

# Particle Accelerators

## Probing the infinitely small

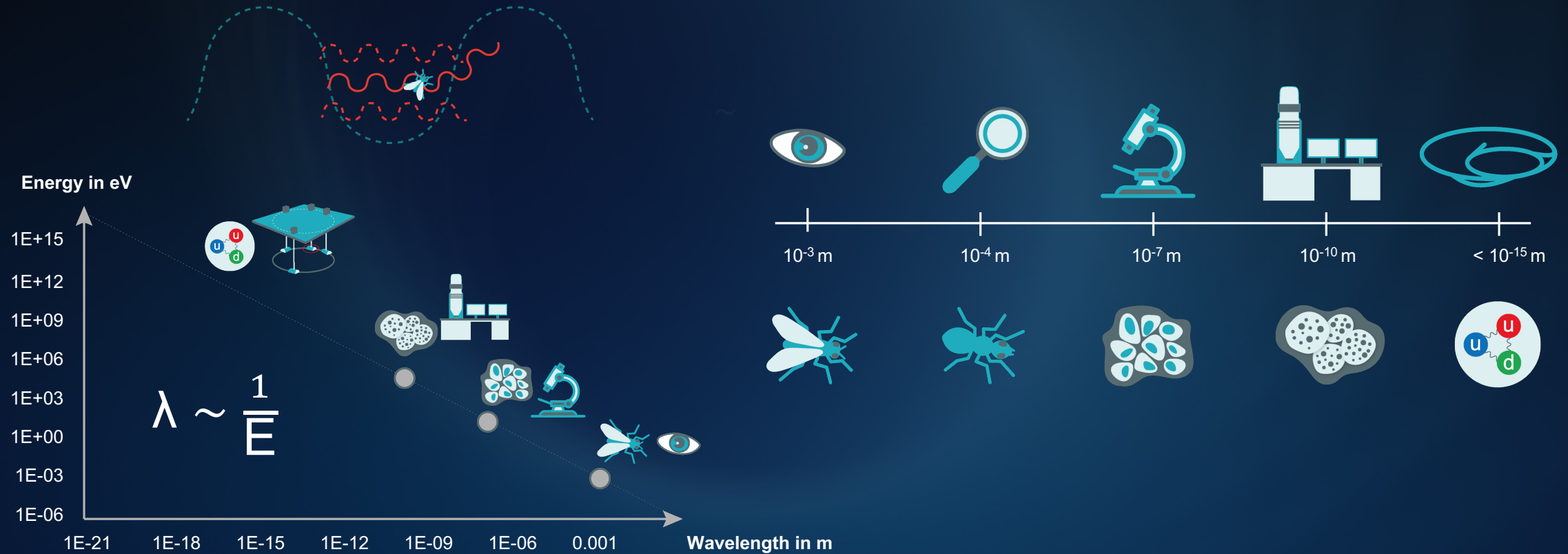
