# Development of user interface for top tracker control software of JUNO experiment

Sharov Vladislav DLNP, JINR

Dubna, 2019

# **Location**

	NPP	Daya Bay	Huizhou	Lufeng	Yangjiang	Taishan
	Status	Operational	Planned	Planned	Under construction	Under construction
2	Power	17.4 GW	17.4 GW	17.4 GW	17.4 GW	18.4 GW
	Overburd Kaiping,	len ~ 700 m	Suang Zho 2.5 h drive	Lt Dungguan CNS Shen Zhen	. Huizhou Daya Bay К.NPP	2020: 26.6 GW
	Jiangmen, Guangdong 53 km		Zimjiang River Ester	Hong Ko	ong Yangjiang NPP	Taishan NPP
53 km Taish Yangjiang NPP			an NPP	1		

# JUNO : a multipurpose neutrino experiment

### Physics:

- Determine mass hierarchy
- Precision measurement of oscillation parameters
- Astronomical and geo-v
- Proton decay and exotics

### Project:

- 20 kton liquid scintillator,
  3%/1MeV energy resolution,
  700 m underground
- Approved in 2013, construction started in 2015, operation in 2021





Scheme underground detector JUNO



Entering the Experimental Hall



Experimental Hall Roof



Bottom of the Elevator Shaft

### JUNO detector





Build a prototype detector JUNO



Transportation of the muon detector OPERA

# **Top Tracker electronics**

#### USB 2.0 connector (used for tests without Concentrator)



### **Concentrator Prototype**



### **Technology stack**

![](_page_12_Figure_1.jpeg)

![](_page_13_Picture_0.jpeg)

![](_page_13_Picture_1.jpeg)

![](_page_13_Picture_2.jpeg)

### In progress

![](_page_14_Figure_1.jpeg)

# Why WebGL\*?

- Online event viewer for Top Tracker Events (TTE);
- Flexibility one can zoom/unzoom and easily get an access to any part of TT visual representation object;
- ✓ To minimize effort, to reduce double codding. The wish to use the single object booth for options 1 & 2;
- ✓ It`s cool!

\* WebGL is a JavaScript API for rendering interactive 2D and 3D graphics within any compatible web browser without the use of plug-ins.

# Why frameworks?

- The possibility of long-term support of the project and its refinement;
- Ability to develop applications from scratch;
- Possibility of using ready-made libraries and components;
- ✓ Widly using, large community ;
- Don`t reinvent the bicycle!

![](_page_15_Picture_12.jpeg)