



ARISTOTLE  
UNIVERSITY  
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# Particle therapy masterclass

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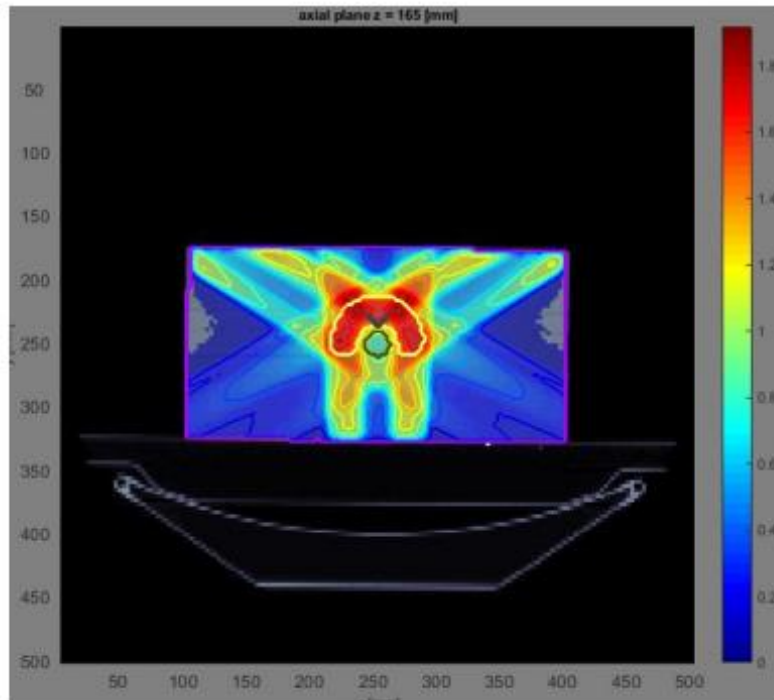
ELEFThERIA IOANNIDOY