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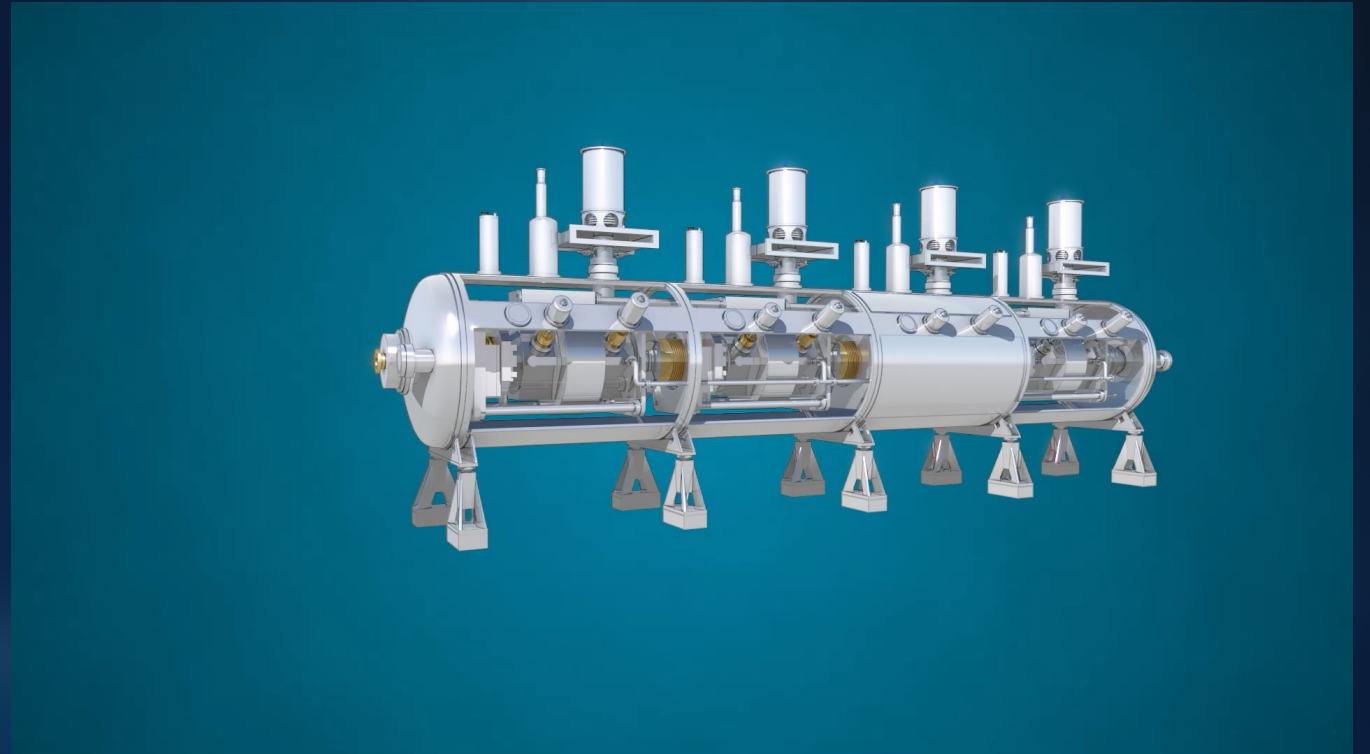


