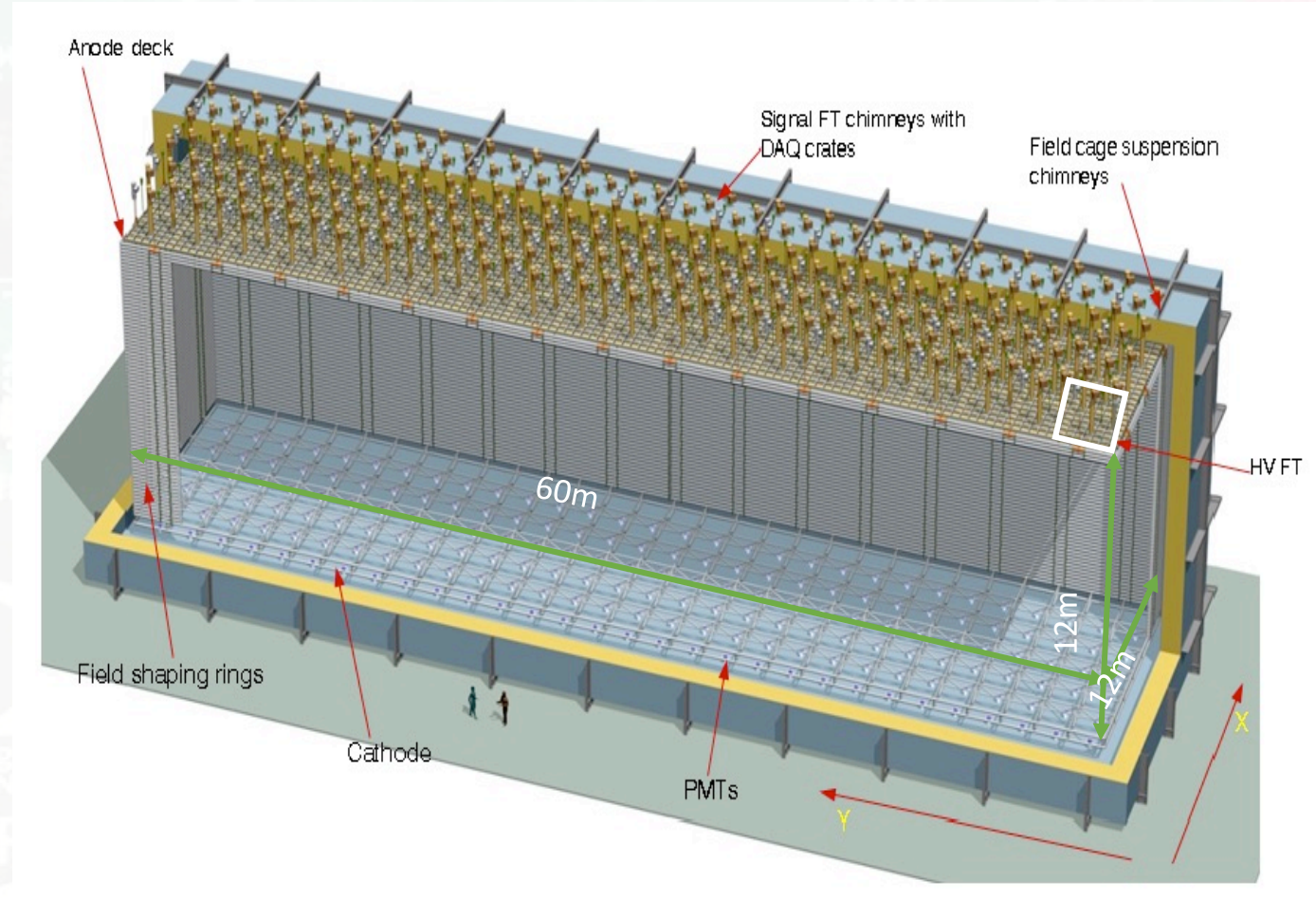


# LRO-FE Electronics for the 10 kt Dual-Phase DUNE FD

## Baseline is the CDR-1: 180 PMTs (1 PMT/4 m<sup>2</sup>)

Item	Details	Quantity
PMTs		180
FE-Cards	16 channels	12
	Components	
	printed cirquid	12
	PCB masques	1
	Mounting of components	
	Cabels SMA	180
	Catyroc	12
	ADC	12
micro-TCA crate		2
	MCH	2
	Power Module	2
	XAUI (x4)	2
	Uplink SFP+	2
	Uplink SFP+850	2
White Rabbit		2
	SPEC Card	2
	FMC DIO	2
	SFP (x2)	2



