Angeles Faus-Golfe (IJClab IN2P3-CNRS)

Task12.1.2: Novel Forms of Radiotherapy

CHALLENGES IN RADIOTHERAPY

New RT approaches

RT treatment of some radio resistant tumours, paediatric cancers and tumours close to delicate structure (i.e. spinal cord) is currently limited

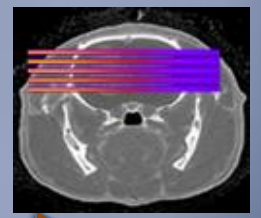
One of the main challenges is to find approaches to increase the normal tissue resistance

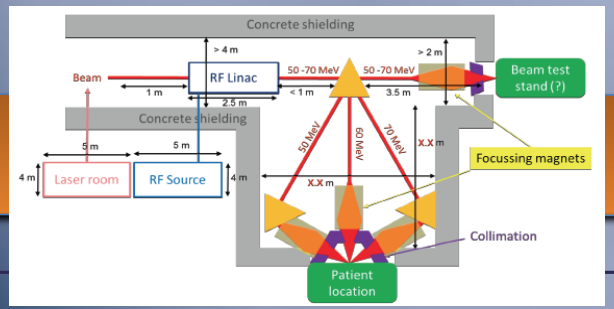
Standard RT is restricted to the few temporal and spatial schemes, dose rates, broad field sizes: mainly photons, 2 Gy/session, 1 session/day, 5 days/week, dose rates ~ 2 Gy/min, field sizes > 1 cm², homogeneous dose distributions

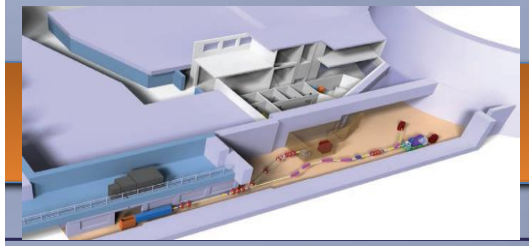
Possible strategies to spare normal tissue

Different particle types: Very High Energy Electrons (VHEE)

Different dose delivery methods: Grid Mini-beam or FLASH RT





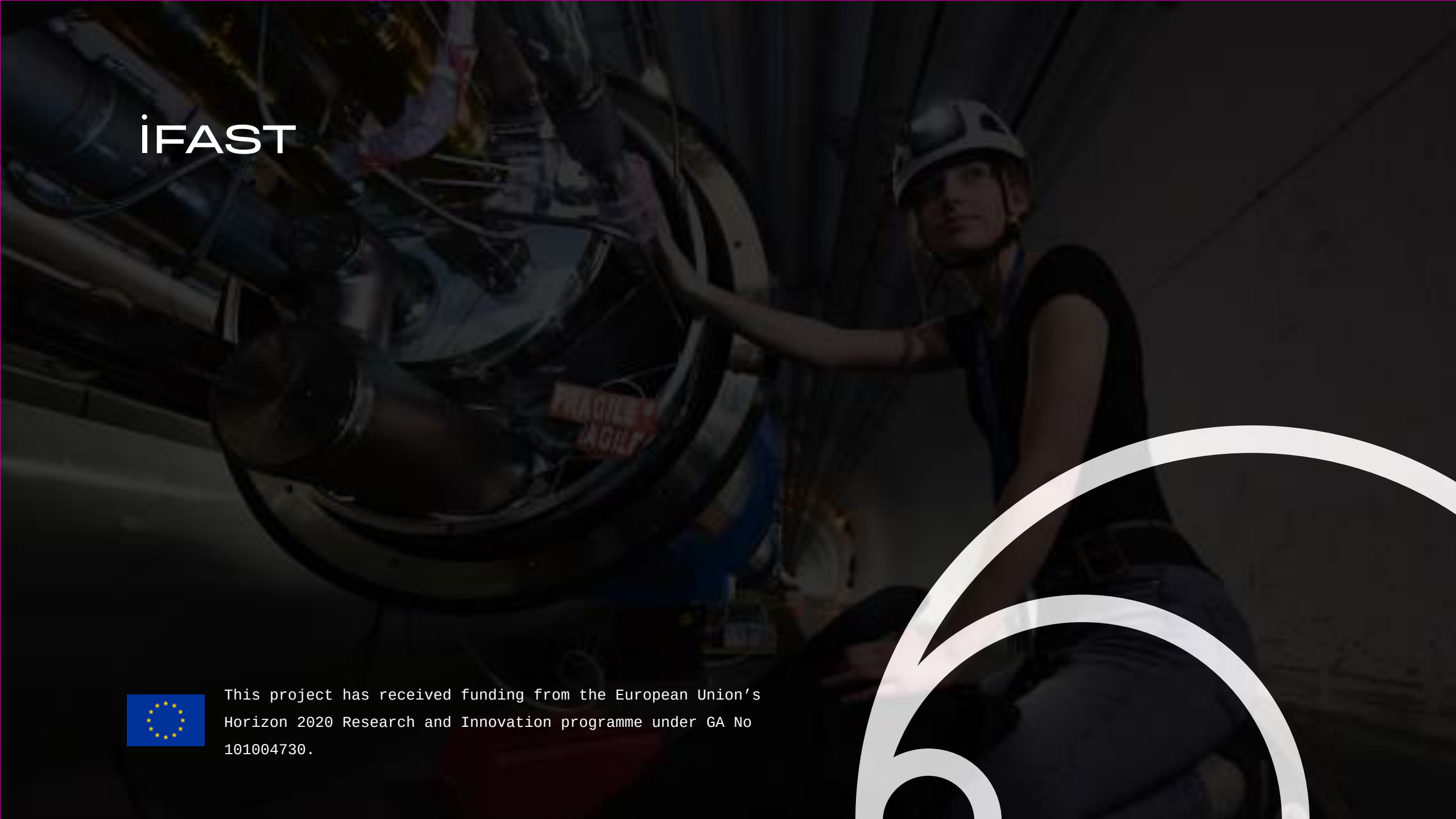


Task12.1.2: Novel Forms of Radiotherapy

- Study novel forms of RT that could bring substantial improvements
  - Examples:
    - Mini-beams with electrons and protons
    - Flash with electrons and protons
    - More cost-effective therapy with ions
    - Boron Neutron Capture Therapy
    - Combined particle treatments and flexible machines.
    - Etc
- Accelerator technology to deliver these novel concepts

Task 12.1 - Sub-Task 2: Novel forms of Radiotherapy M1 – M48 (CNRS)

- Study the novel forms of radiotherapy for cancer treatment with the aim of developing a roadmap for the innovation
- Develop a strategy to deliver a roadmap (brainstorming writing meeting/workshop with identified experts, accelerator dedicated workshop…)
- Study the barriers which discourage the use of these new techniques in industry in collaboration with medical doctors as users



This project has received funding from the European Union’s Horizon 2020 Research and Innovation programme under GA No 101004730.