

# ICALEPCS 2021

Dr. Yingbing Yan  
(SSRF / SXFEL)

Shanghai Institute of Applied Physics  
Chinese Academy of Sciences, P.R. China



中国科学院上海应用物理研究所

Shanghai Institute of Applied Physics, Chinese Academy of Sciences

- Shanghai Institute of Applied Physics (SINAP)
- One of ~ 100 research institutes of Chinese Academy of Sciences (CAS)
- Founded in 1959, 2 campus in Shanghai, each ~ 300 acre
- Employees ~ 1200, Students ~ 400
- Accelerator & Photon science and technology: SSRF, SDUV-FEL, SXFEL, ...
- Nuclear science & technology: TMSR, nuclear physics and technology



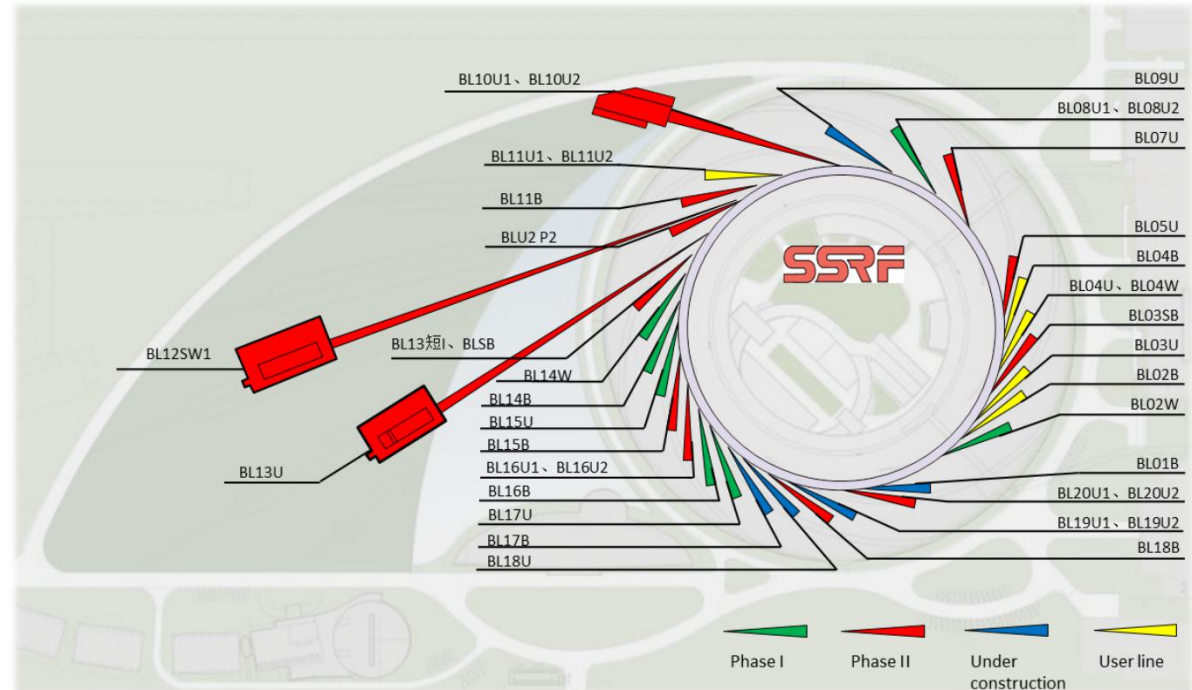
239 Zhang Heng Road, Pudong New District, Shanghai 201203  
Phone: 86 21 5955 3998, 5955 4923  
Website: [www.sinap.ac.cn](http://www.sinap.ac.cn)



2019 Jia Luo Road, Jiading District, Shanghai 201800

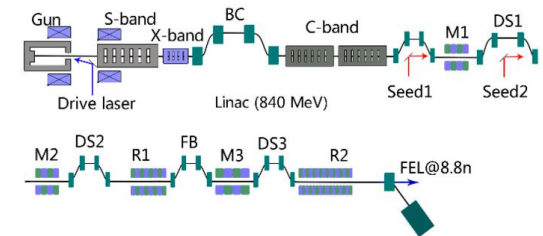
## ■ Shanghai Synchrotron Radiation Facility (SSRF)

- One of the advanced third generation light sources in the world
- Support and push the cutting-edge scientific research and innovation in China
- 3.5 GeV, 432 m,  $\sim 3$  nm·rad, 260 mA, Top-Up
- Open since May 2009
- Over 10,000 users
- 7+1 Phase-I beamlines
- 7 dedicated beamlines
- 17 Phase-II beamlines (coming soon)





## Shanghai soft Xray Free Electron Laser Test/User Facility (SXFEL-TF/UF)



The construction of the SXFEL-TF started at the end of 2014. Its accelerator tunnel and klystron gallery were ready for equipment installation in April 2016. The installation was completed by the end of 2016.