# Energy and wavelength

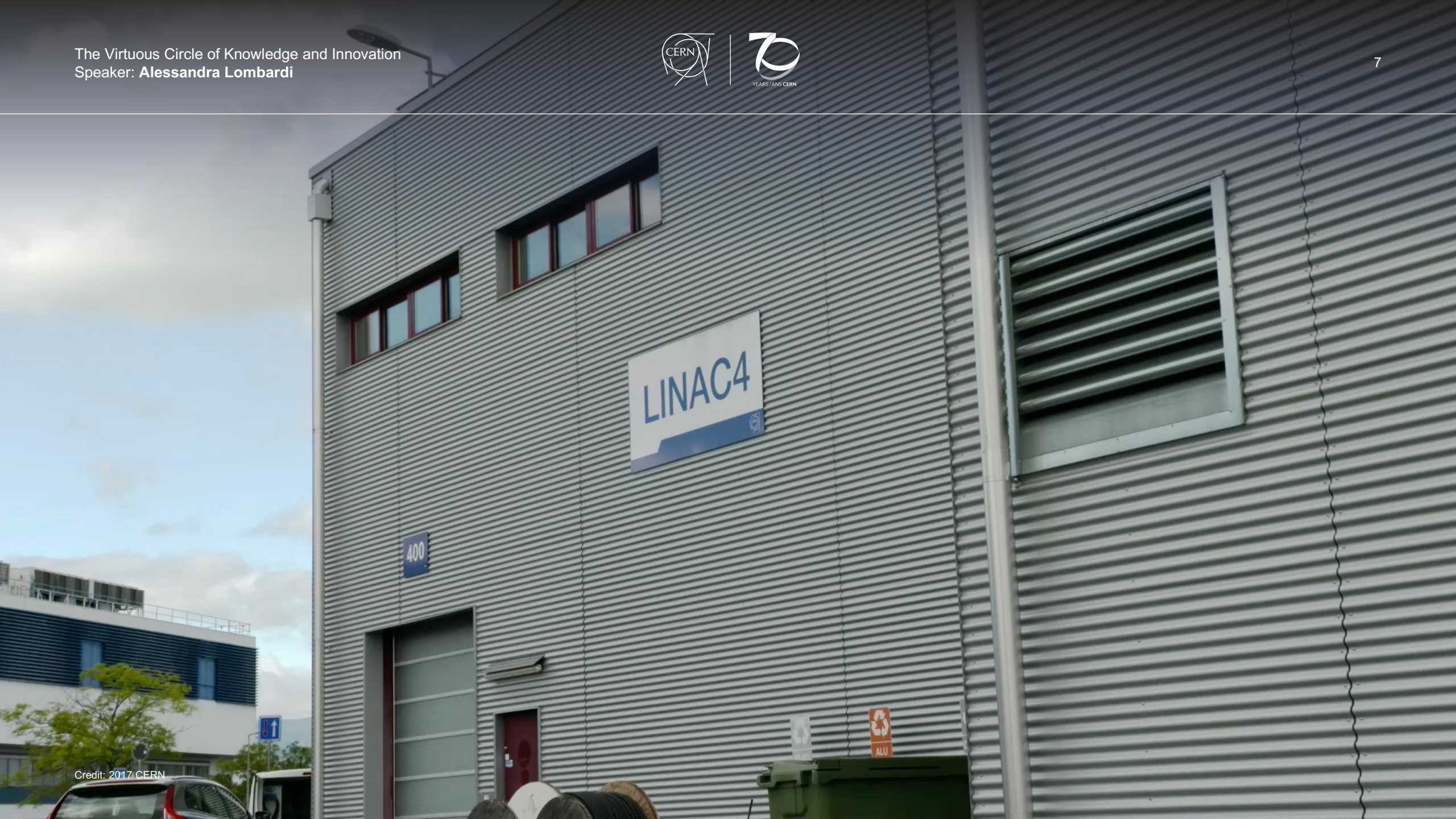


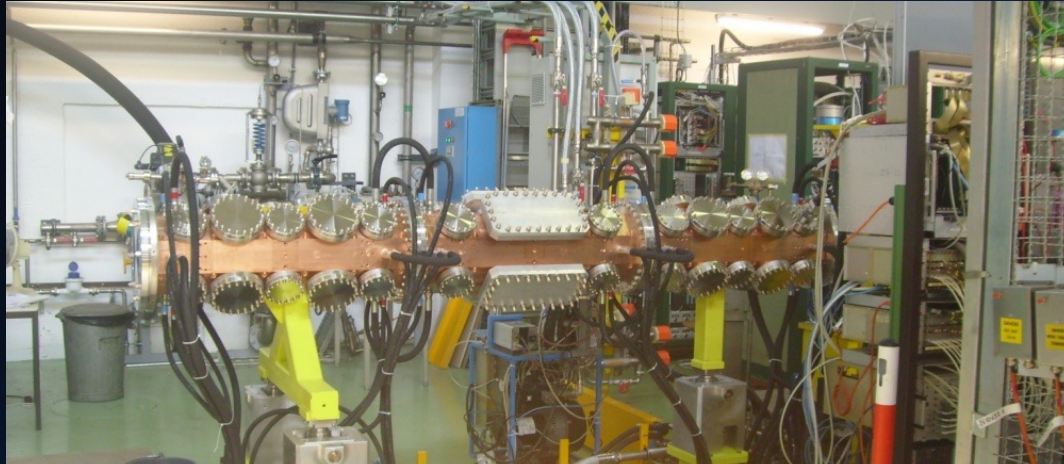


# Accelerators challenges and key technologies

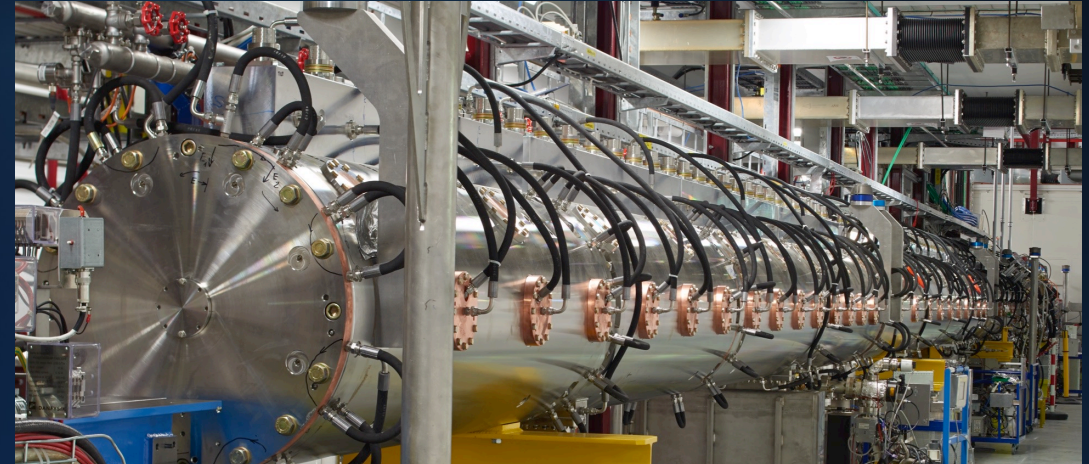


# Challenges for future Accelerators





Radio Frequency Quadrupole



