

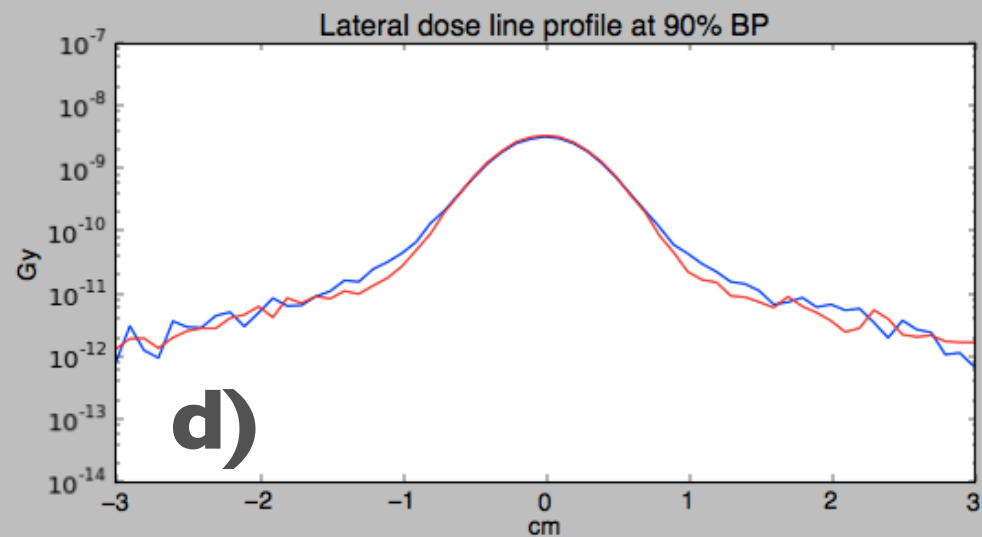
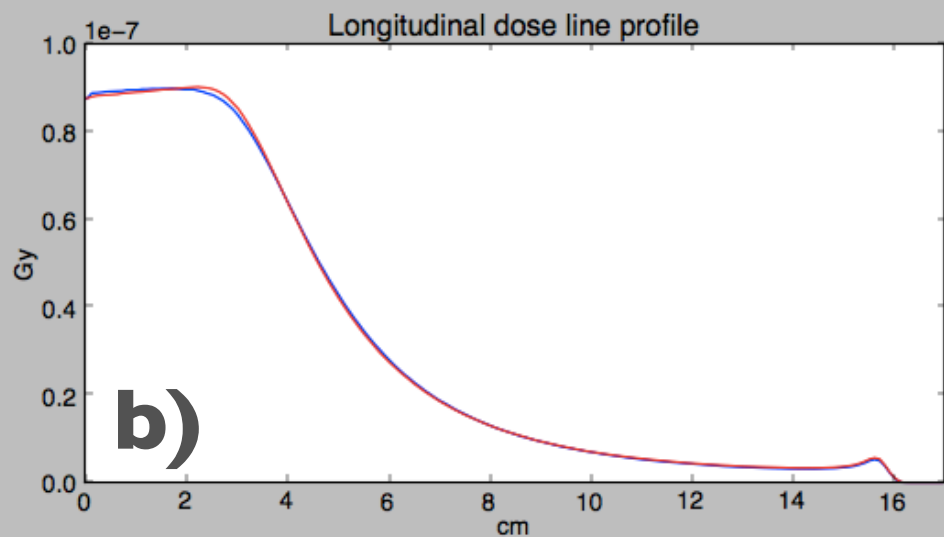
