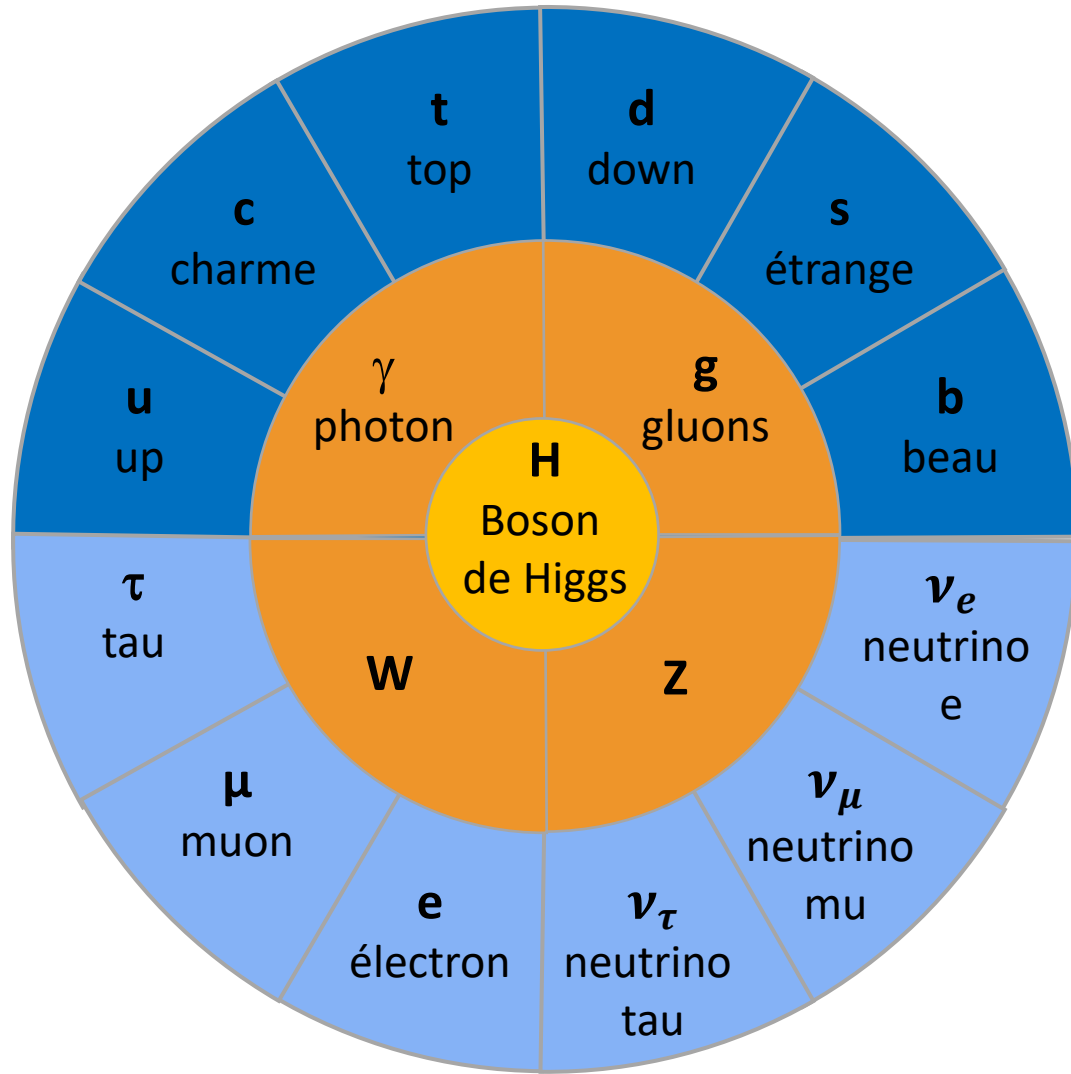


La chasse aux bosons (massifs)

En partenariat avec

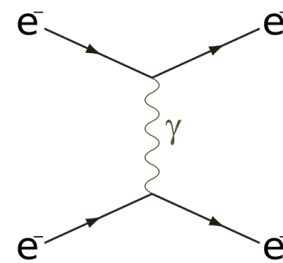
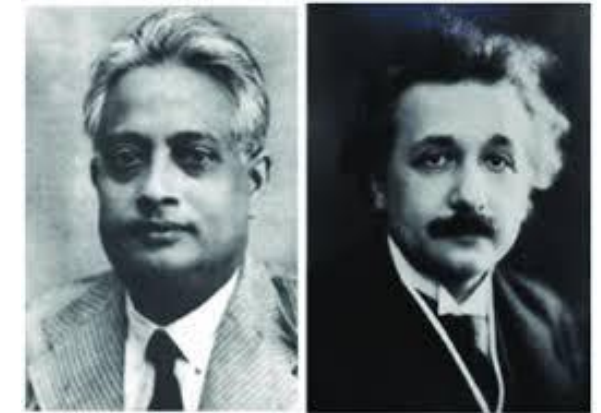