The SXFEL-UF, with a designated wavelength in the water window region, began construction in November 2016. It was based on upgrading the Linac energy to 1.5 GeV, and the building of a second undulator line and five experimental end-stations. It is scheduled to be open to users in 2019.

	SDUV-FEL	DCLS*	SXFEL	SXFEL
	Test facility	User facility	Test facility	User facility
Status	Operating	Commisioning	Commisioning	Construction
Wavelength	150-350nm	50-150nm	8.8nm	2.0nm
Length	65m	150m	300m	540m
Accelerator	S band	S band	S+C band	S+C band
Beam energy	100-200MeV	300MeV	0.84GeV	1.5GeV
FEL Principle	HGHG, EEHG	HGHG	HGHG, EEHG	SASE
Location	Shanghai	Dalian	Shanghai	Shanghai
First Lasing	2009	2016	2017	2019

\* Carried out jointly by DICP (experimental end stations) and SINAP (Linac + FEL)



▪ Shanghai Coherent Light Facility (SCLF, Approved)

**e-beam : 8 GeV**

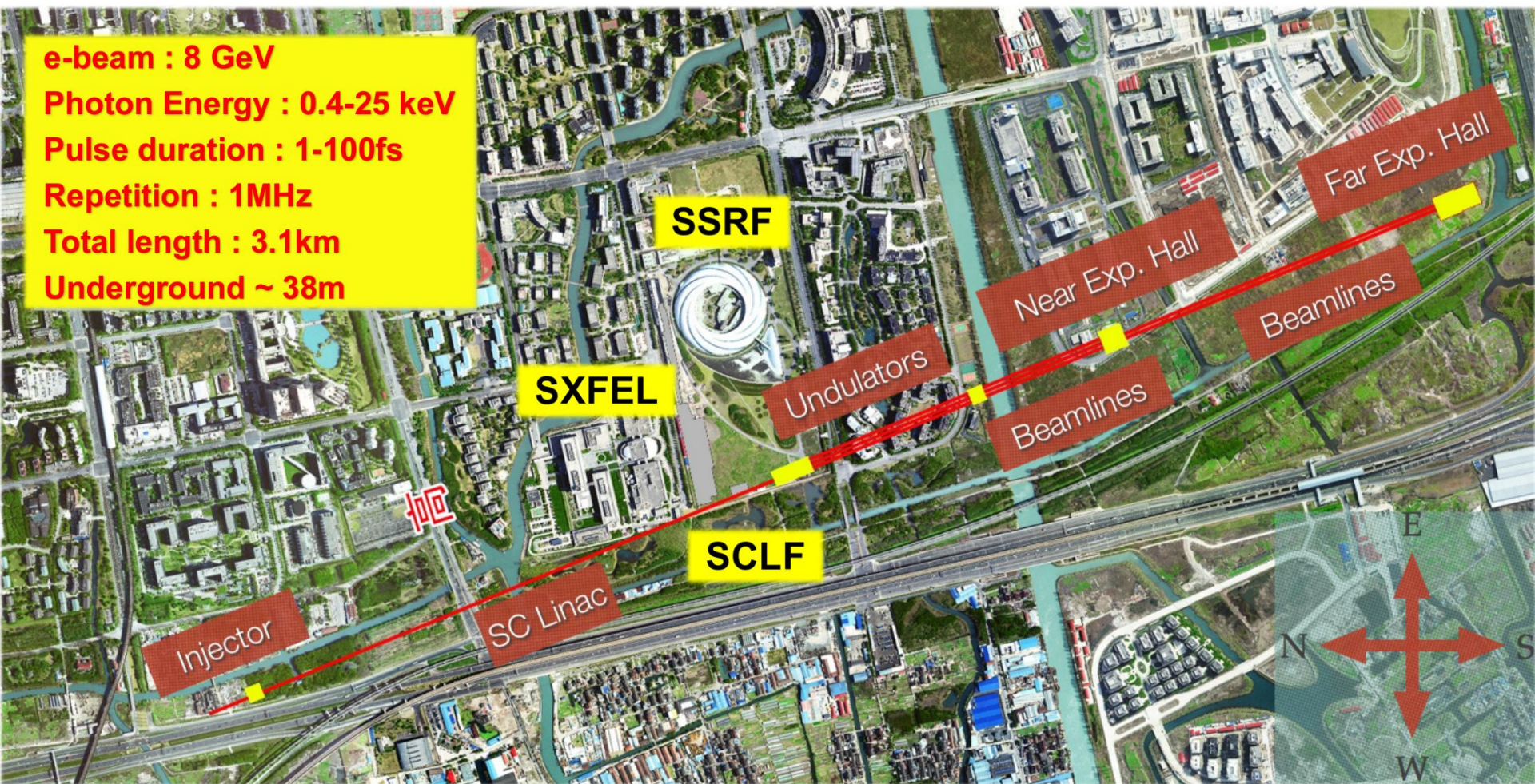
**Photon Energy : 0.4-25 keV**

**Pulse duration : 1-100fs**

**Repetition : 1MHz**

**Total length : 3.1km**

**Underground ~ 38m**

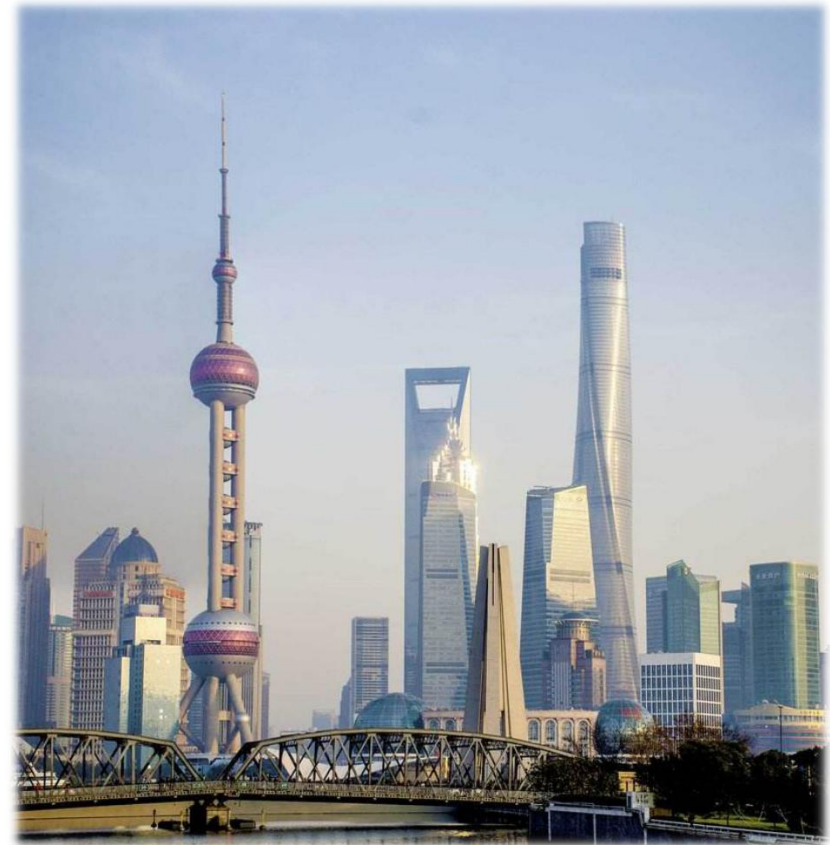




- Shanghai is located on the west shore of the Pacific Ocean.
- The largest and safest city in China, the most comprehensive industrial and commercial city.
- Ranking the first in population ( ~ 24 million) and population density.