VASILEIA REPAKI

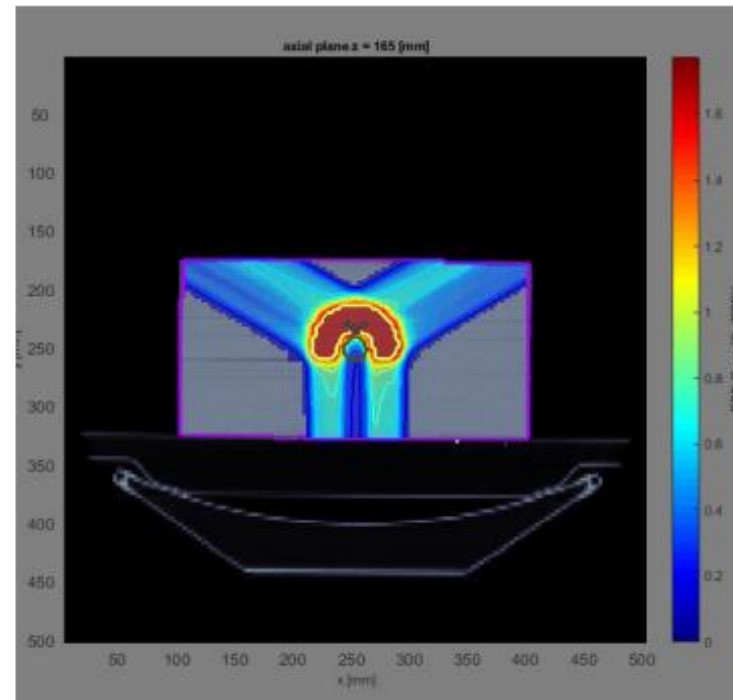


# C-phantom (TG-119)

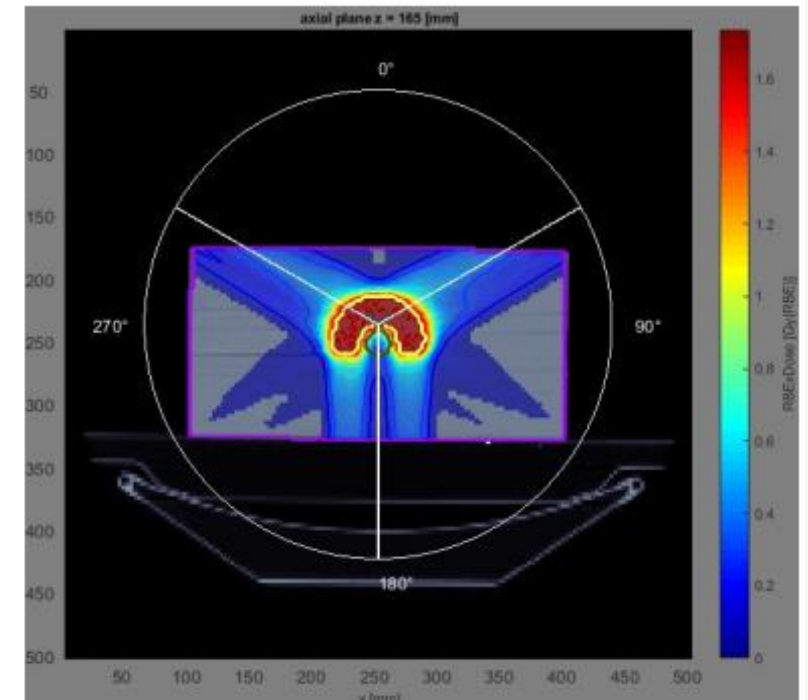
Photons



Protons



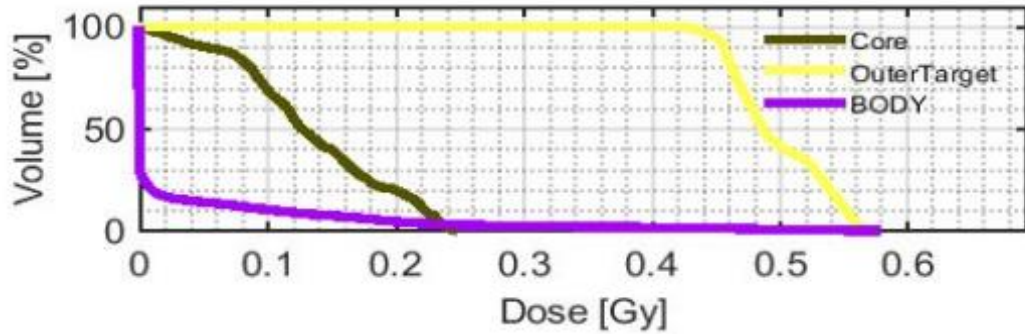
Carbon ions



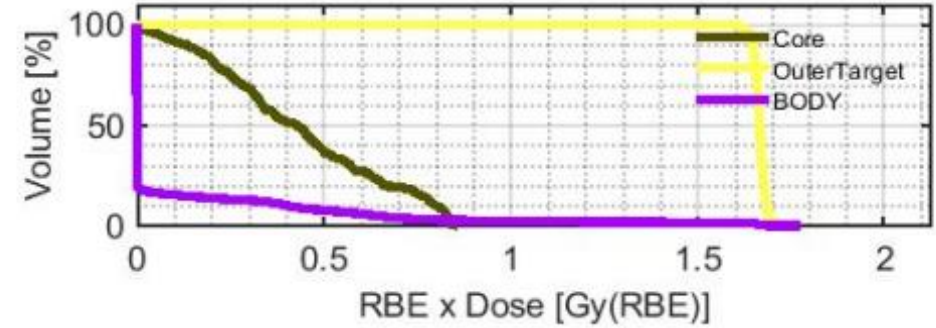
- ❖ 3 angles: 60°, 180°, 300°
- ❖ More compact and limited dose distribution for particles with mass due to the Bragg peak