Drift Tube Linac



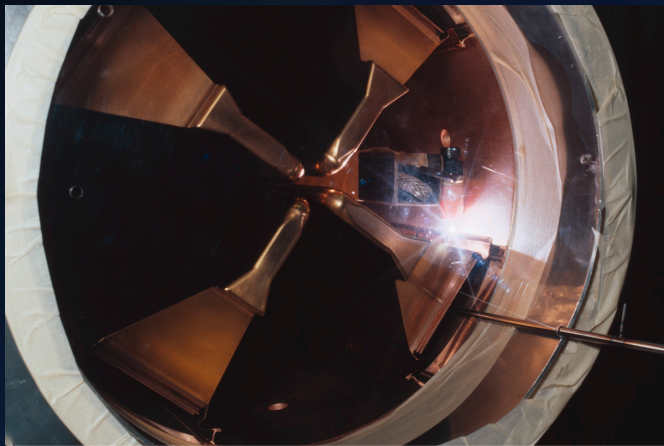
Cell-coupled DTL



PI-mode Structure

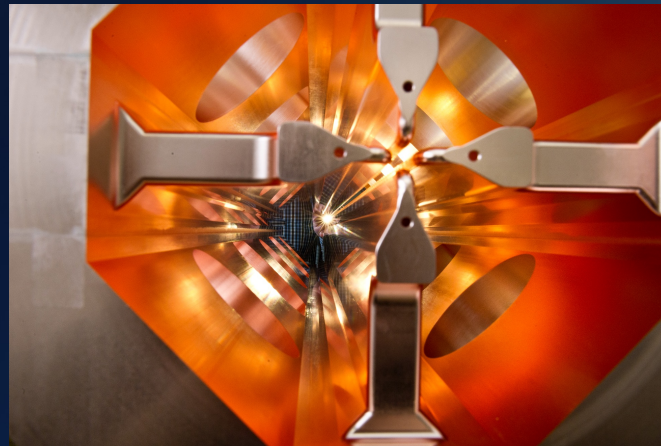


# Path towards industrialisation



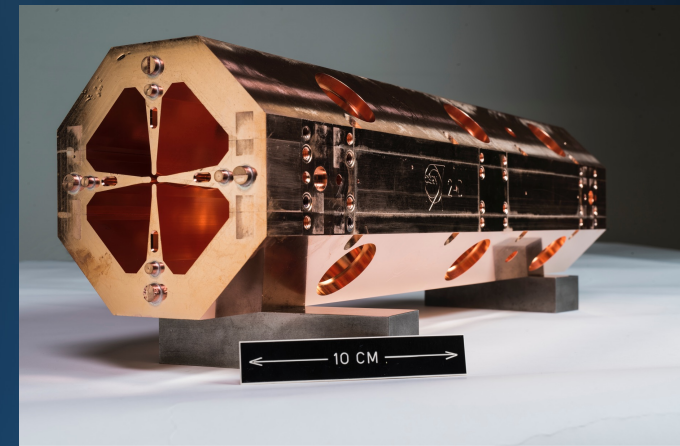
