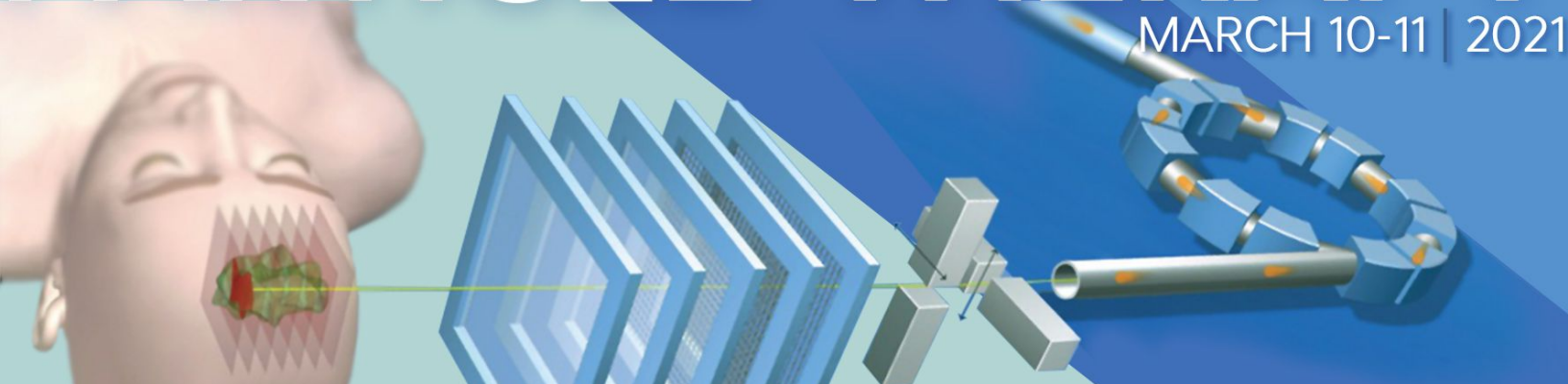


# VIRTUAL INTERNATIONAL MASTERCLASS ON PARTICLE THERAPY

MARCH 10-11 | 2021

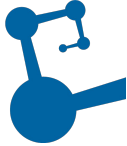


## ***Therapy planning of TG119, Liver and Head & Neck.***

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ALICE



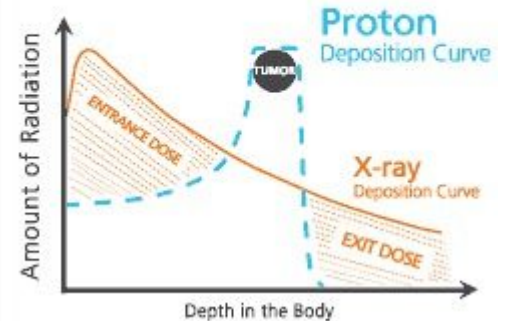
International Particle  
Physics Outreach Group



# 1. What we learned

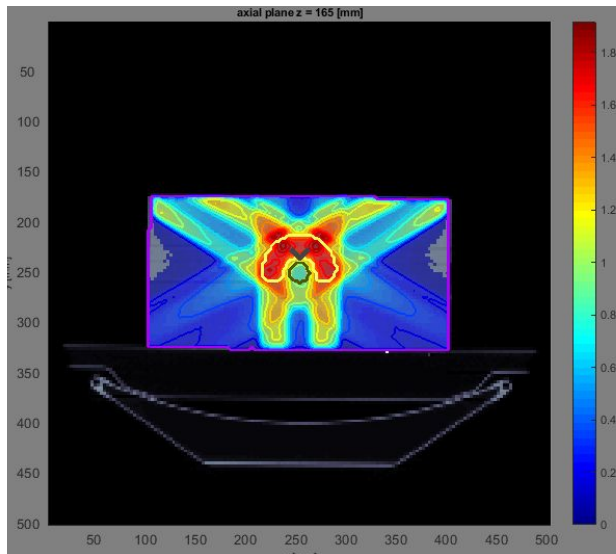
- Protons and Carbon ions are more efficient but expensive too.
- The Bragg peak represents the energy loss of ionizing radiation as it travels through matter.
- Clean cell death through apoptosis (programmed cell death as part of cell cycle)

