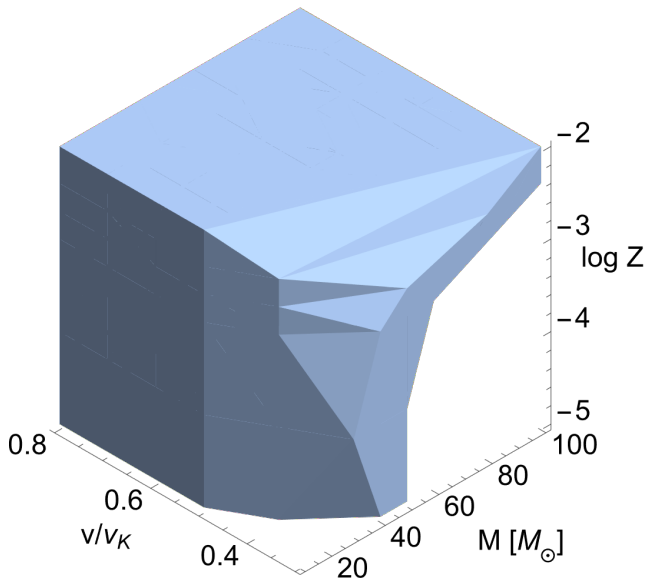
Powierzchnie

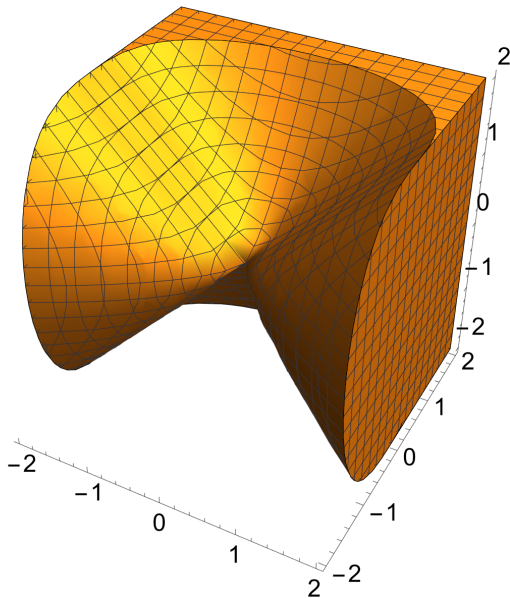
Wykres izopowierzchni (*isosurface plot*) $f(x, y, z) = \text{const.}$ — 3D analog wykresu konturowego izolinii (*contour plot*) $f(x, y) = \text{const.}$:

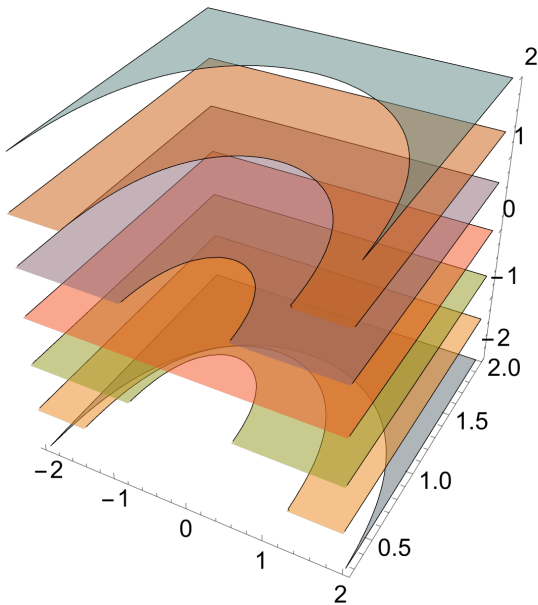


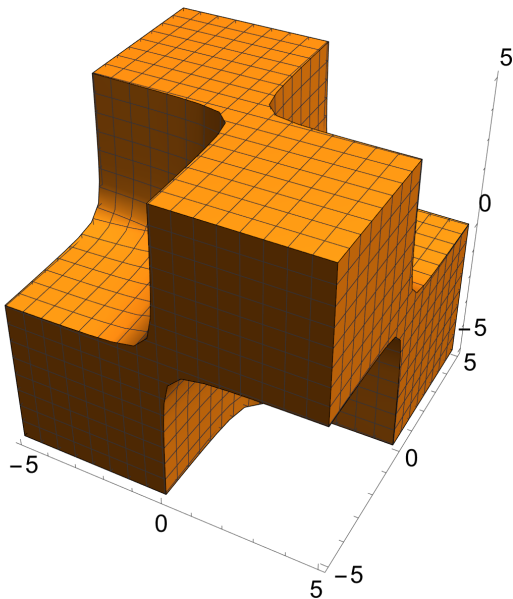
<https://www.teraplot.com/isosurface-plots>