# C-phantom (TG-119) - DVH

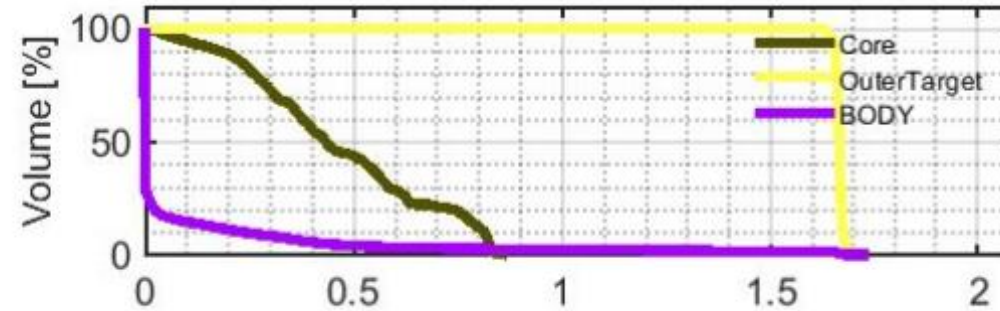
Photon DVH



Proton DVH



Carbon ion DVH

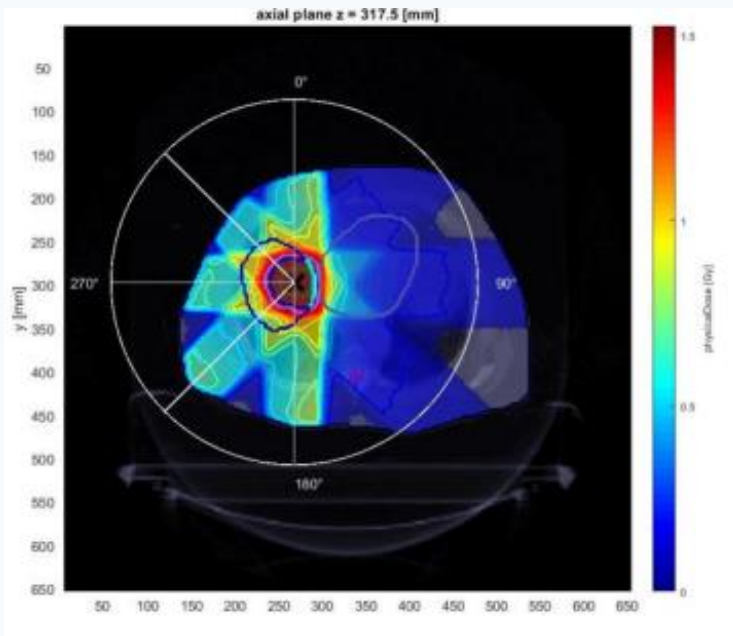


	Photons	Protons	Carbons
Core	0.8312	0.4352	0.4660
Target	1.6513	1.6655	1.6662
Body	0.1906	0.0957	0.0779

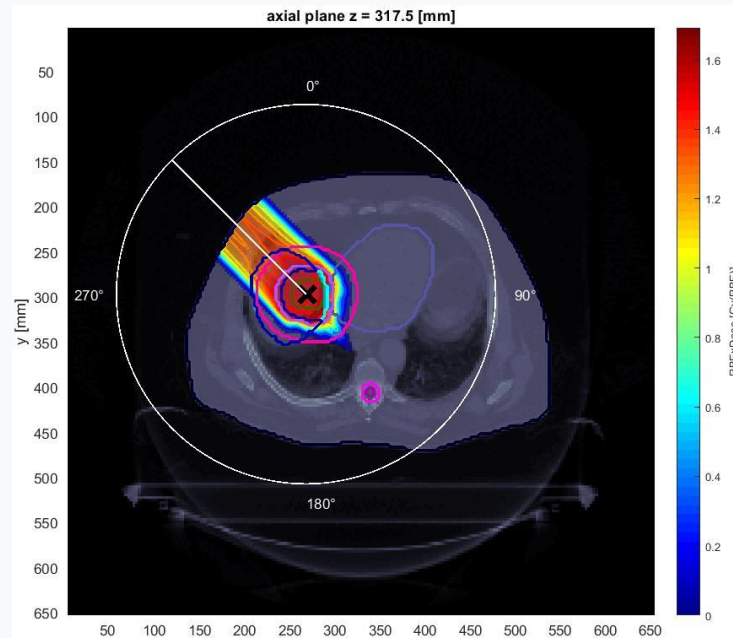
- More precise dose deposition to the max. cancer volume (target) with heavier particles
- Better Bragg peak performance, lower dose distribution to sensitive organs (core)