FIGURE 2

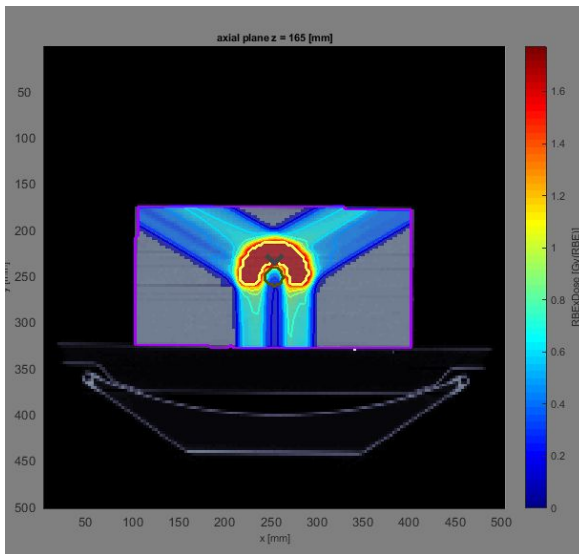


# 1. TG119 angles 60 180 300

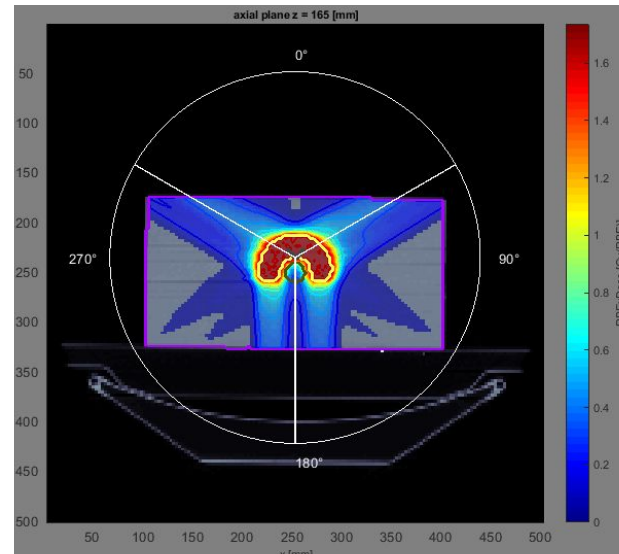
Photons  
22s calculation  
4s optimization