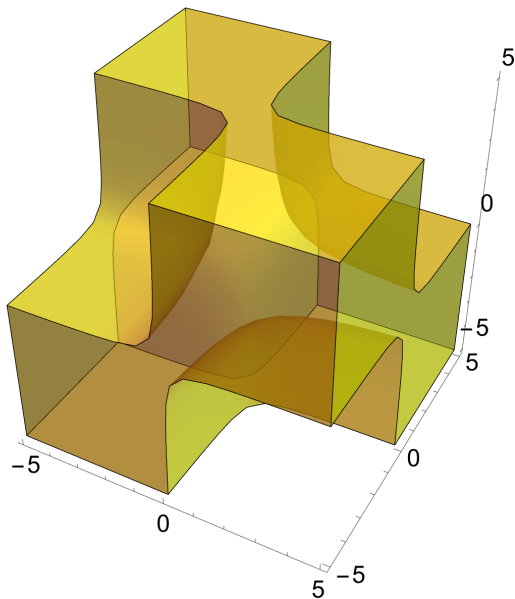


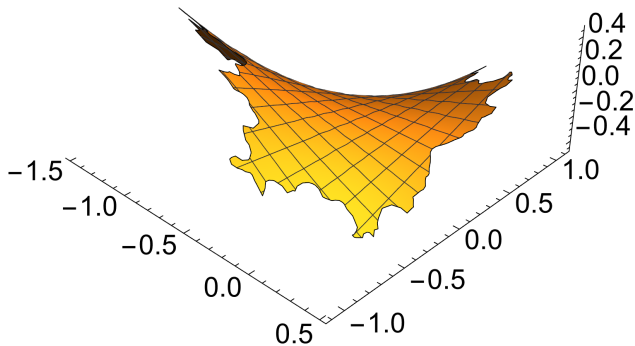








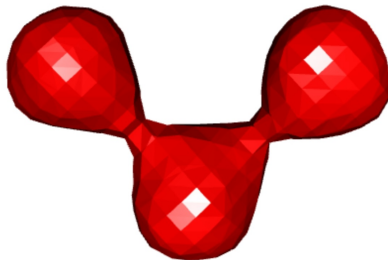




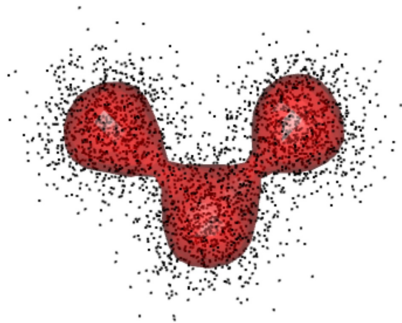
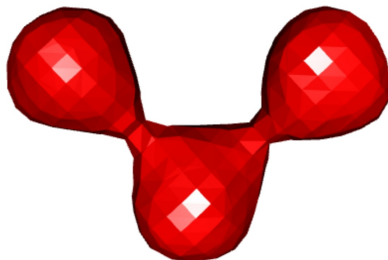
Warianty



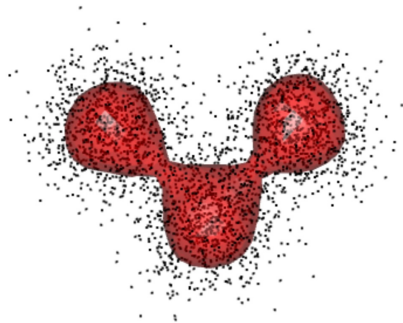
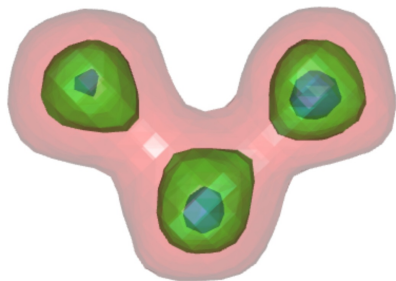
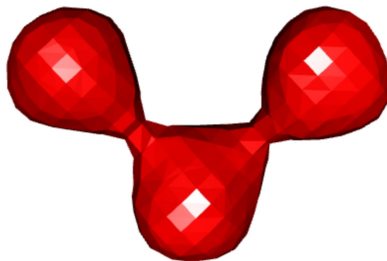
Warianty



