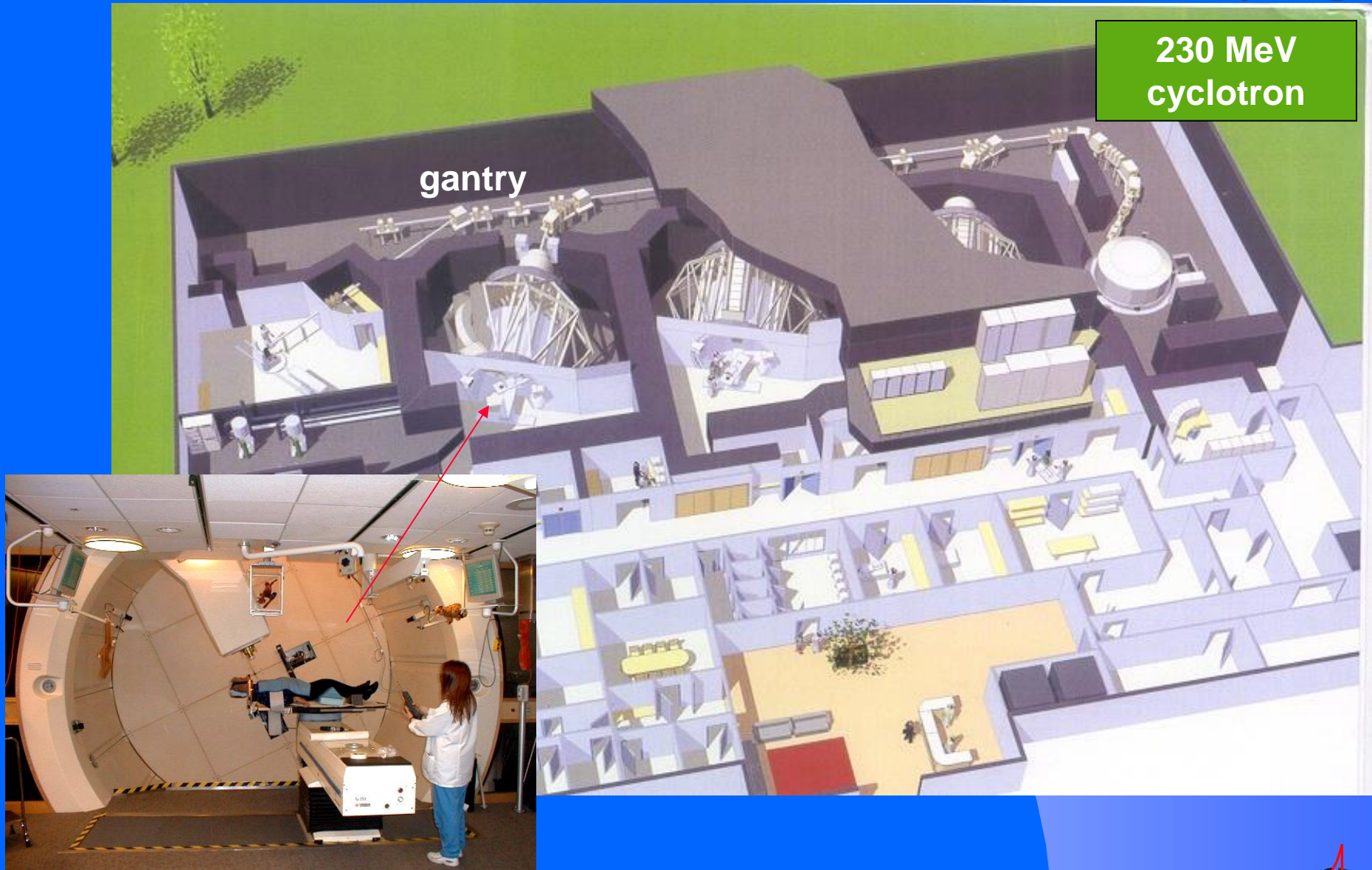


Commercial proton therapy centre by Ion Beam Applications (Belgium)