Protons  
15s calculation  
21s optimization

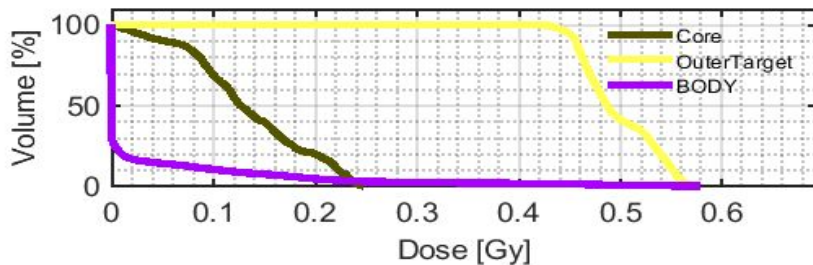


Carbon ion  
39s calculation  
75s optimization

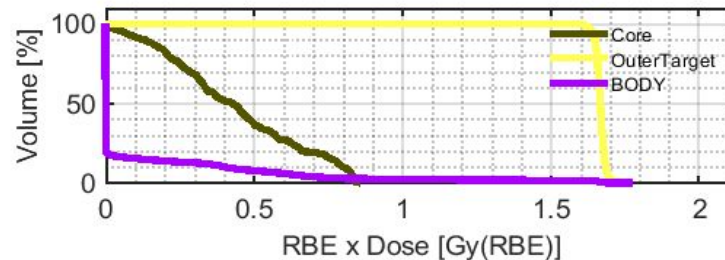


# 1. DVH

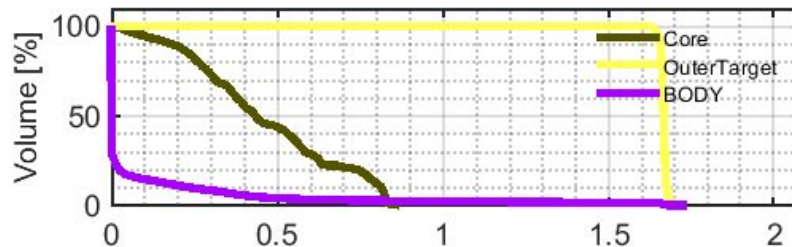
## Photon DVH



## Proton DVH

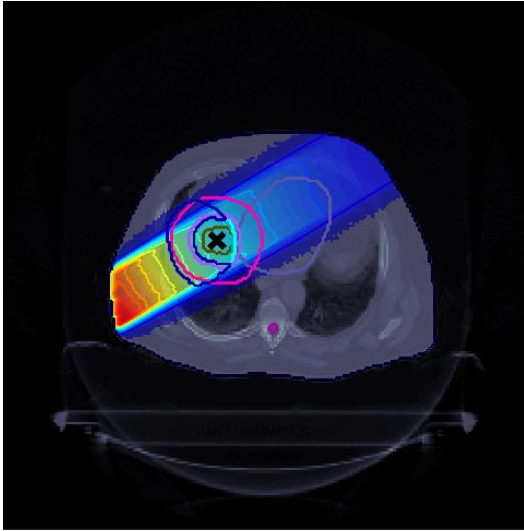


## Carbon ion DVH

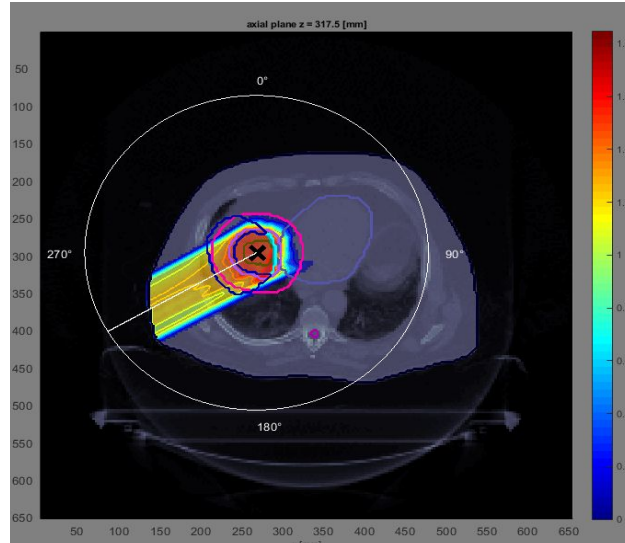


## 2. Liver angle 240

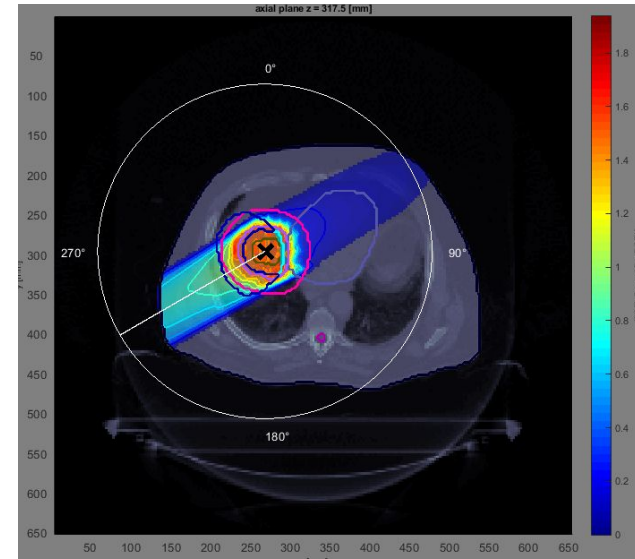
Photon  
7 s calculation  
5 s optimization