Fermions

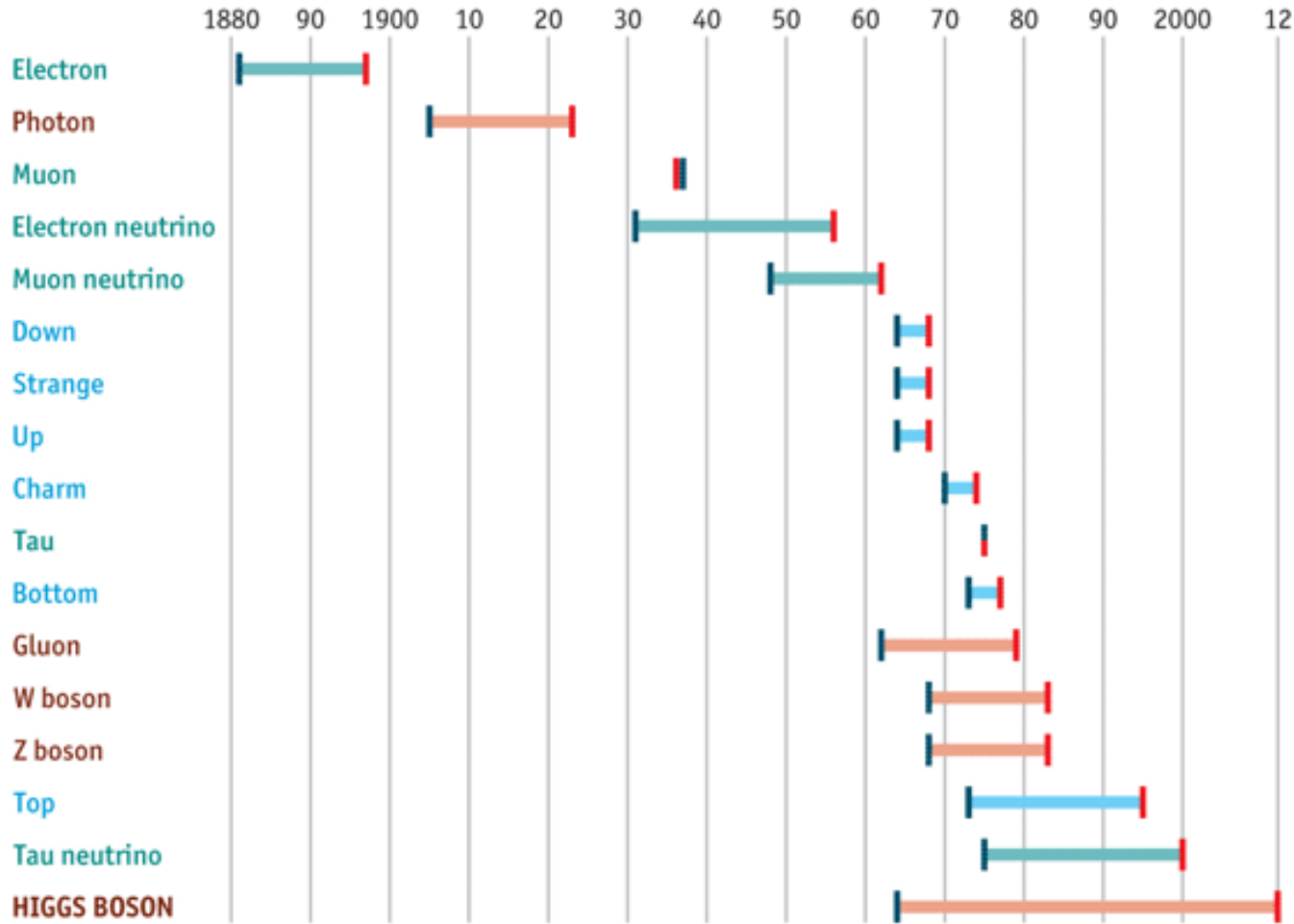
&

Bosons



The Standard Model of particle physics

Years from concept to discovery

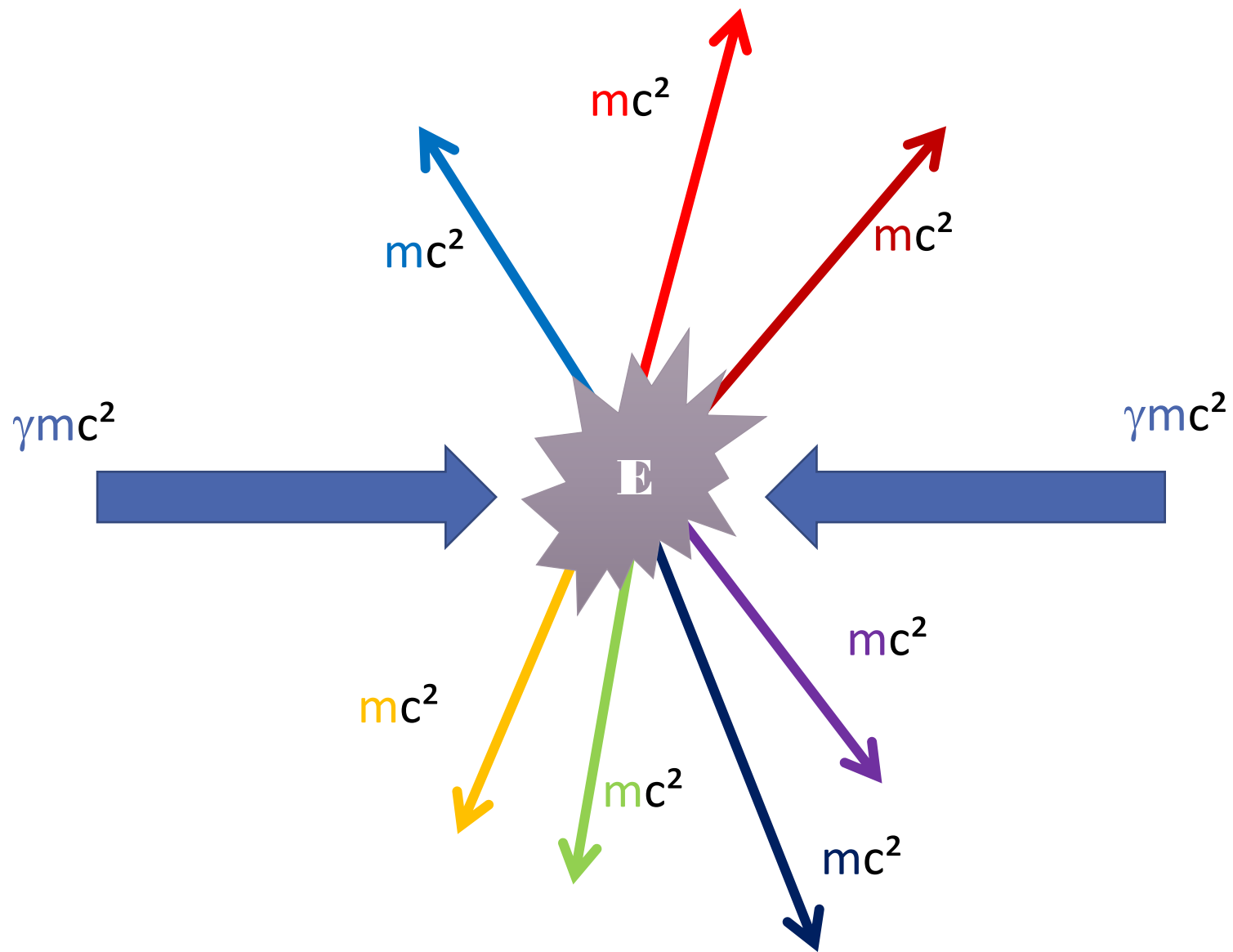


Source: *The Economist*

Instable

Massif

Rare

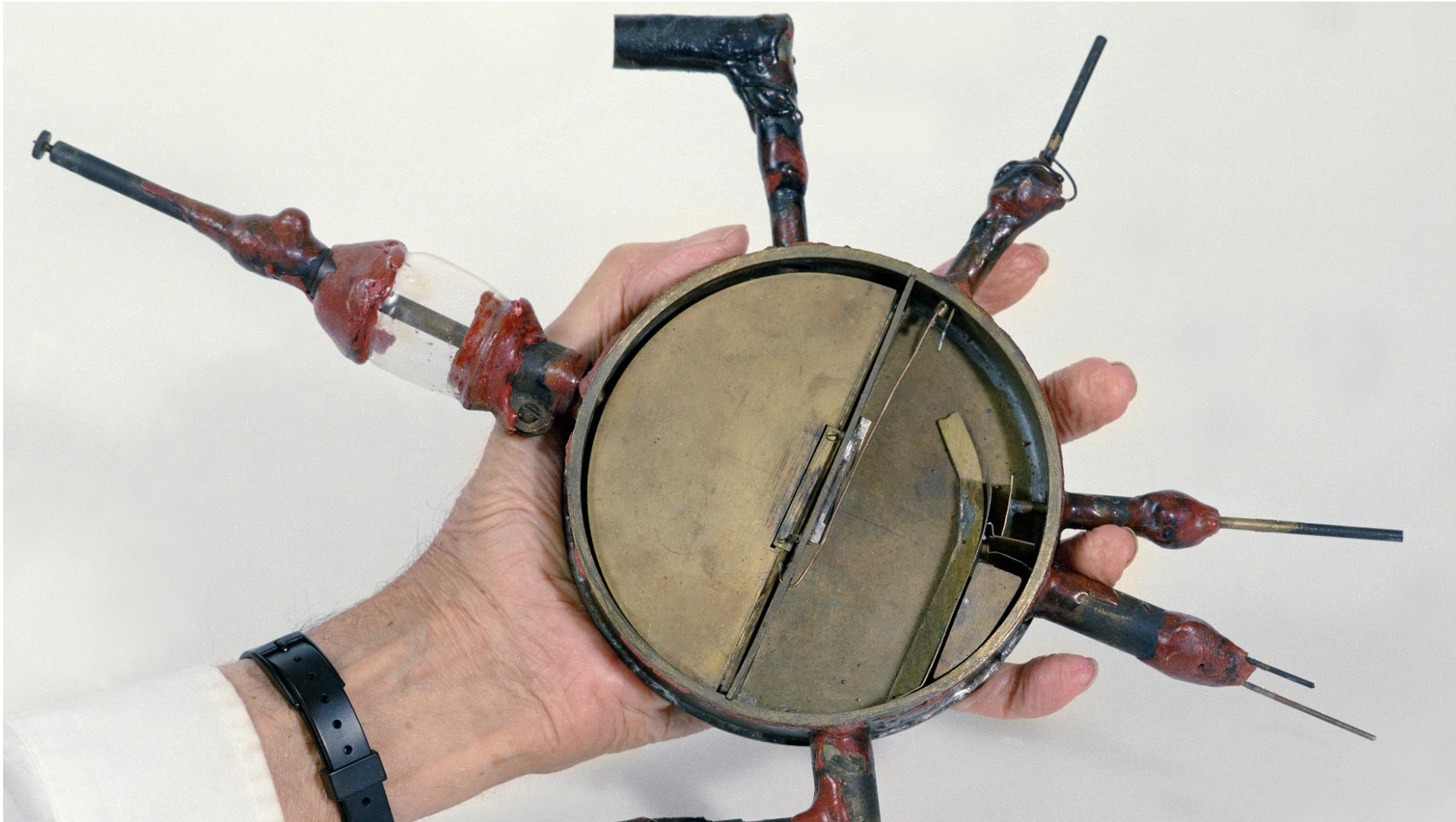


Instable

Massif

Rare

1930



Premier cyclotron 11 cm de diamètre 1 MeV
Lawrence Berkeley National Laboratory Photo Archives

$$1 \text{ MeV} = 0,16 \cdot 10^{-12} \text{ J} = 0,038 \cdot 10^{-15} \text{ kcal}$$