上海

Weather averages for Shanghai												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average high °C	8	8	13	19	25	28	32	32	28	23	17	17
(°F)	46	46	55	66	77	82	90	90	82	73	63	63
Average low °C	1	1	4	10	15	19	23	23	19	14	7	2
(°F)	34	34	39	50	59	66	73	73	66	57	45	36
Precipitation mm	48	58	84	94	94	180	147	142	130	71	51	36
(inches)	1.89	2.28	3.31	3.7	3.7	7.09	5.79	5.59	5.12	2.8	2.01	1.42

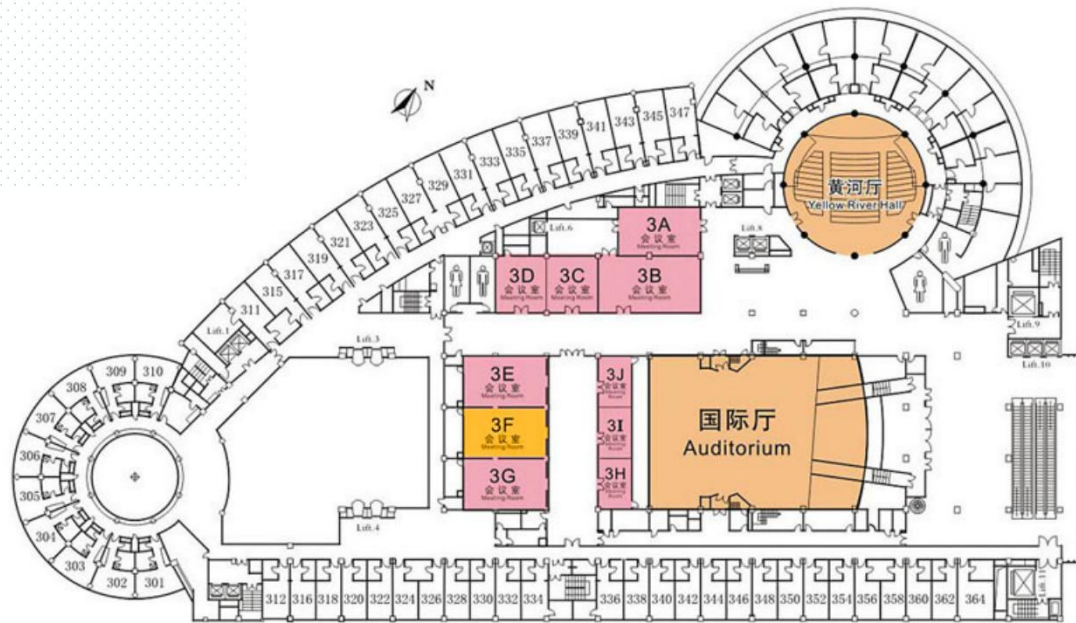




- Shanghai International Convention Center (FEL 2011, IPAC 2013)
- Member of ICCA, the most authoritative international convention association.
- 30 conference rooms with the capacity from 20 to 3,000 people.
- The total available space is around 110,000 square metres.



- Shanghai International Convention Center (FEL 2011, IPAC 2013)
- More information (36.0 x 24.0 x 6.1, 750 pax)
- FEL 2011 1F
- IPAC 2013 7F

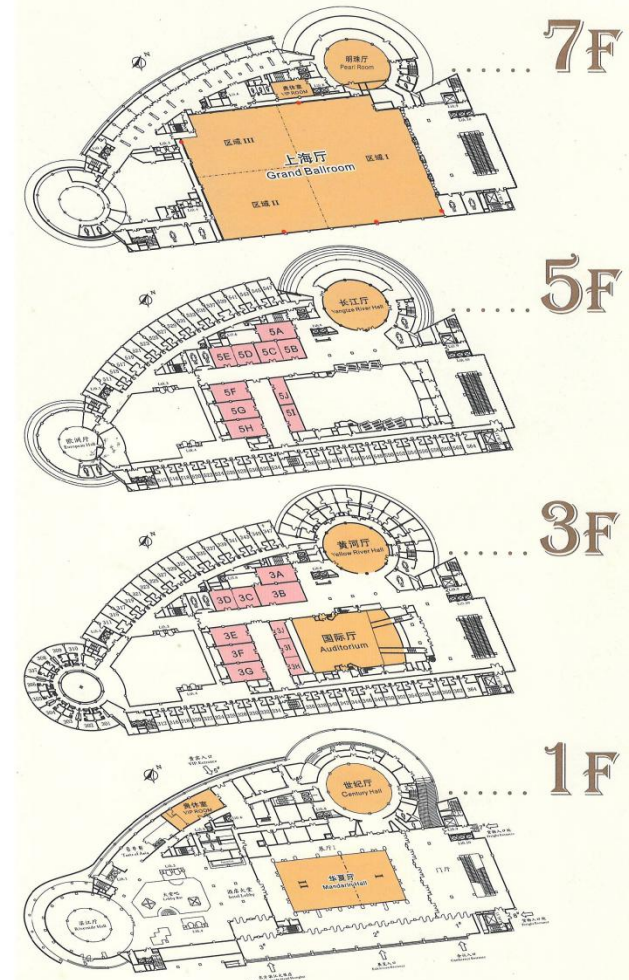


国际厅 / Auditorium

舞台 / Stage 15m(L)\*7.5m(W)\*0.63m(H)