Proton  
6s calculation  
28s optimization

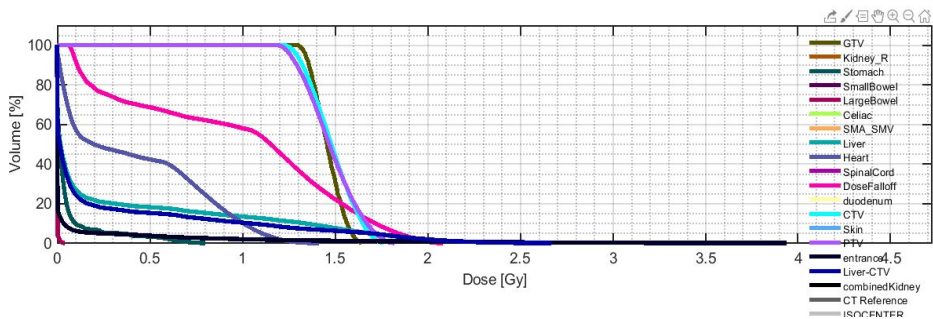


Carbon ion  
13 s calculation  
49 s optimization

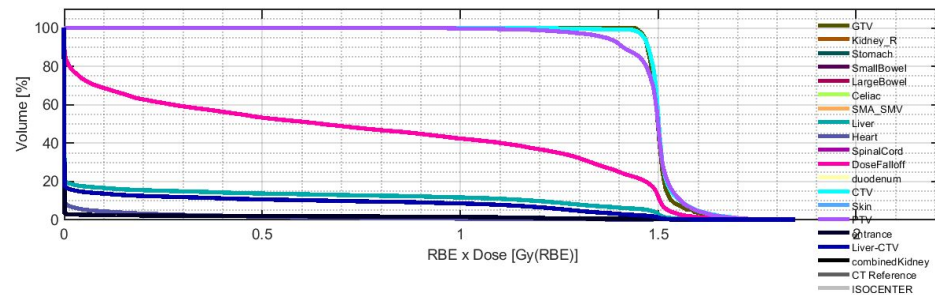


# 2. DVH

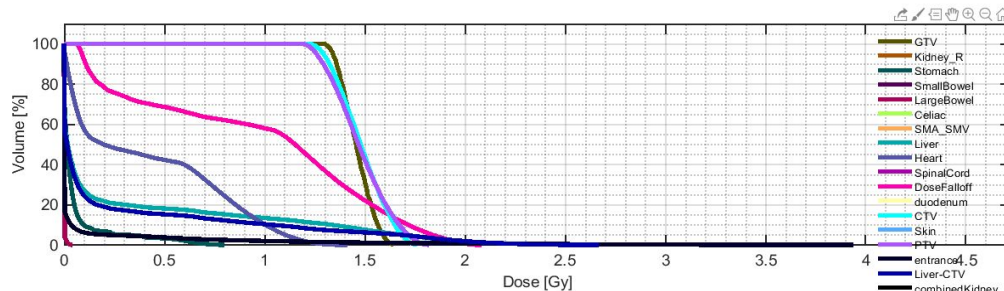
## Photon DVH



## Proton DVH

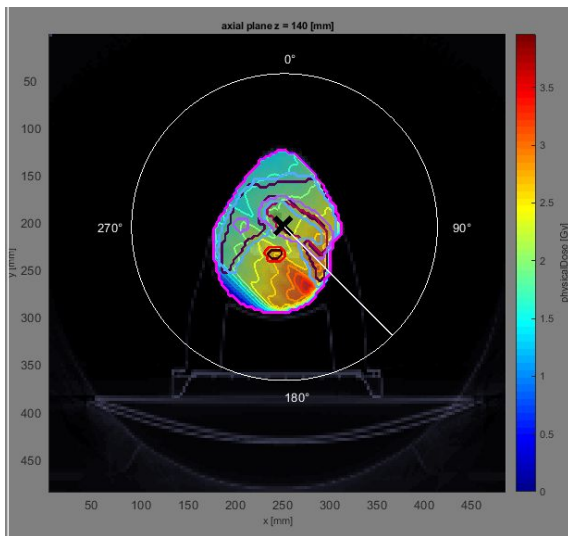


## Carbon ion DVH

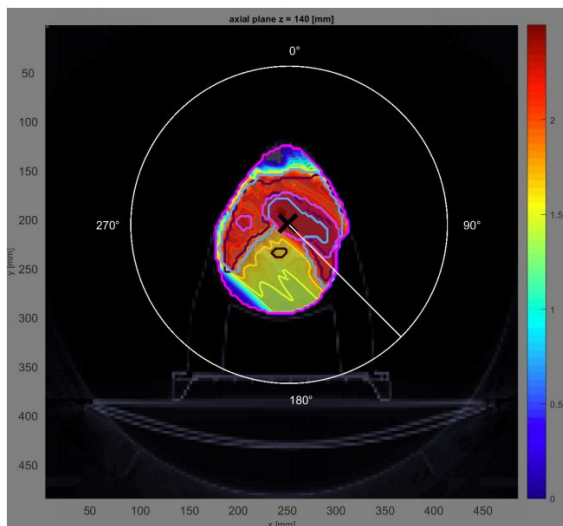


# 3. Head & Neck angle 135

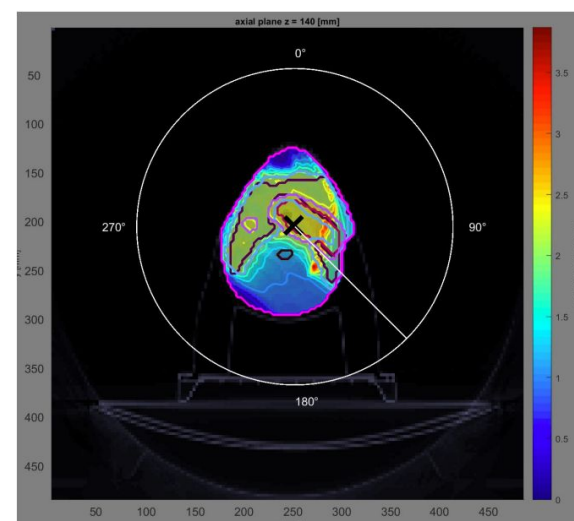
Photon  
15s calculation  
3s optimization