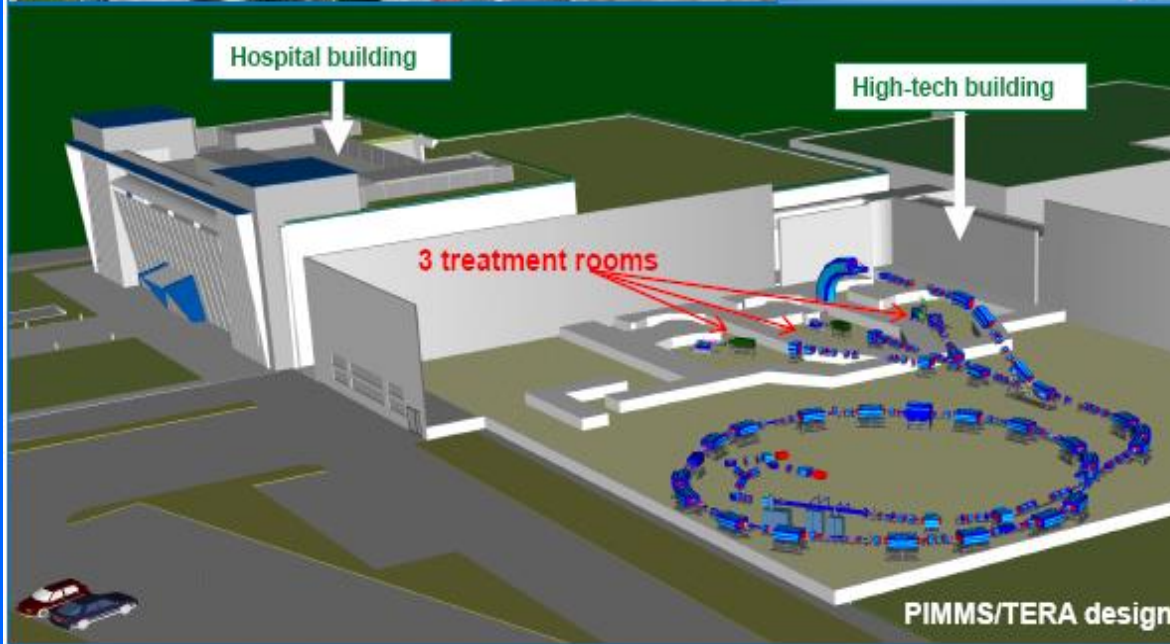


**1st TERA program: design with CERN in PIMMS a synchrotron
(for 400 MeV/u carbon ions and protons) and build it in Italy**

PIMMS =

**Proton Ion Medical
Machine Study**

Phil Bryant et al



CNAO FOUNDATION

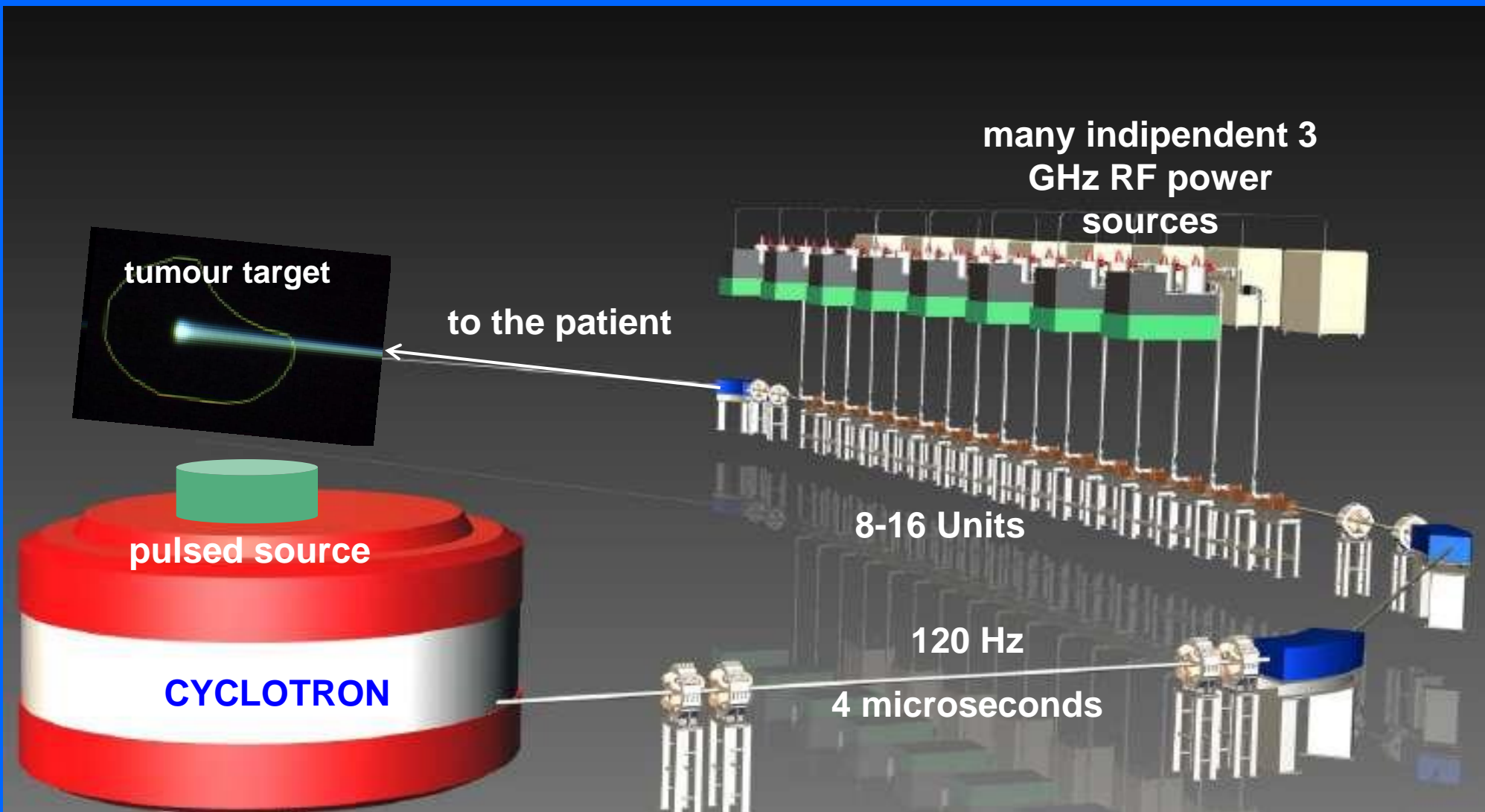
in Pavia

**Centro Nazionale di
Adtoterapia Oncologica**

May 2013:

**100 patients treated
with carbon ions
and protons**

2nd TERA program: development and construction of « cyclinacs »



3RD TERA program: TULIP (TU^{RN}ing LI^Nac for Pro^{TO}n therapy) is a "cyclinac"



Thales 10 MW
klystron

solid state
modulator by
Scandinova

Rotation: $\pm 110^\circ$ wrt the horizontal plane