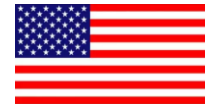
$$1 \text{ GeV} = 1\,000 \text{ MeV}$$

$$1 \text{ TeV} = 1\,000\,000 \text{ MeV}$$



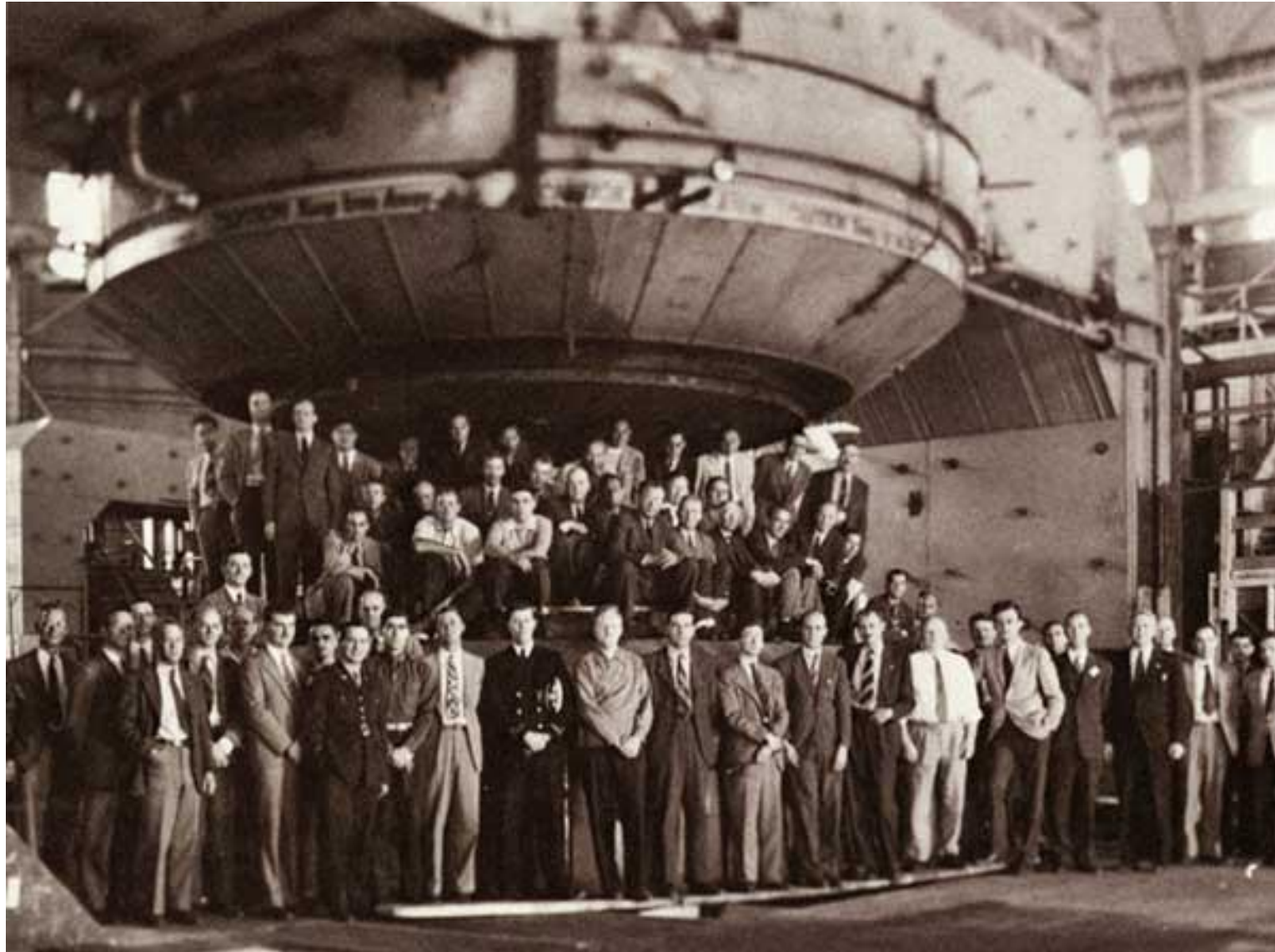
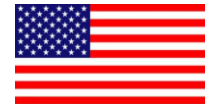
$$1 \text{ carré de chocolat} = 40 \text{ kcal} = 10^{18} \text{ MeV} = 1 \text{ milliard de milliard de MeV}$$

1935



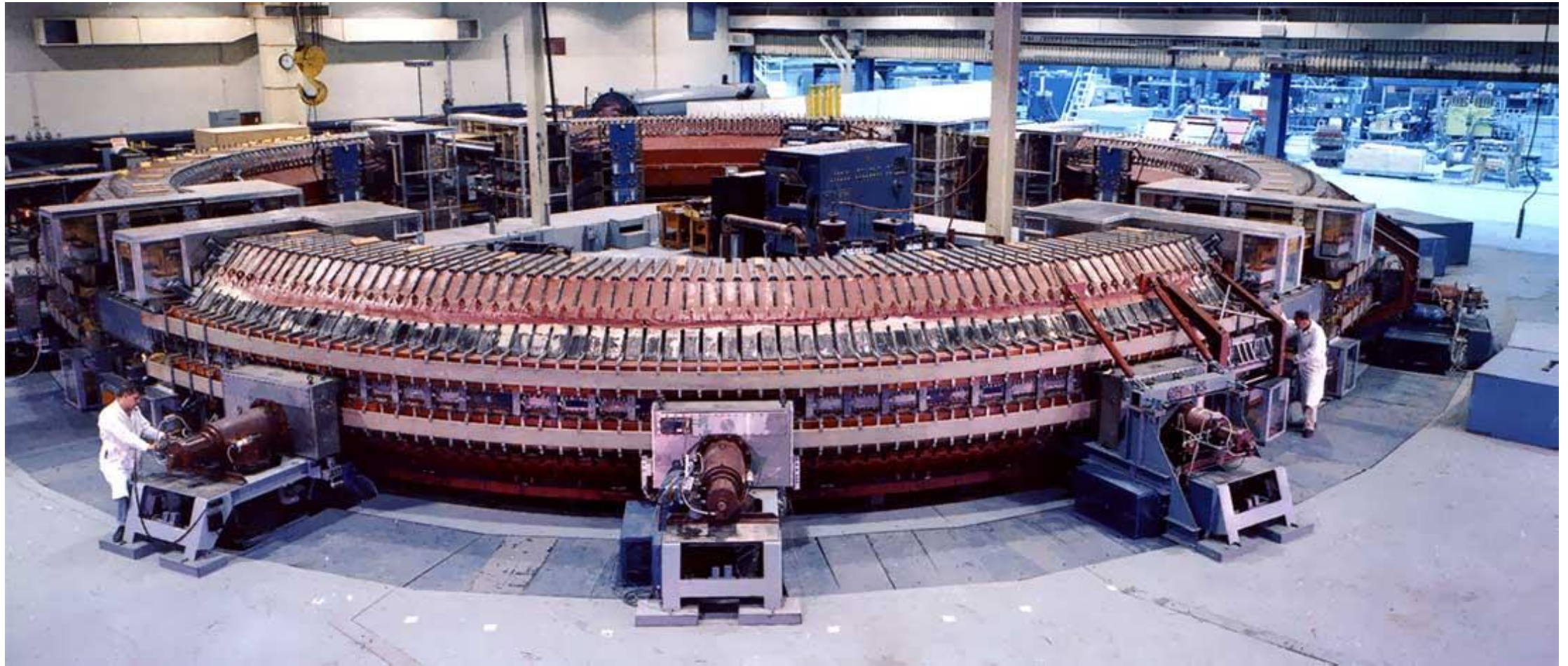
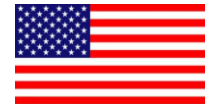
Cyclotron 0,94 m de diamètre 8 MeV
Lawrence Berkeley National Laboratory