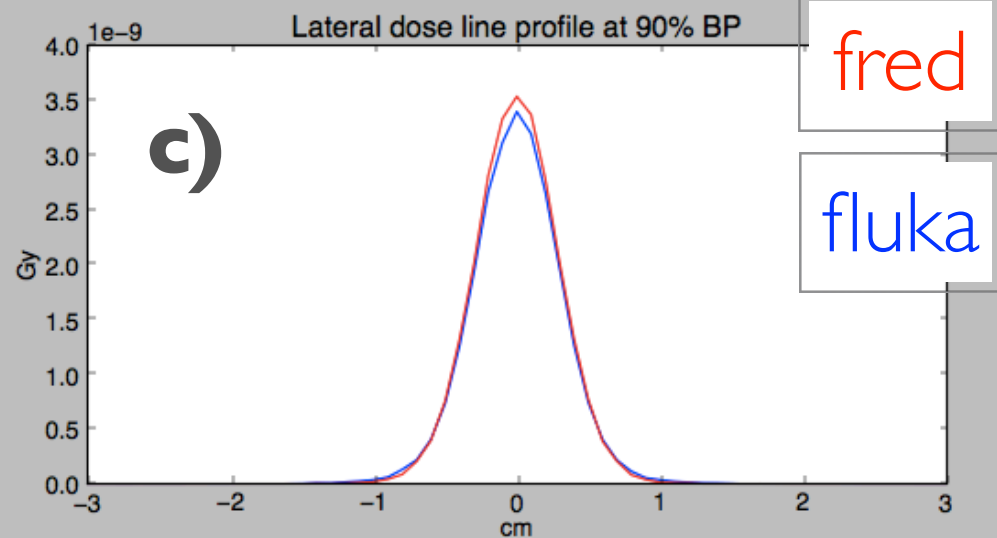
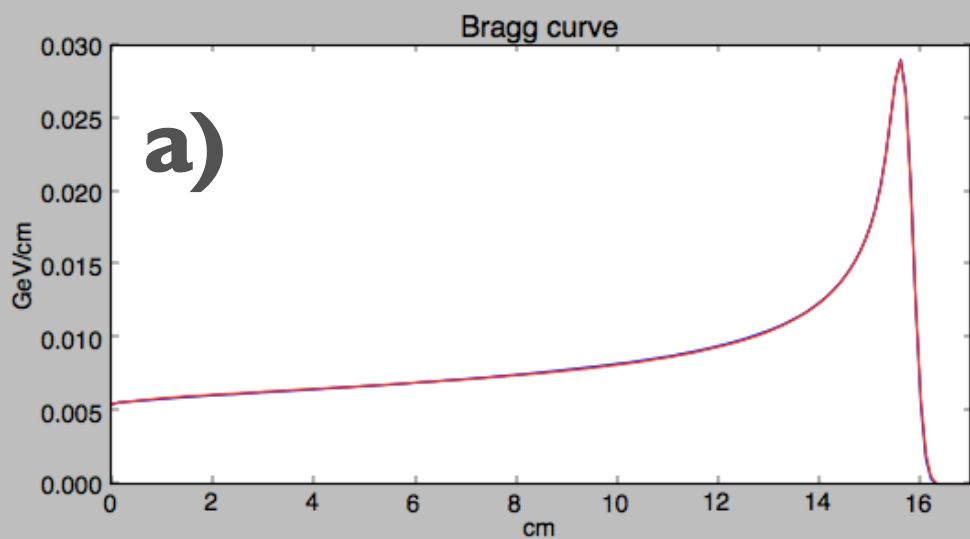
RDH-WP11-FRED