背景板 / Backdrop 15m(W)\*6.4m(H)

横幅 / Banner 15m(W)\*0.9m(H)





- Shanghai International Convention Center (FEL 2011, IPAC 2013)



- Shanghai Expo Center
- A concert hall for 2600 people
- A pillarless banquet hall for more than 3000 people
- Shanghai Hall for conferences of up to 800 attendants
- 70 smaller meeting and VIP rooms



Great Hall (Red Hall)



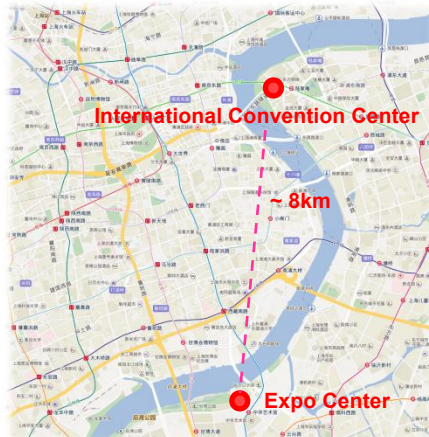
Shanghai Hall (Blue Hall)

Capacity:

- Theatre 880
- Classroom 600



Banquet Hall (Gold Hall)





- 2 international airports + 3 railway stations

- Shanghai Pudong International Airport (PVG)

30 kilometres (19 mi) east of downtown

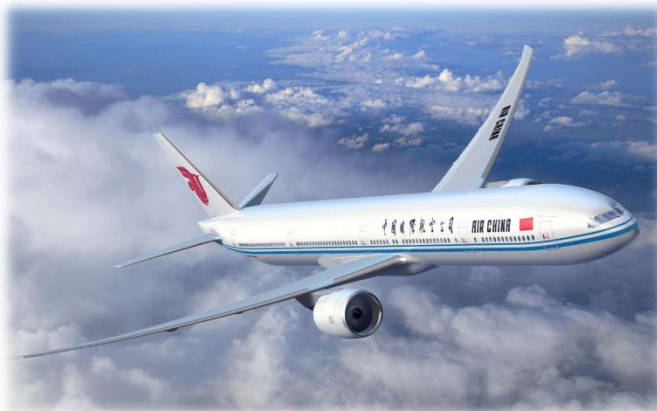
The busiest international hub of China, about half of its total passenger traffic is international

By the end of 2016, Pudong Airport hosted 104 airlines serving more than 210 destinations

- Shanghai Hongqiao International Airport (SHA)