1946



Cyclotron 4,67 m de diamètre 100 MeV
LBL News Magazine

1952



Cosmotron 23 m, 3,3 GeV
Brookhaven Lab

1957

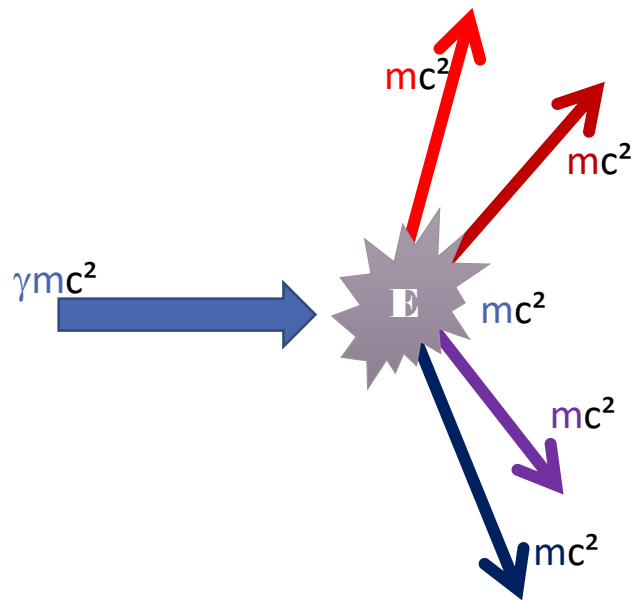


Synchrocyclotron 600 MeV 7,2 m de diamètre @CERN

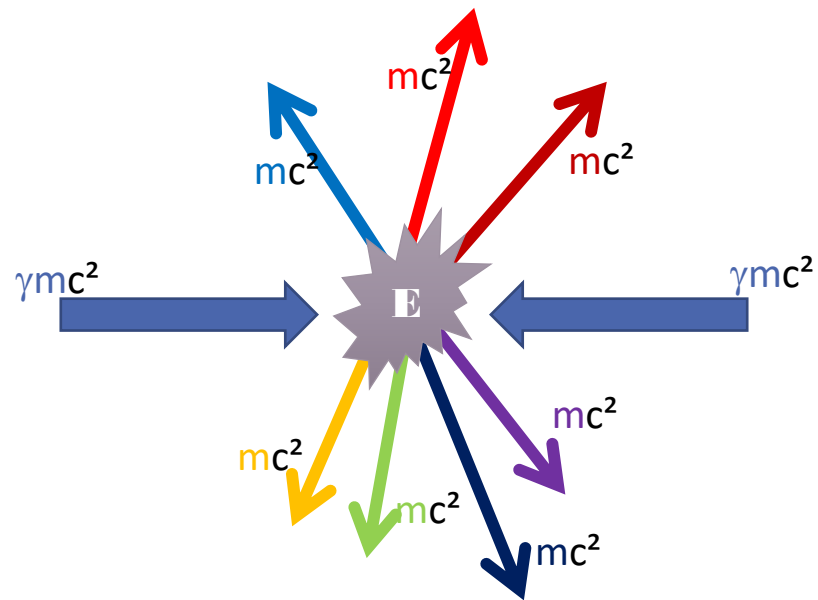
1959



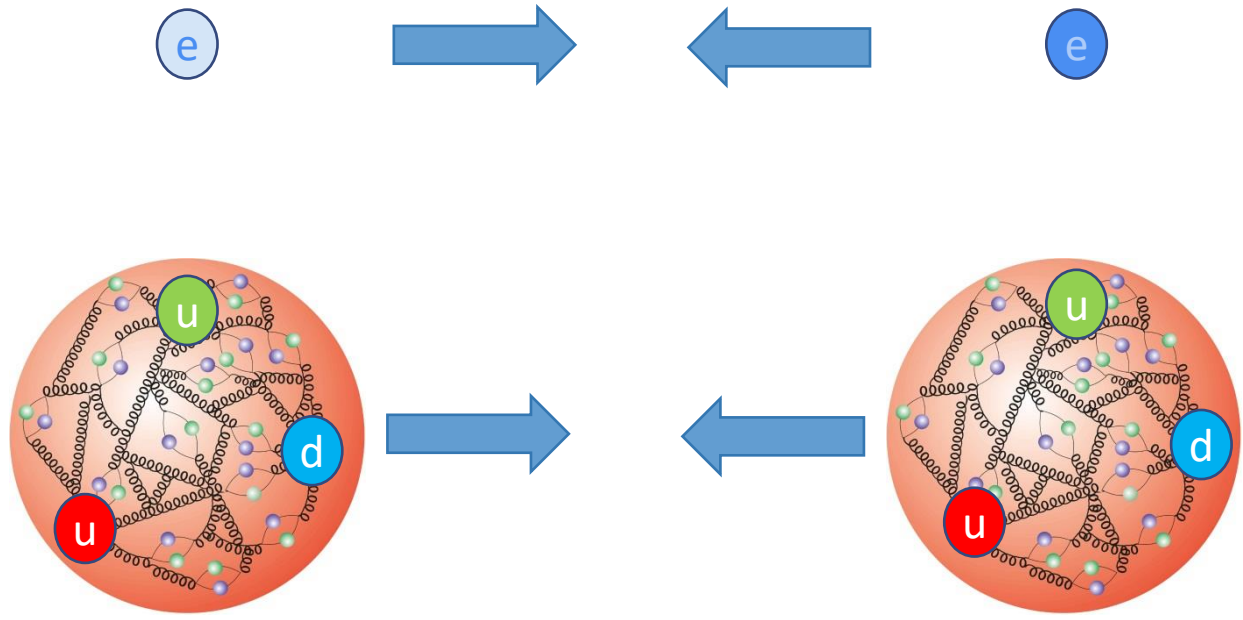
Proton Synchrotron 200 m de diamètre 25 GeV
@ CERN