A. Schiavi - Sapienza Univ. di Roma

RDH-IRPT meeting - 01/02/2016
Dip. SBAI - Sapienza - Roma

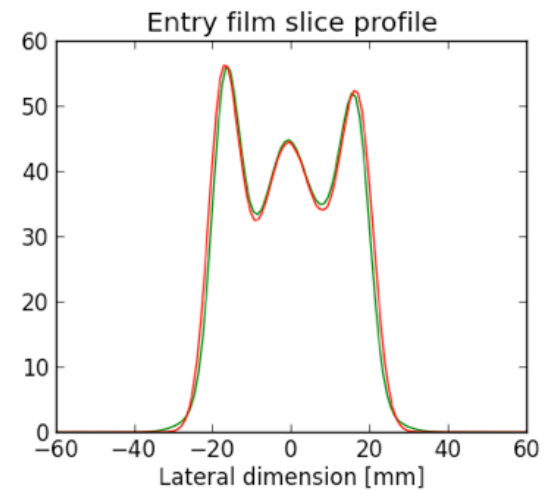
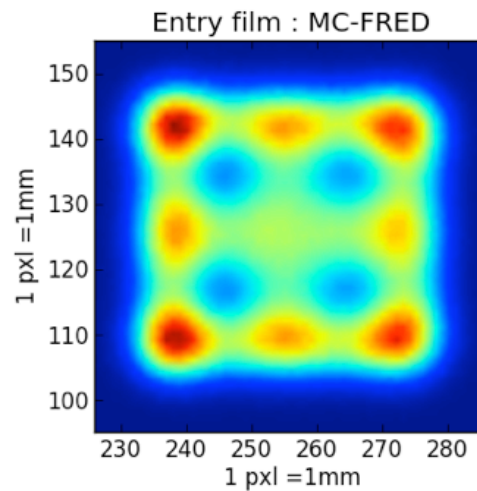
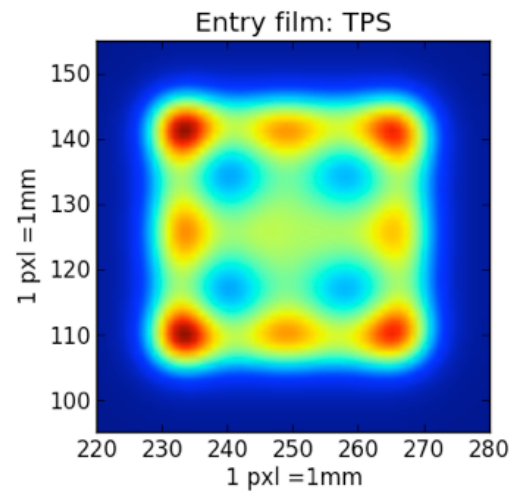
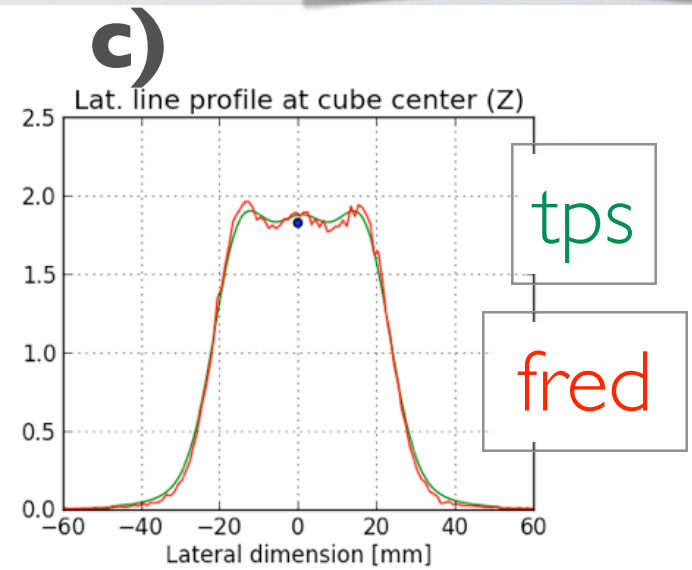
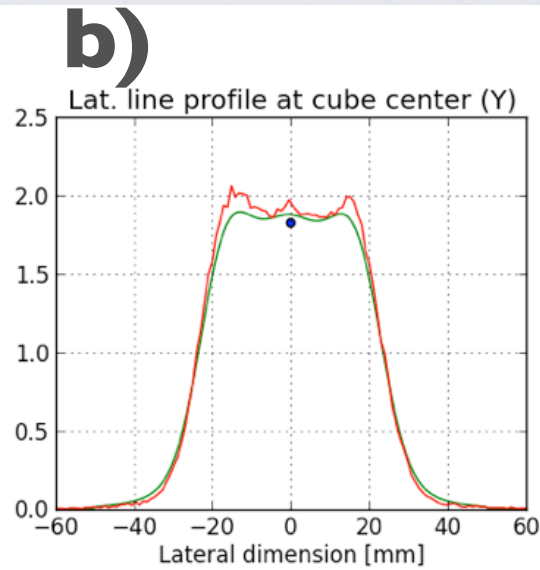
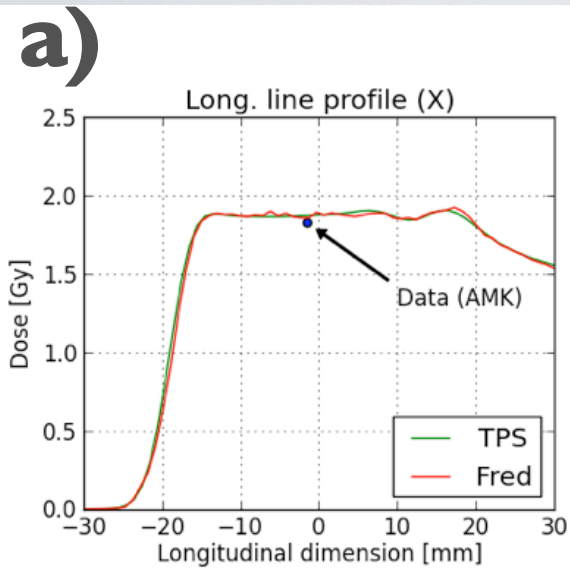
Dose-depth profiles and models

150 MeV protons in water



Ricalcolo cubi in acqua

20.000 primary protons per PB



Milestone per il 2016

testare e validare su 5 trattamenti a protoni (testa-collo e pelvi) il ricalcolo della dose con Fred e eseguire confronto con TPS-CNAO e full-MC

- modello nucleare protoni e deutoni
- fine-tuning profili longitudinali in acqua
- fine-tuning profili laterali
- ricalcolo in acqua dei cubi per il QA protocol
- ricalcolo QA verification plan (acqua)
- ricalcolo piano trattamento protoni