Proton  
17s calculation  
10s optimization

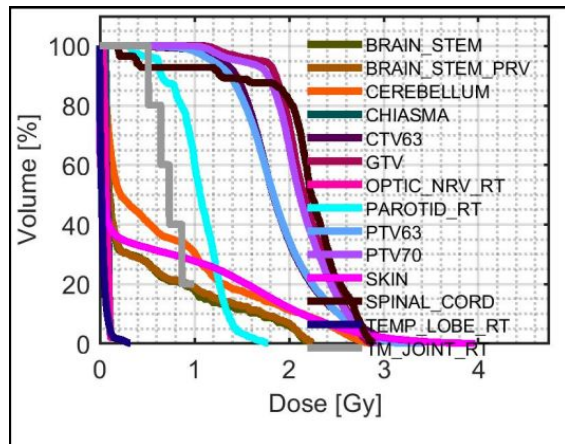


Carbon ion  
31s calculation  
36s optimization

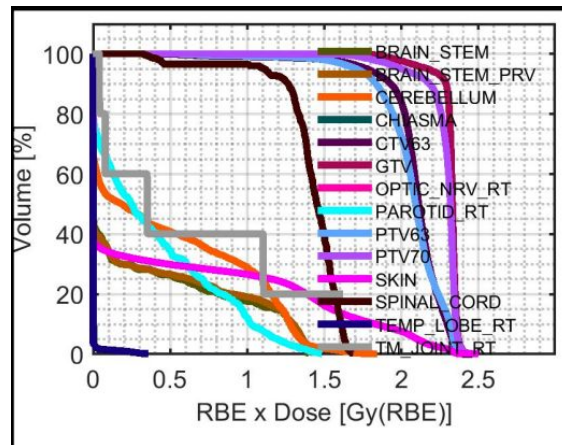