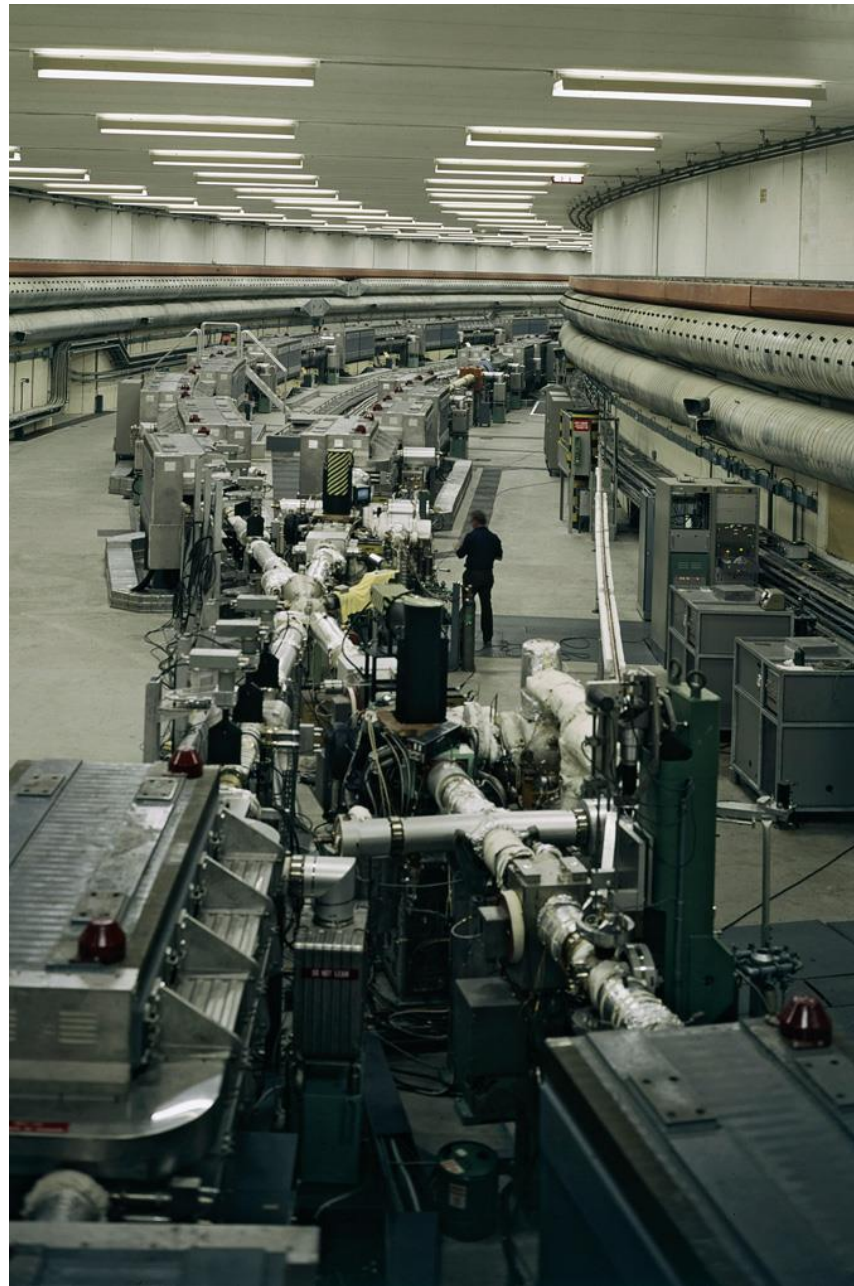
$$\sqrt{2E_{\text{faisceau}}}$$



$$2E_{\text{faisceau}}$$

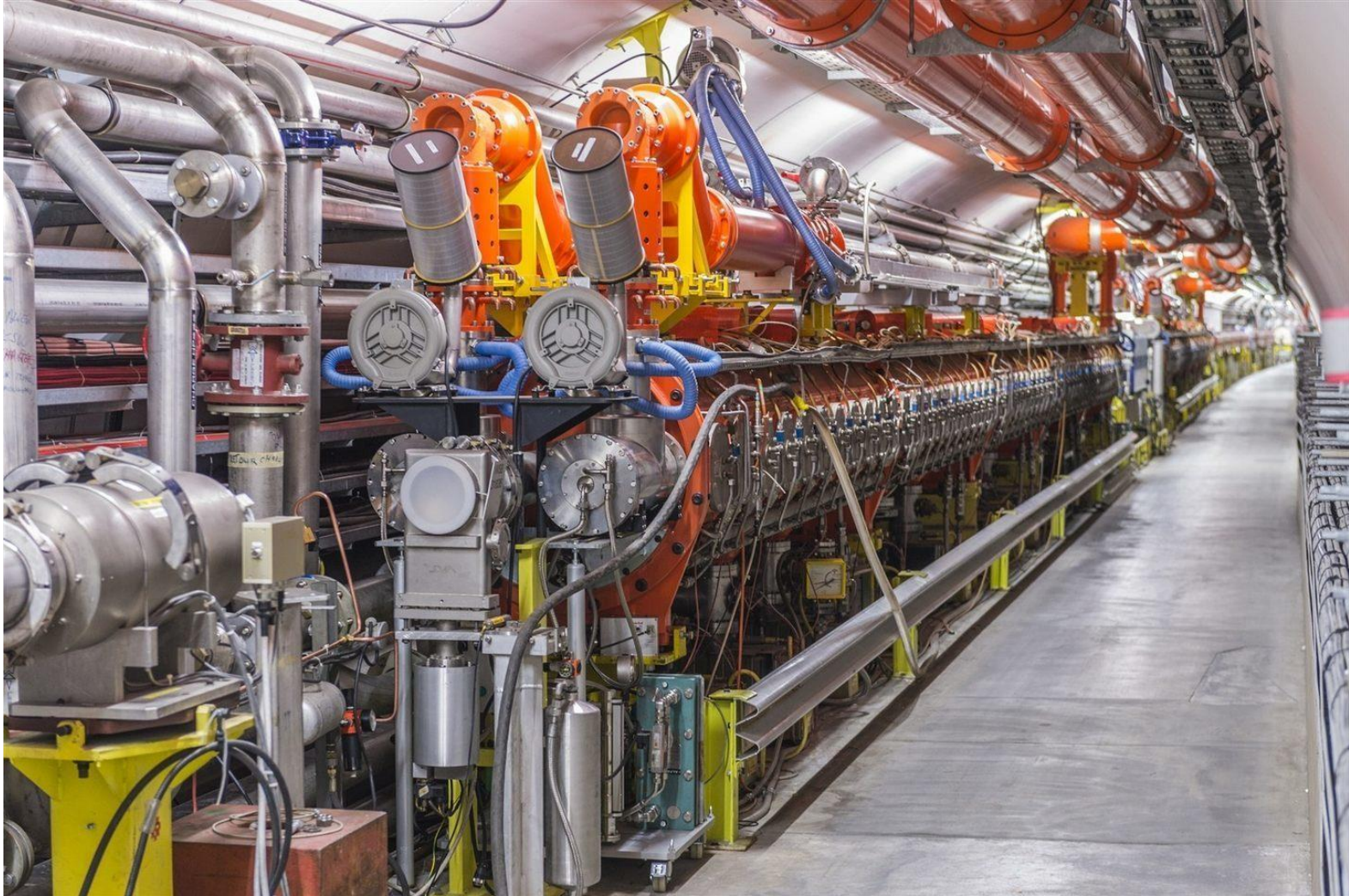


1971

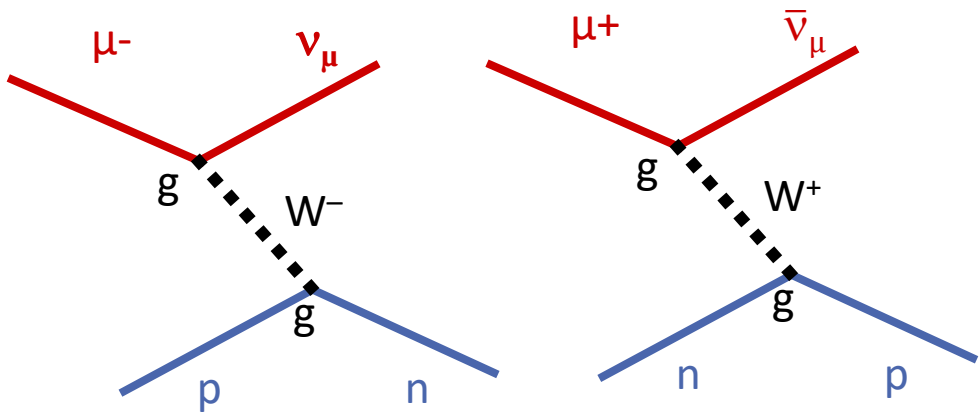
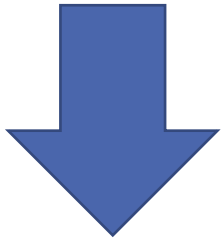
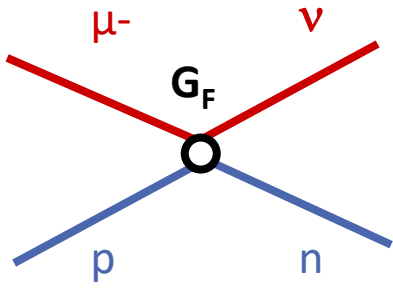


Intersecting Storage Rings, ISR 1^{er} collisionneur de protons
2 x 300 m de diamètre, énergie max de collision 62 GeV @CERN

1976



Super Proton Synchrotron, 7 km de circonférence (2,2 km de diamètre) protons à 450 GeV @CERN



$M_W \sim 100 \text{ GeV}$

$M_Z \sim 100 \text{ GeV}$

1973



1976

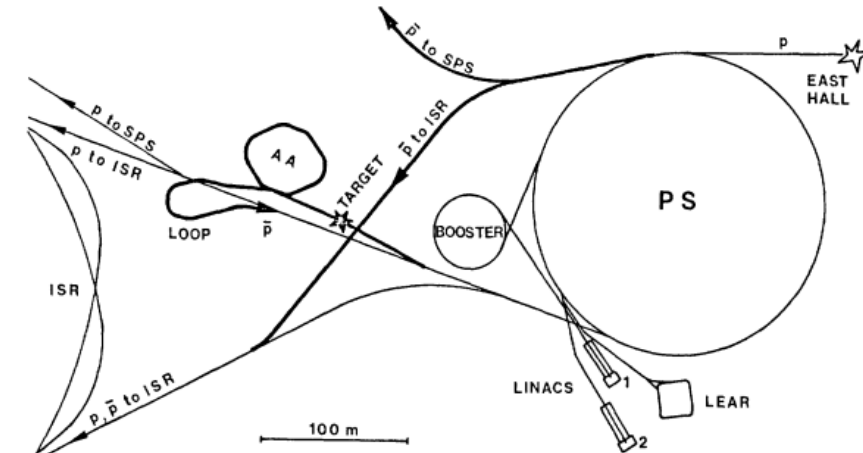
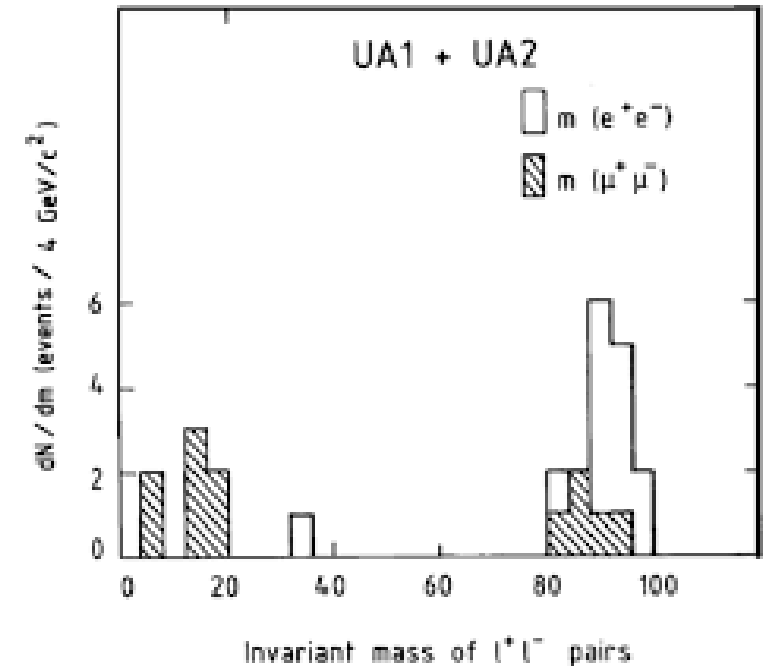
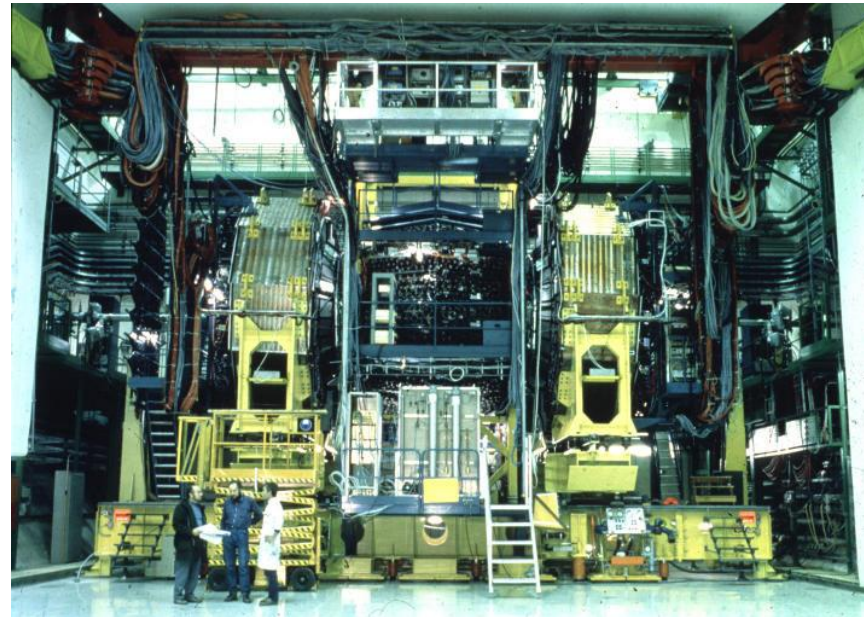
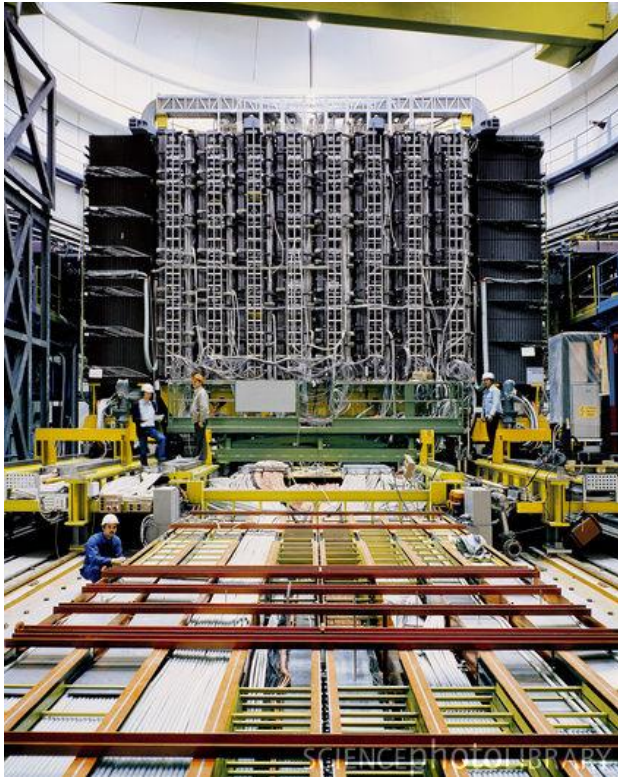