## 1990 – LINAC2 RFQ2

200 MHz  
0.5 MeV /m  
Weight : 900kg/m  
Ext. diametre : ~45 cm  
Beam current: 200 mA



## 2007 – LINAC4 RFQ

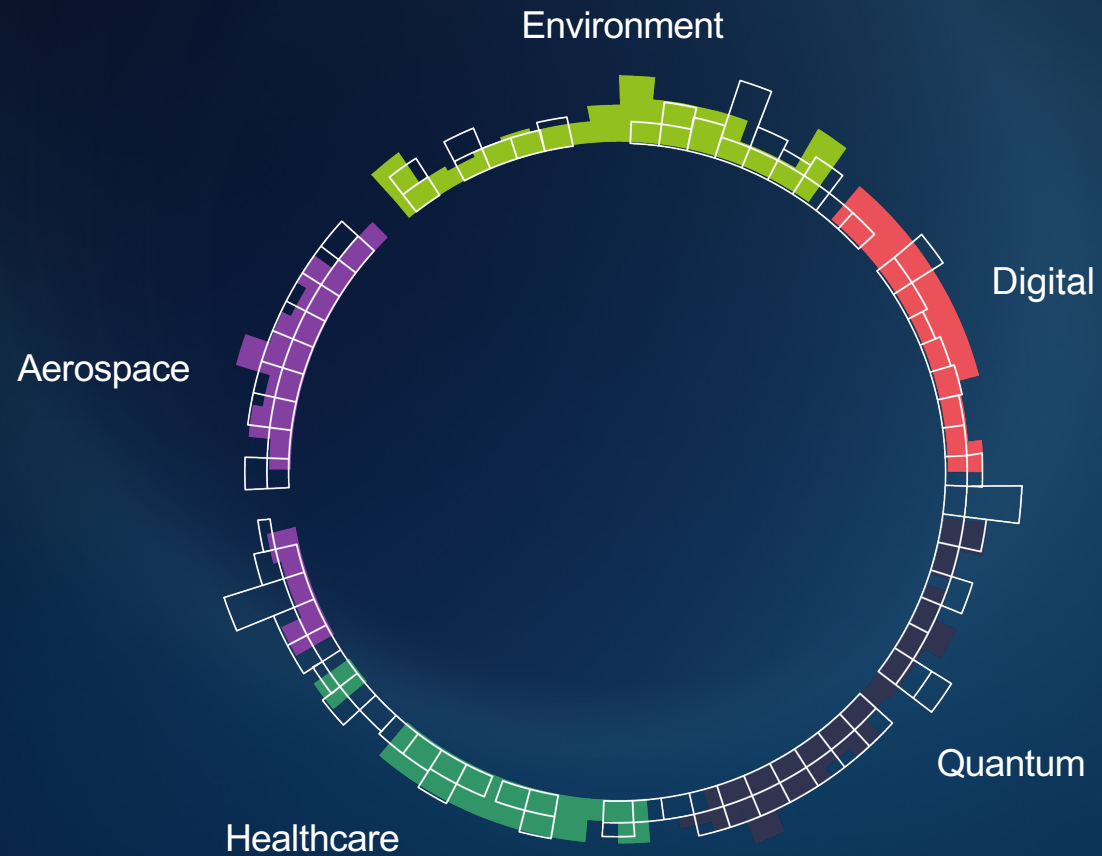
352 MHz  
1MeV/m  
Weight : 400kg/m  
Ext. diametre : 29 cm  
Beam current : 80 mA