# 3. DVH

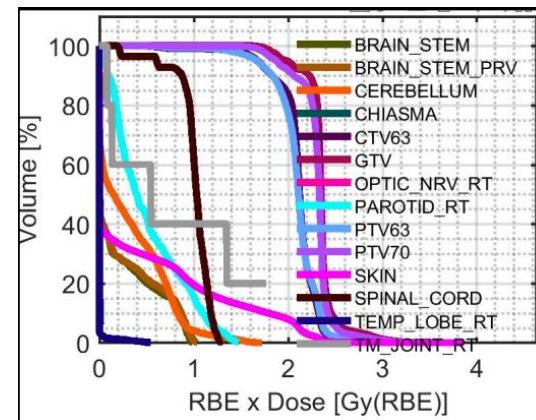
## Photon DVH



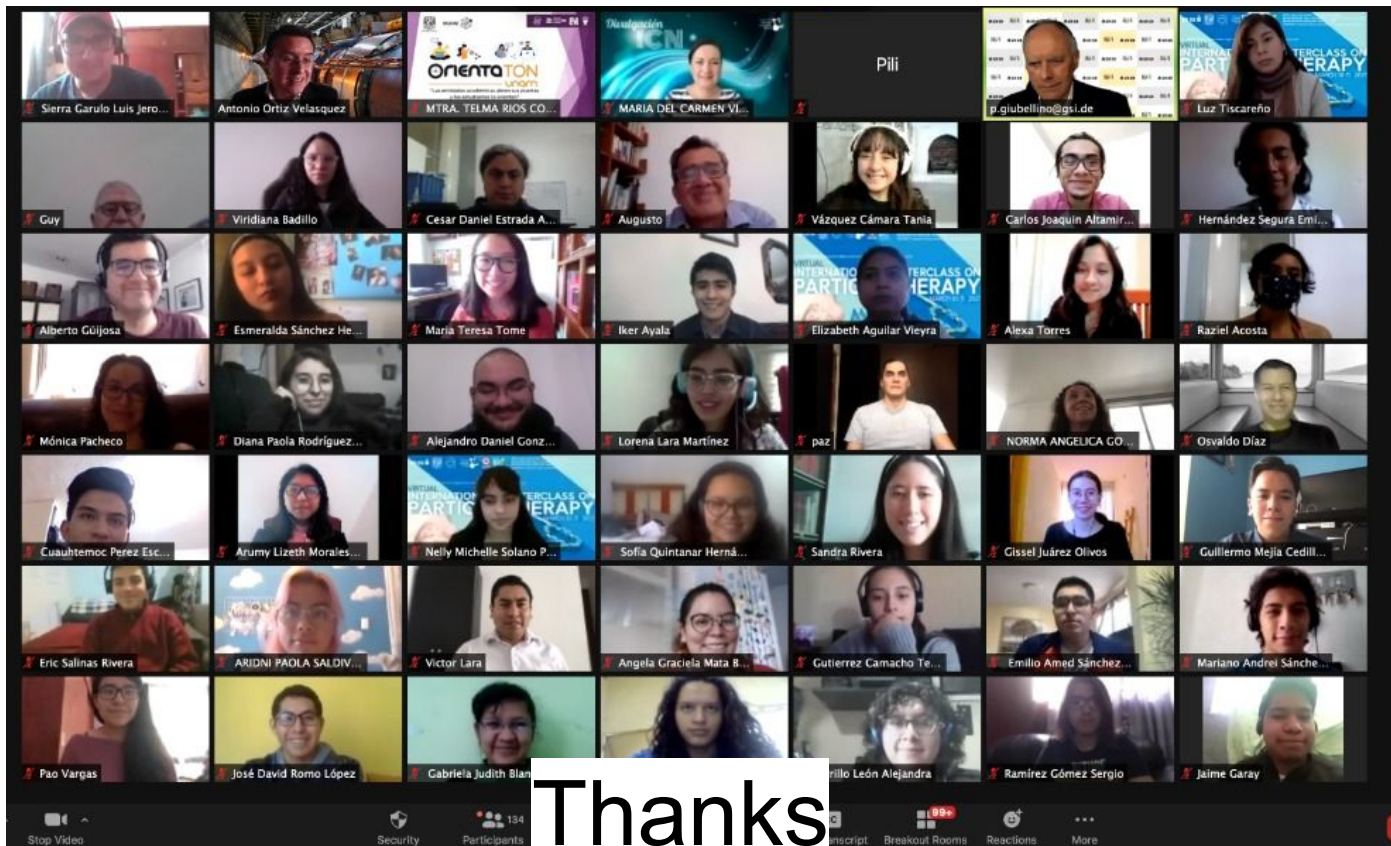
## Proton DVH



## Carbon ion DVH







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