Fig. 1 - The PS Complex. New constructions for the $p\bar{p}$ project in thick lines.

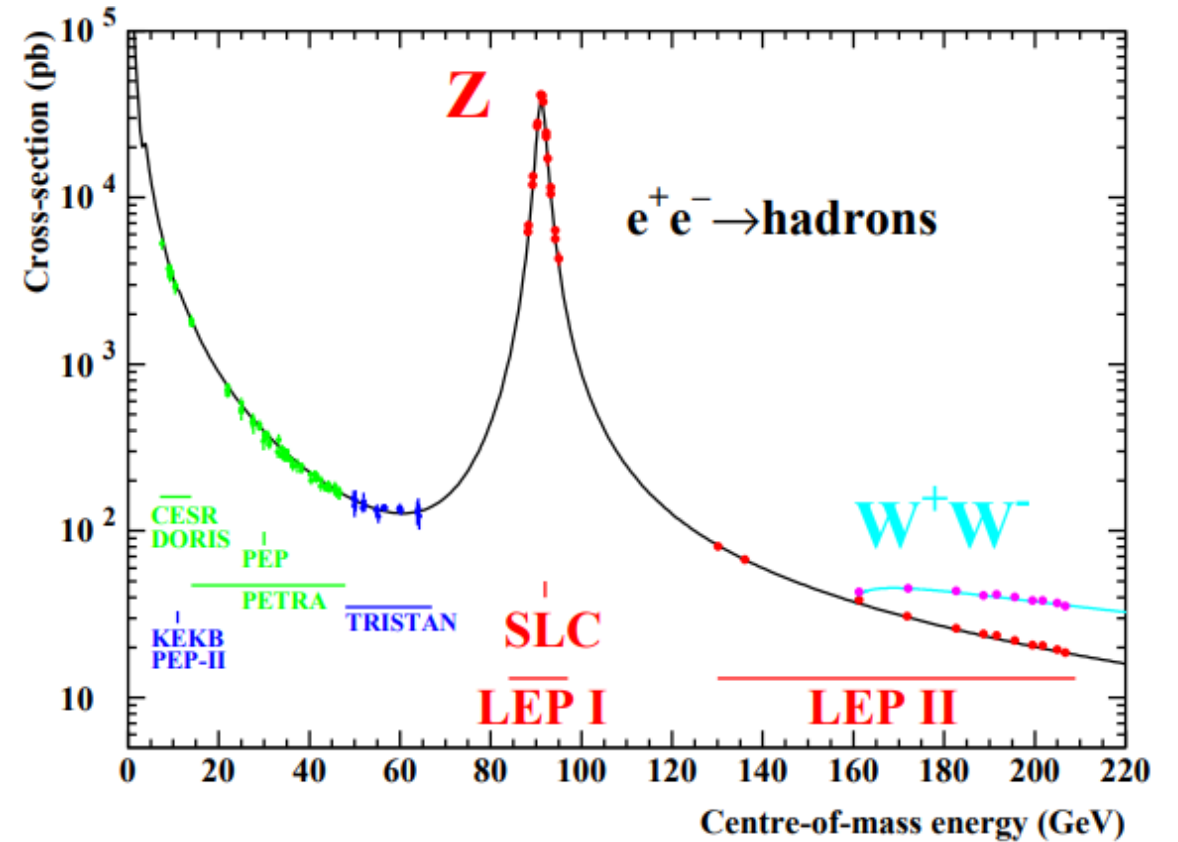
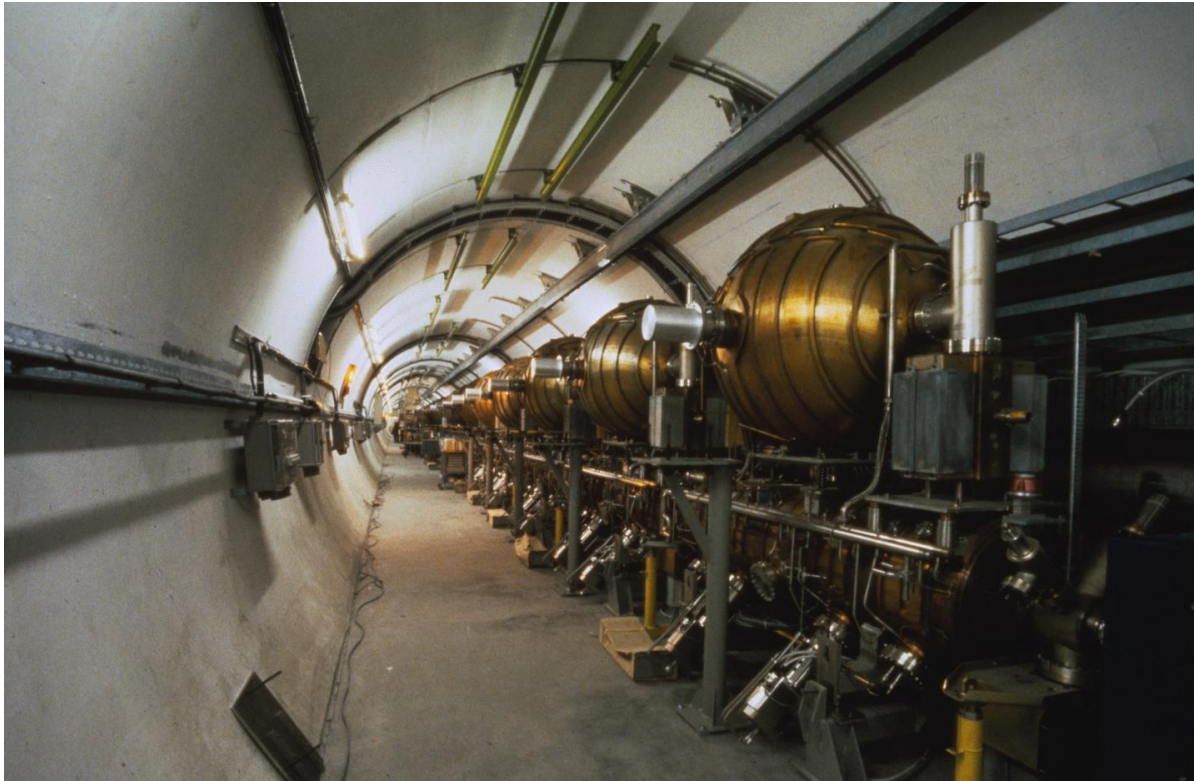
1983