## 2014 – HF RFQ

750MHz  
2.5MeV/m  
Weight : 100 kg/m  
Ext. diametre : 13 cm  
Beam current : 0.1 mA

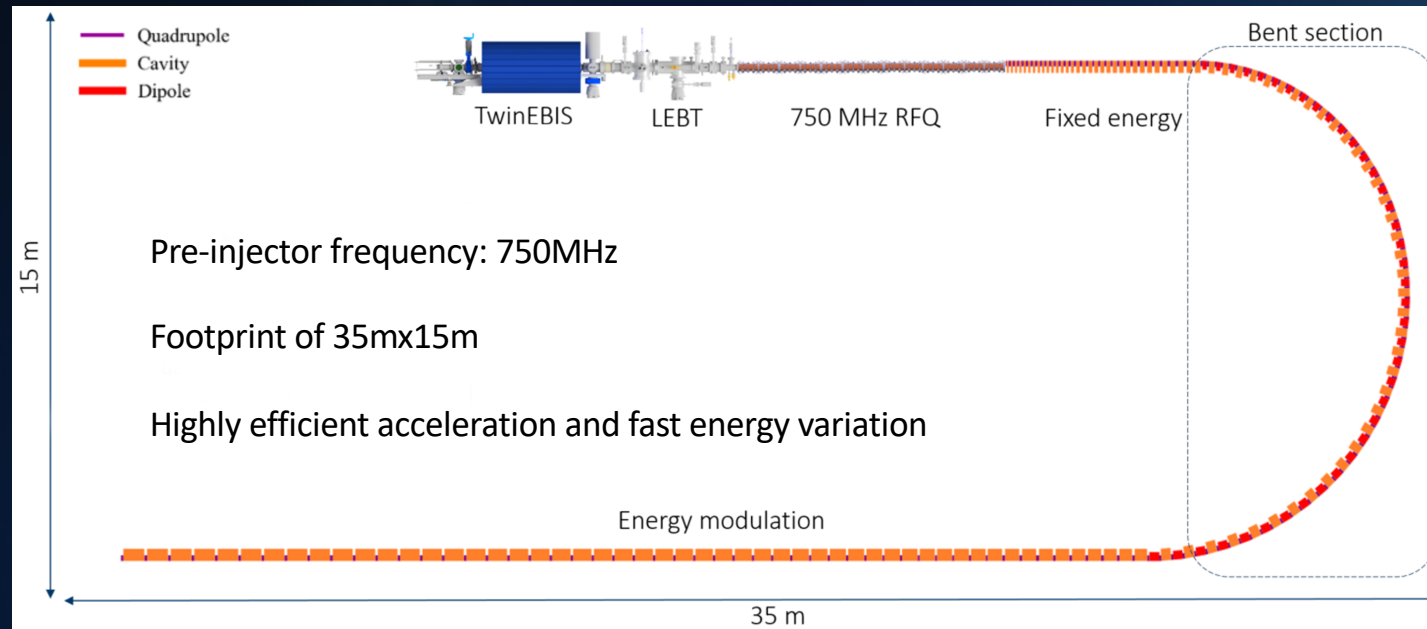
# Application of low-energy accelerators



# NEXT challenge: accelerate Carbon in a LINAC

## Bent LINAC

Interlaced cavity-dipole scheme



# MACHINA: accelerating art diagnostics



# ELISA: Experimental Linac for Surface AnalIsis