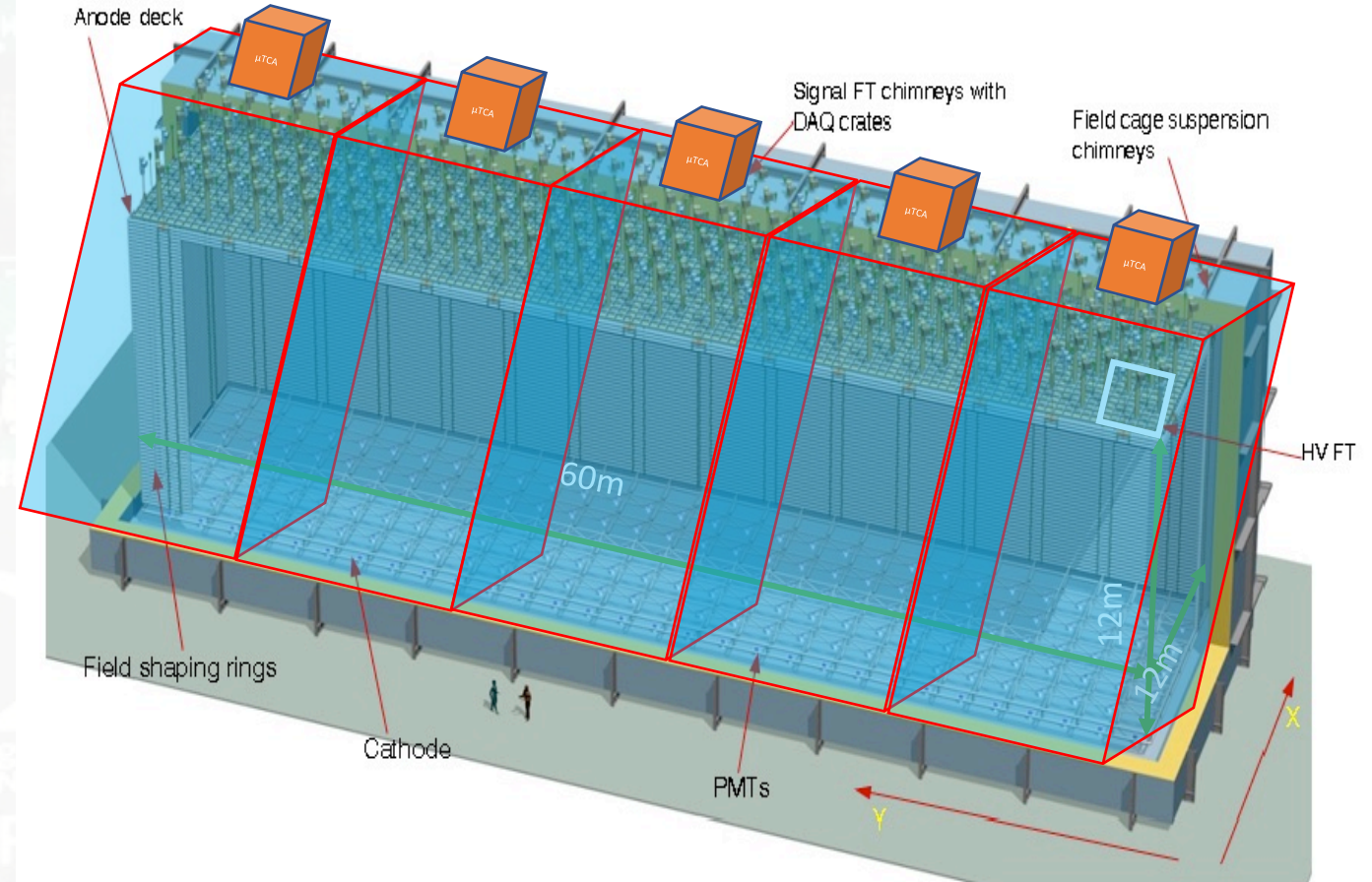
12 FE Cards + 2 Crates + 2 WR units

The distribution of the cards and number of crates to be optimized wrt to cable length and signal attenuation



## Optimized version 1: 720 PMTs (1 PMT/ m<sup>2</sup>)

Item	Details	Quantity
PMTs		720
FE-Cards	16 channels	45
	Components	
	printed cirquid	45
	PCB masques	1
	Mounting of components	
	Cabels SMA	720
	Catyroc	45
	ADC	45
micro-TCA crate		5
	MCH	5
	Power Module	5
	XAUI (x4)	5
	Uplink SFP+	5
	Uplink SFP+850	5
White Rabbit		5
	SPEC Card	5
	FMC DIO	5
	SFP (x2)	5



45 FE Cards + 5 Crates + 5 WR units

The distribution of the cards and number of crates to be optimized wrt to cable length and signal attenuation

First idea: cut detector in 5 12 m long segments

(5 x 12 m ) long x 12 m wide -> 5 crates on top of the detector

# Summary

1. To finalize the number of FE cards and crates for the LRO detailed light simulations are needed
2. As starting point, two scenarios have been shown: 1 PMT / 4 m<sup>2</sup> (CDR-1) and 1 PMT / m<sup>2</sup>
3. Distribution of crates to be optimized to minimize signal loss in very long cables