$$m_Z = 93.0 \pm 1.7 \text{ GeV}$$

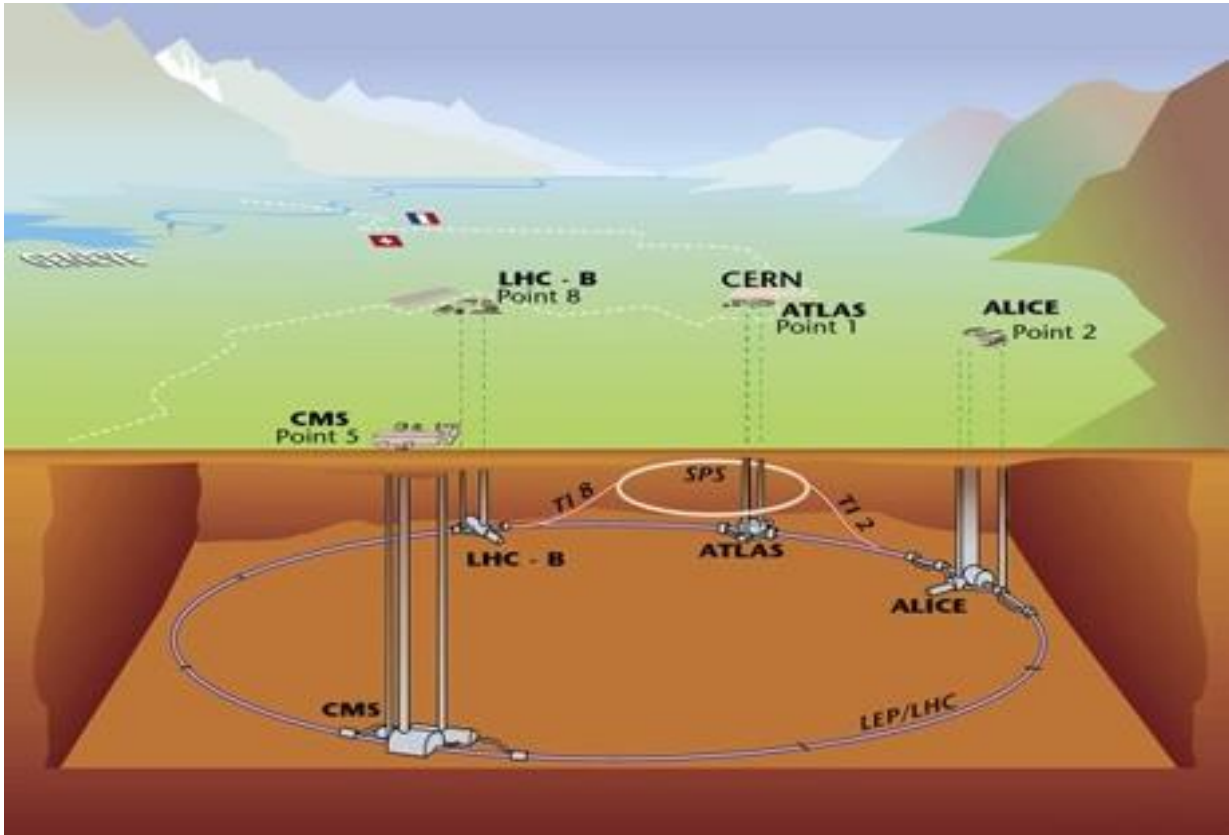
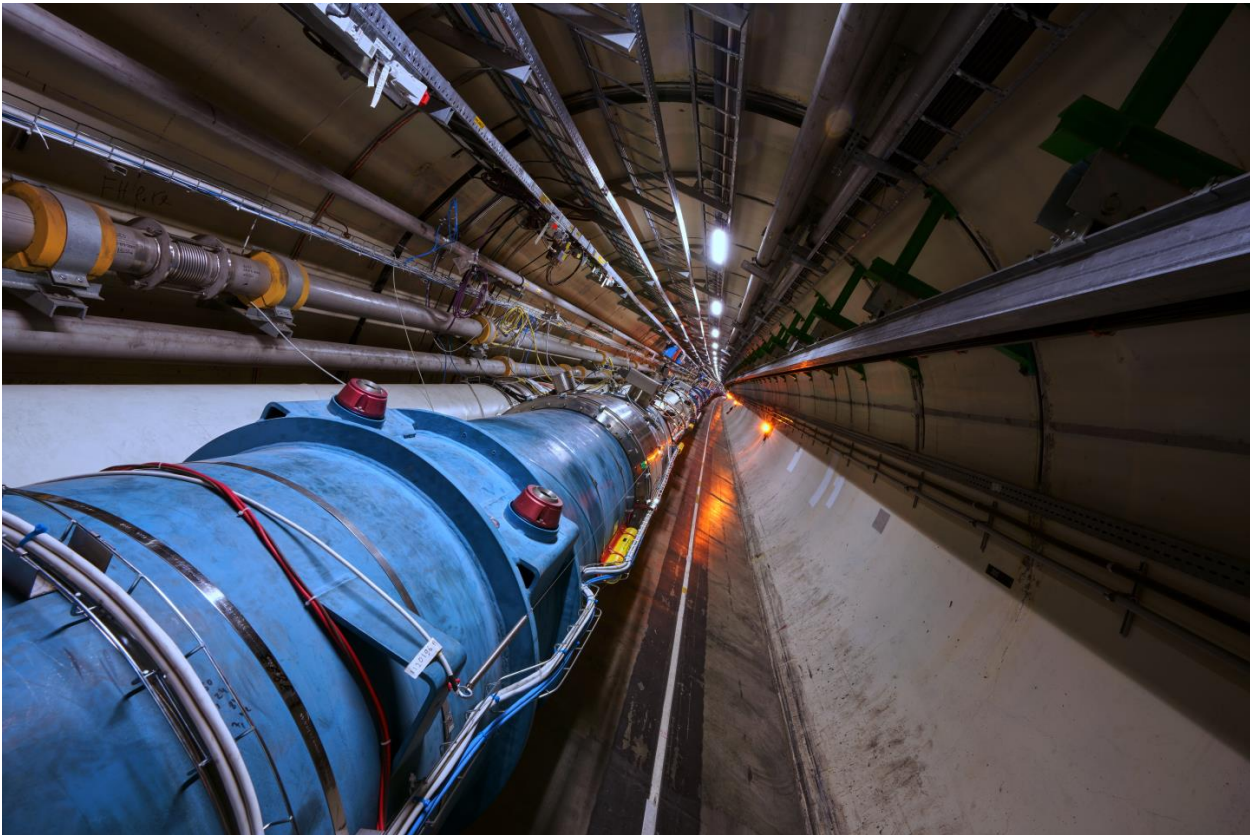
$$m_W = 82.1 \pm 1.7 \text{ GeV}$$

1989

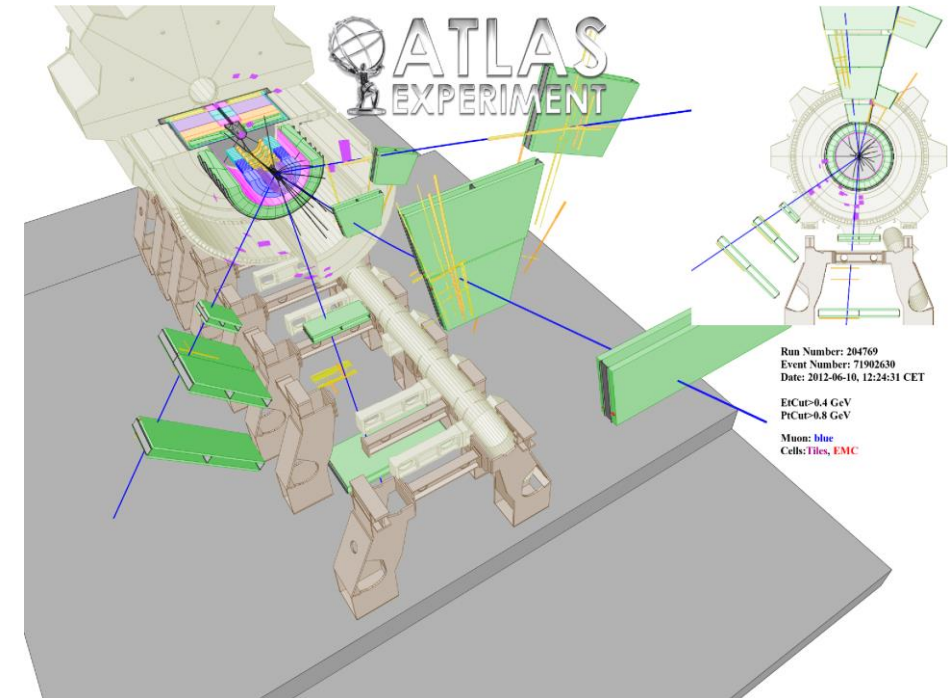
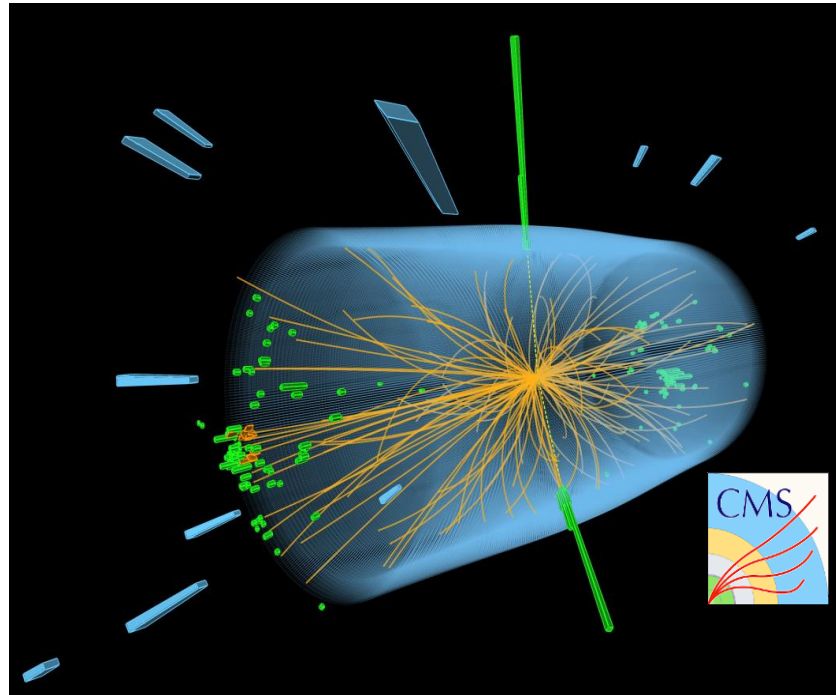