# Liver case

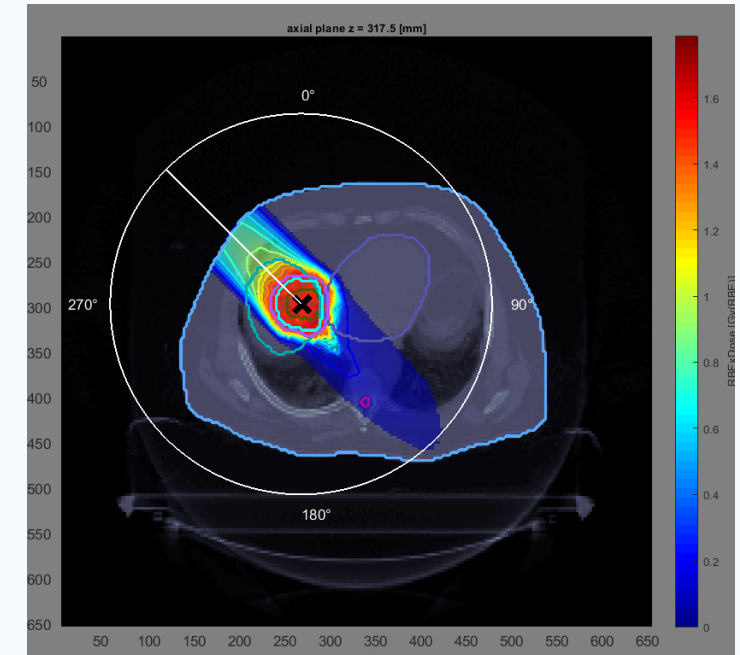
Photons



Protons



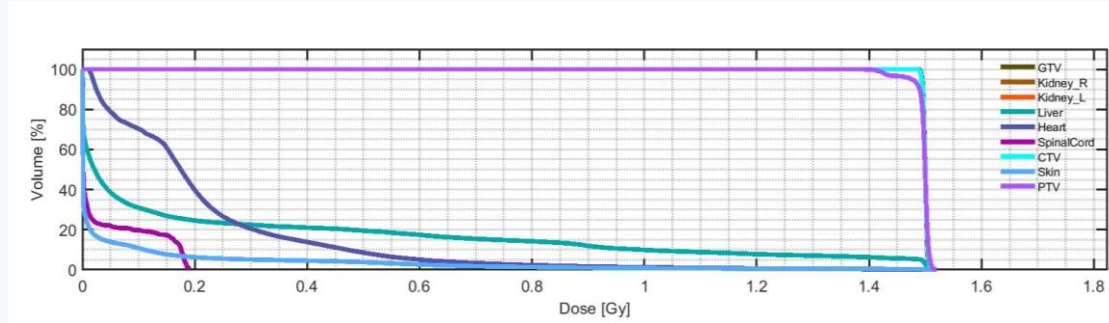
Carbons



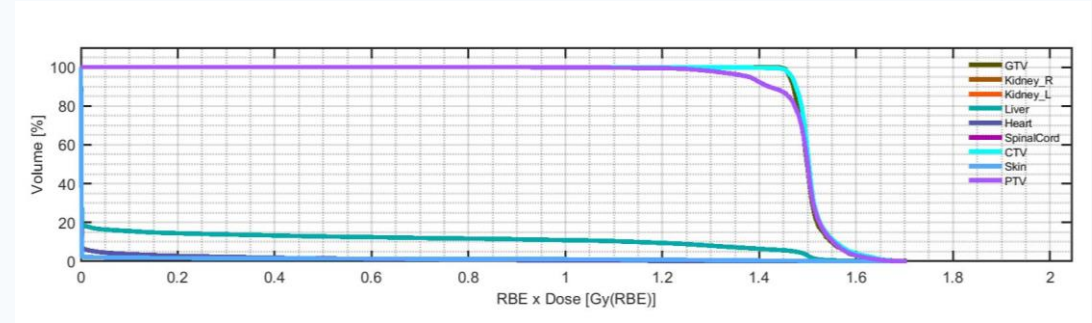
- ❑ 5 angles photons (0, 180, 225, 270, 315), single protons and carbons (315)
- ❑ Better Bragg peak performance, lower dose distribution to sensitive organs (core)

# Liver case - DVH

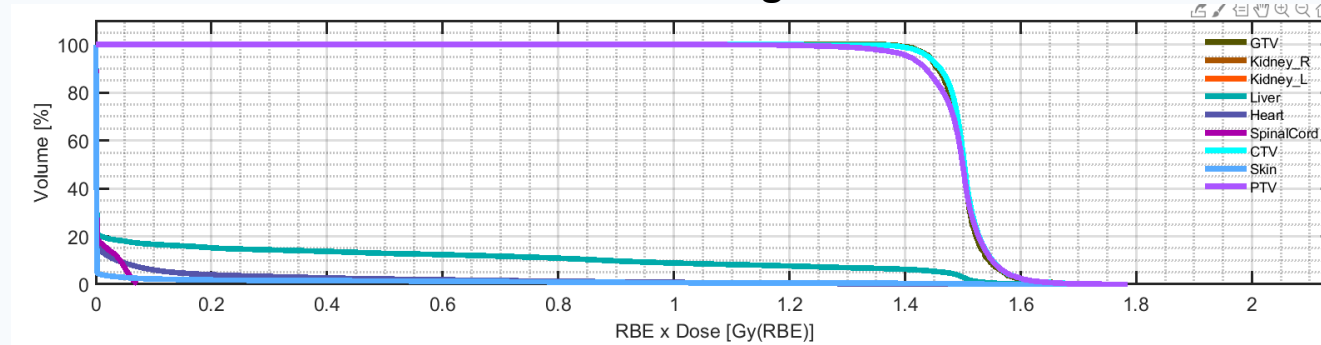
5 photon angles



1 proton angle



1 carbon angle





# Conclusion

- The geometry and the parameters of the treatment plan is of extreme importance
- All radiation methods can be efficient, when applied with the correct treatment plan in the respective circumstances
- Particles with mass deposit higher dose in specific location of the cancer tumor due to the Bragg peak, sparing healthy tissue in most cases
- The result of a good treatment plan is a teamwork