mainly serves domestic and regional flights, with limited international flights

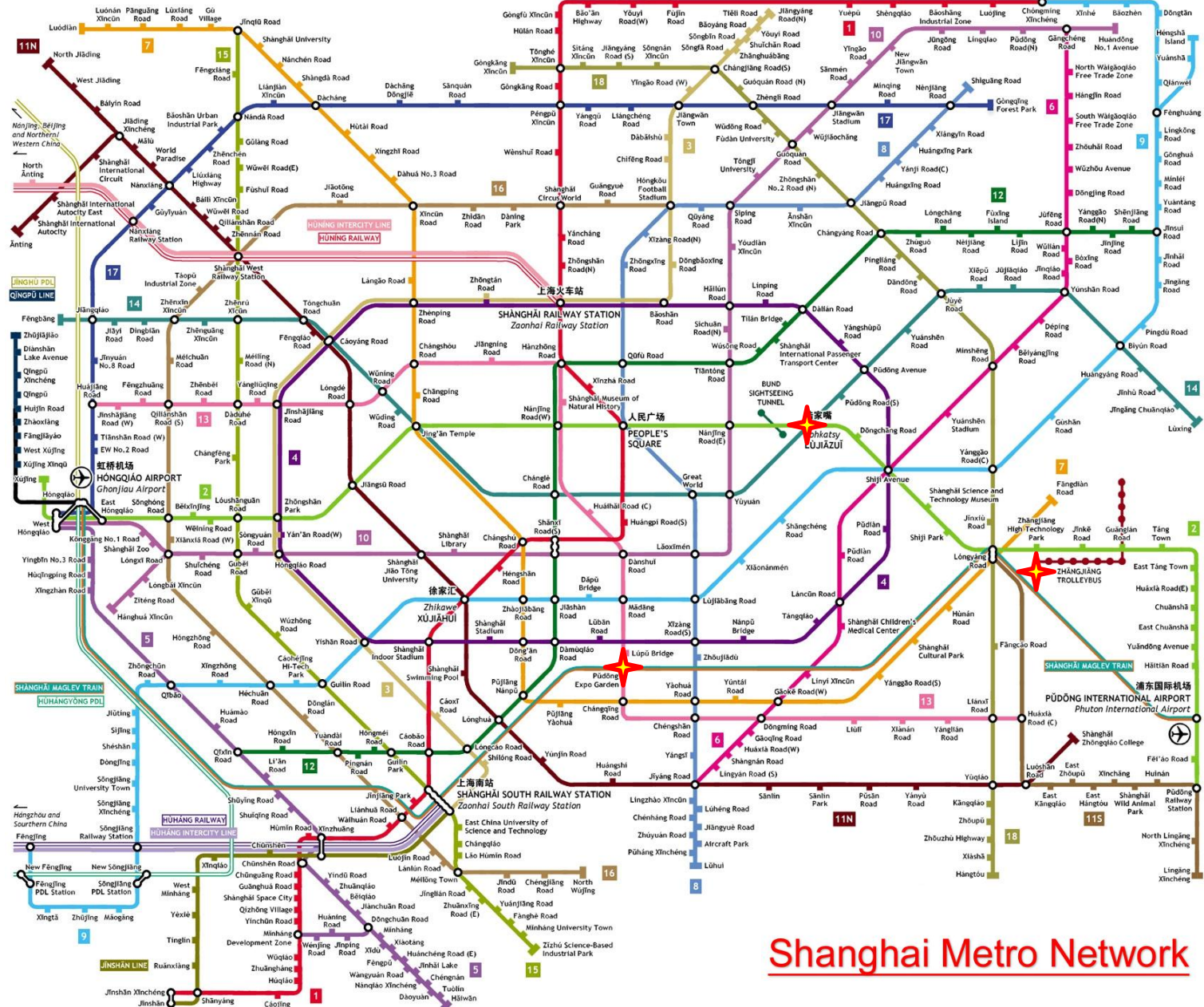
13 kilometres (8.1 mi) west of downtown



- Shanghai has an extensive public transport system, largely based on buses, taxis, and a rapidly expanding metro system.
- The metro system is the world's largest rapid transit system by route length with 14 lines and 364 stations totaling 588 km.
- Shanghai Maglev Train is the first commercial Maglev railway in the world.  
The 30 km trip takes 7 minutes and reaches a maximum speed of 431 km/h.







## Shanghai Metro Network



- Shanghai offers a choice of accommodations from boutique to star-rated.

★★★★★	> 200
★★★★	> 350
★★★	~ 4000





- Shanghai is the Paradise of gourmets, who may find thousands of restaurants here that serve a complete list of China's major famous cuisines and various foreign foods.