Proposta PRIN 2015

FASDEPT

INFN

PAVIA

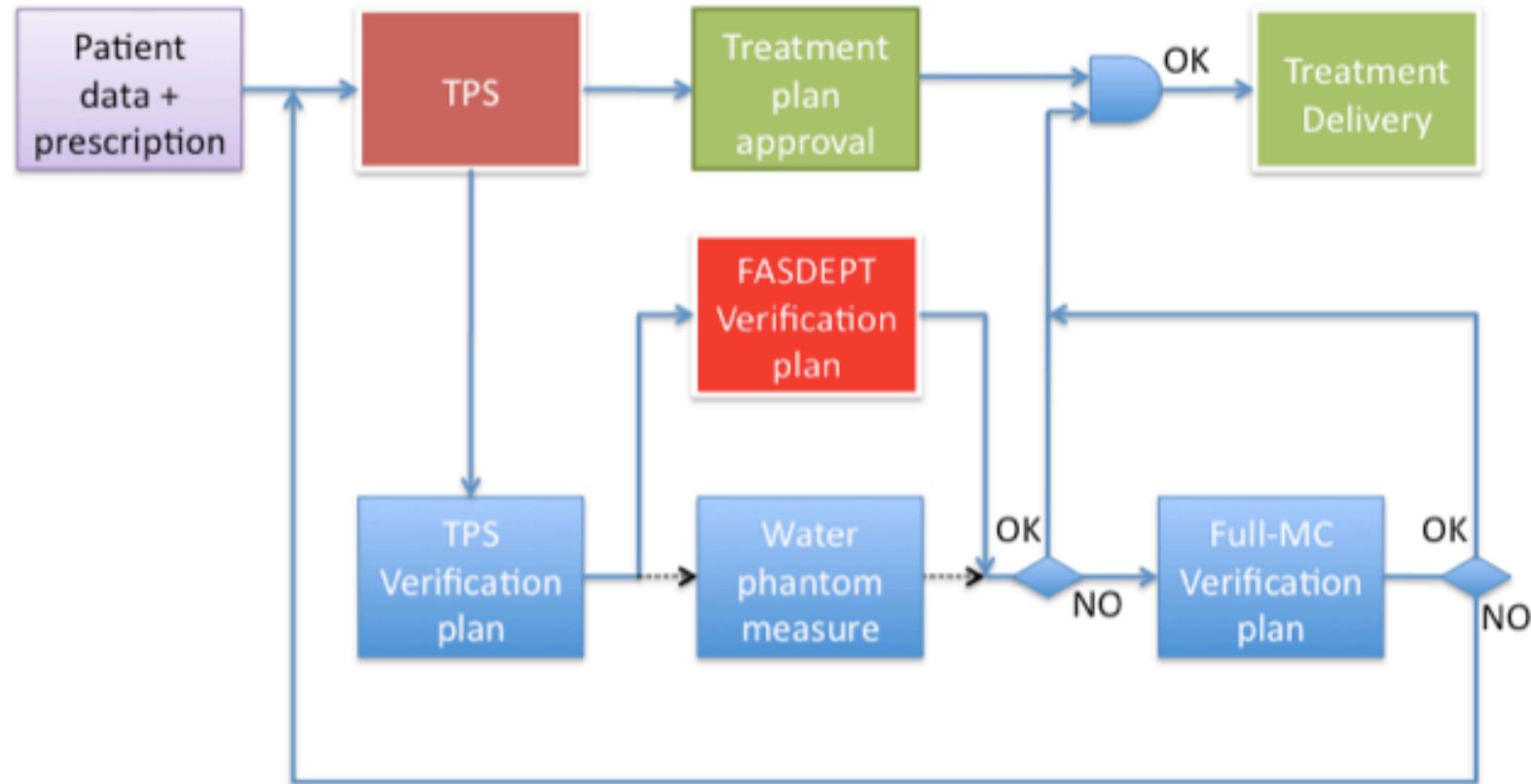
CNAO

**Fast dose engine for
proton therapy**

ROMA

Proposta PRIN 2015

Patient QA protocol (proposal)



Proposta PRIN 2015

TASKS/UNITS	ROME	CNAO	PAVIA	INFN
Fast-MC on GPU	Lead	√		√
MCS and nuclear tails algorithms		√	Lead	√
Biological model			Lead	
3D implementation of analytical algorithms			√	Lead
Benchmarks with Full-MC	√		√	Lead
Fast-MC validation	√	Lead		
Commissioning	Lead	√	√	√

Finanziamento richiesto
470 k€ in 3 anni