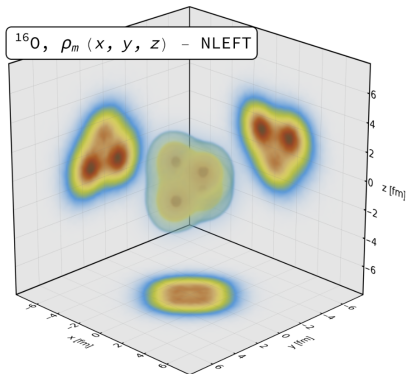
Warianty



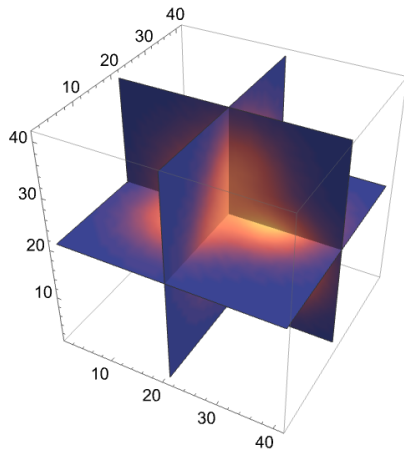
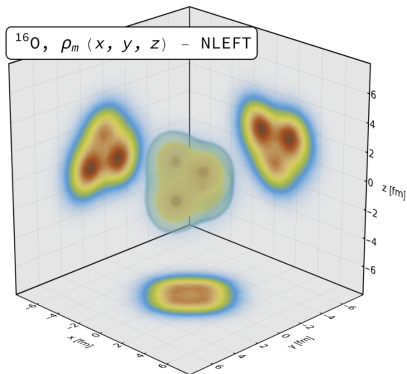
Warianty



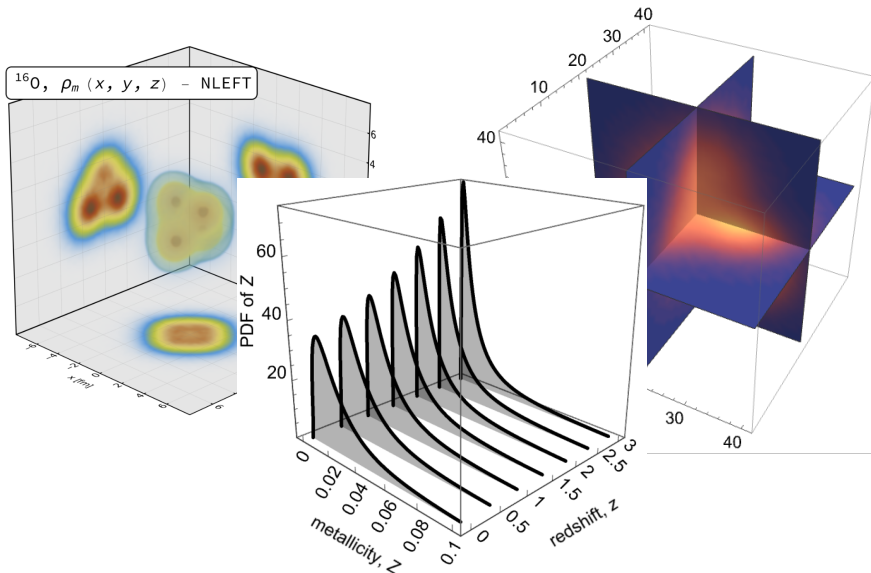
Warianty



Warianty



Warianty



- <https://www.desmos.com/3d/c7642334f4?lang=pl>
- <https://r-graph-gallery.com/3d.html>
- <https://plotly.com/python/3d-isosurface-plots/>
- <https://plotly.com/python/3d-scatter-plots/> <https://3d-mapper.com/>
- [https://towardsdatascience.com/
how-to-create-an-interactive-3d-chart-and-share-it-easily-with-anyone-d0](https://towardsdatascience.com/how-to-create-an-interactive-3d-chart-and-share-it-easily-with-anyone-d0)