$$m_Z = 91.1876 \pm 0,0021 \text{ GeV}$$

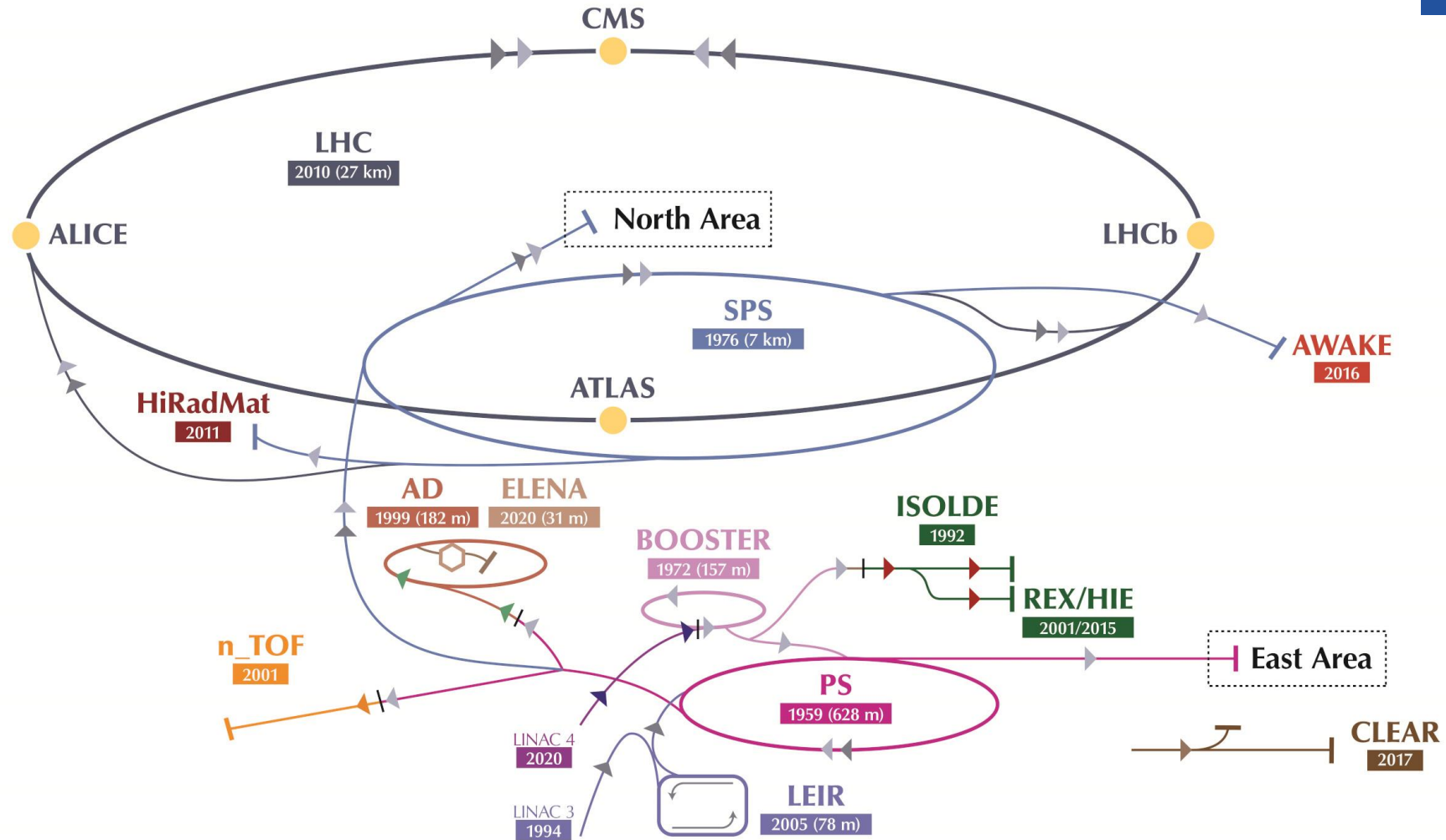
2010



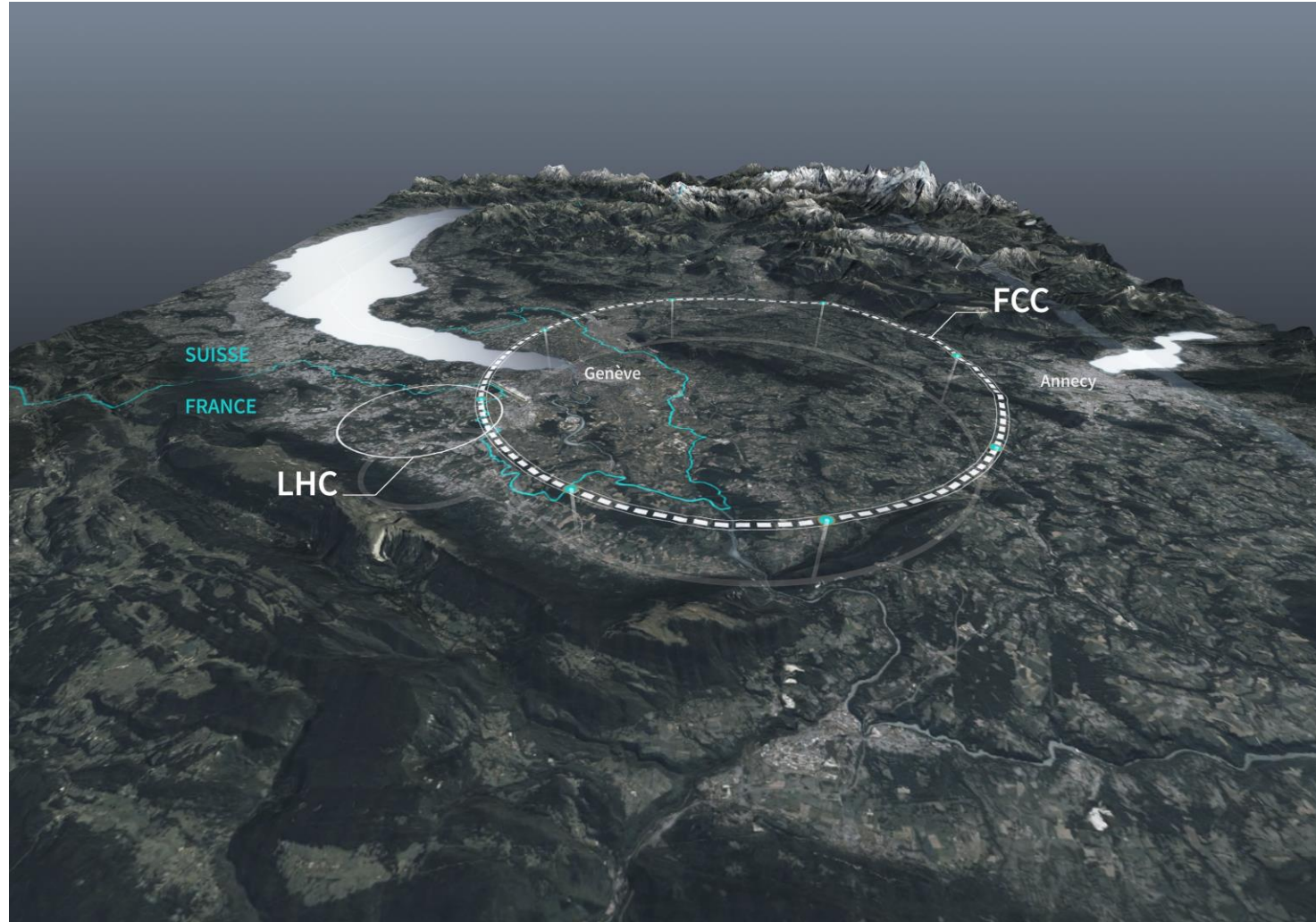
2012



2024



futur



Merci de votre
attention !

En partenariat avec

