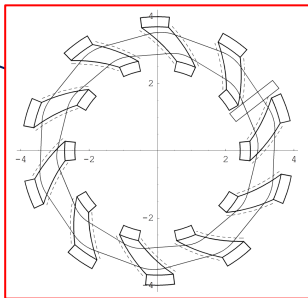
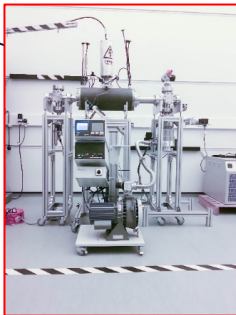


# BUSINESS PLAN

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Prepared for CCAP MB

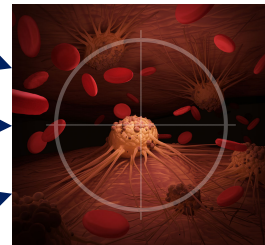
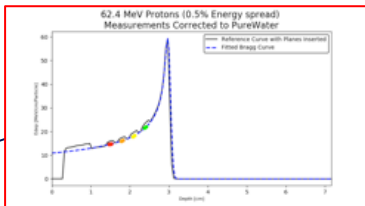
**Novel accelerator techniques**



**System: image processing  
fast feedback, control**



**Fundamental  
radiobiology**



# Business Plan development update

- **1<sup>st</sup> of necessary discussions 09Dec19; CXH:**
  - **E. Aboyage, D. Gujral, C. Hardiman, R. Mclauchlan, K. Long, M. Williams**
  - **Endorsed overall vision of organising principle:**
    - Drive paradigm shift for automated, personalized RT for long term (2040?)
  - **Focused on:**
    - Imaging – various modalities
    - Processing opportunities; including 3/4D reconstruction from lower-dimensional images
    - Imperial strengths in radiobiological research:
      - **In particular DESI, Raman spectroscopy ...**
- **Next steps:**
  - **Sister discussions at ICR and OIRO**
  - **Larger general discussion leading to completion of BP**
- **Goal for completion:**
  - **March 2020**

**Automated personalized,  
adaptive, photon, electron,  
proton, and ion-beam therapy**

Image processing

Rapid acquisition of CT images

Dosimetry

Combined strategies for pre-therapy imaging/planning:  
U/sound, PET, MRI, photo-acoustic, ...  
Generation of 3D information from 2D projections

Treatment planning

**LhARA**

**Pre-CDR will determine timescales and R&D plan**

Radiobiology and modelling (photon, electron, proton, ion)  
Study as function of time & space structure, ion species, energy ...

Imperial strengths:

DESI, Raman spectroscopy

Exploit to study toxicity, difference FLASH/routine

**Important to generate discussion leading to strategy**

**Elucidation of mechanisms  
that determine the impact of  
ion particle beams  
on tissue**