Chopsticks



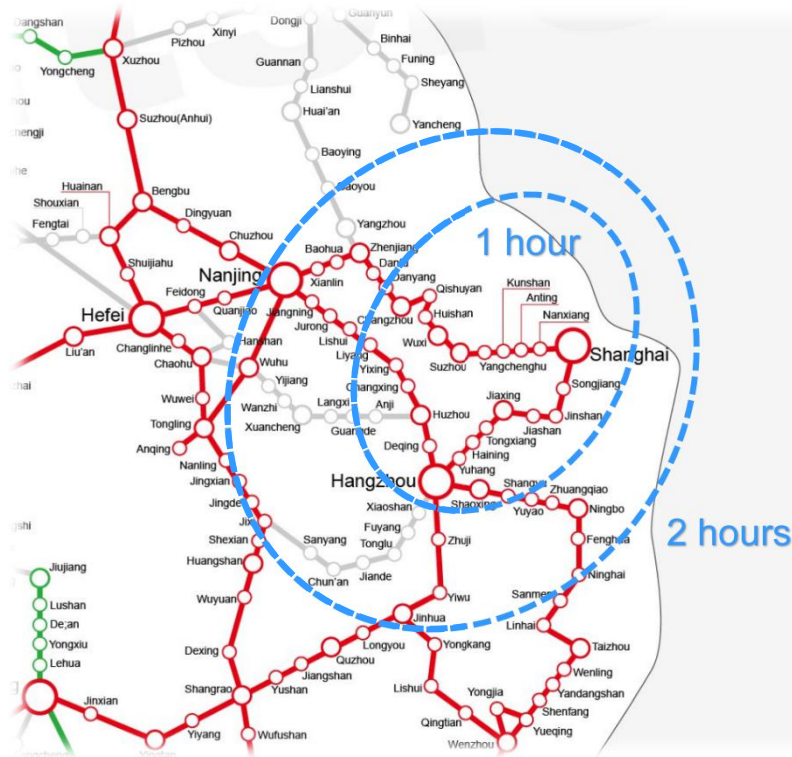


- Shanghai is one of the highly popular tourist destinations in China for tourists from all over the world.
- More than 70 sites of historical interest and cultural relics.
- A collection of buildings with different architectural styles along the Bund and elsewhere of the city.





- The world's longest high-speed railways ( ~ 220,000 km) operates in China.
- Many famous tourist sites can reach in 2 hours by train.



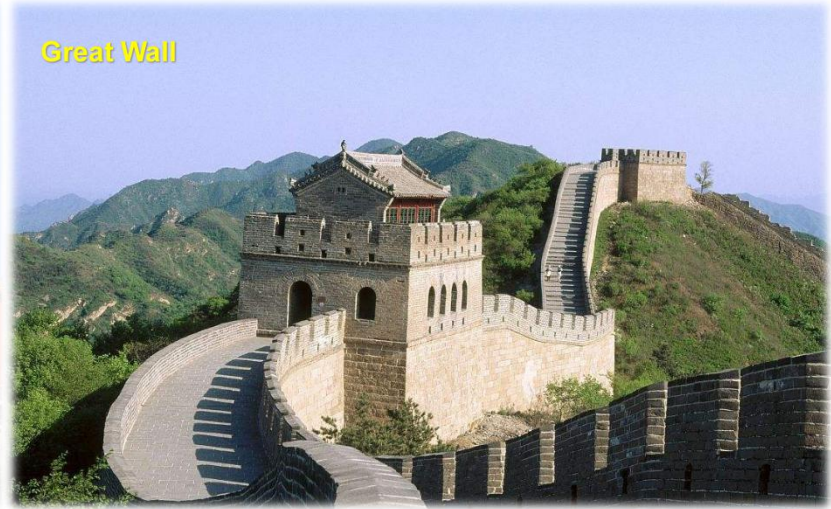


- More tourist sites ...

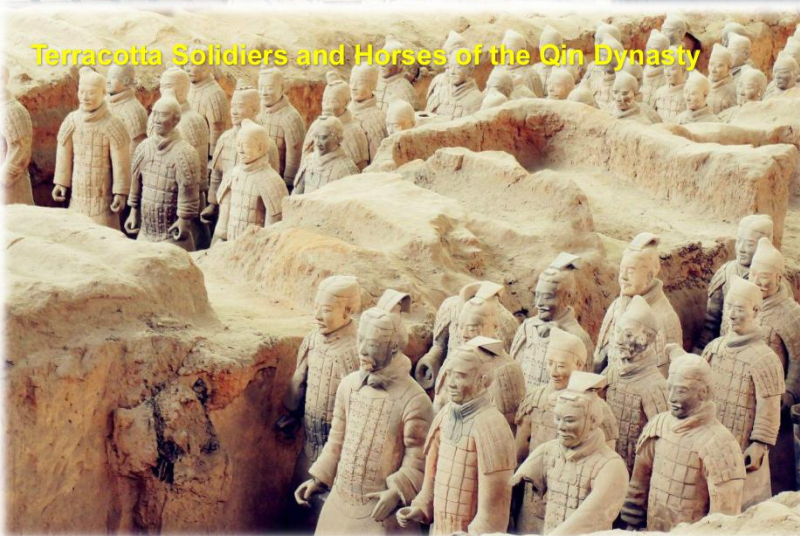
Forbidden City



Great Wall



Terracotta Soldiers and Horses of the Qin Dynasty



Mount Huang









# Giant Panda









# Welcom to Shanghai, China.

