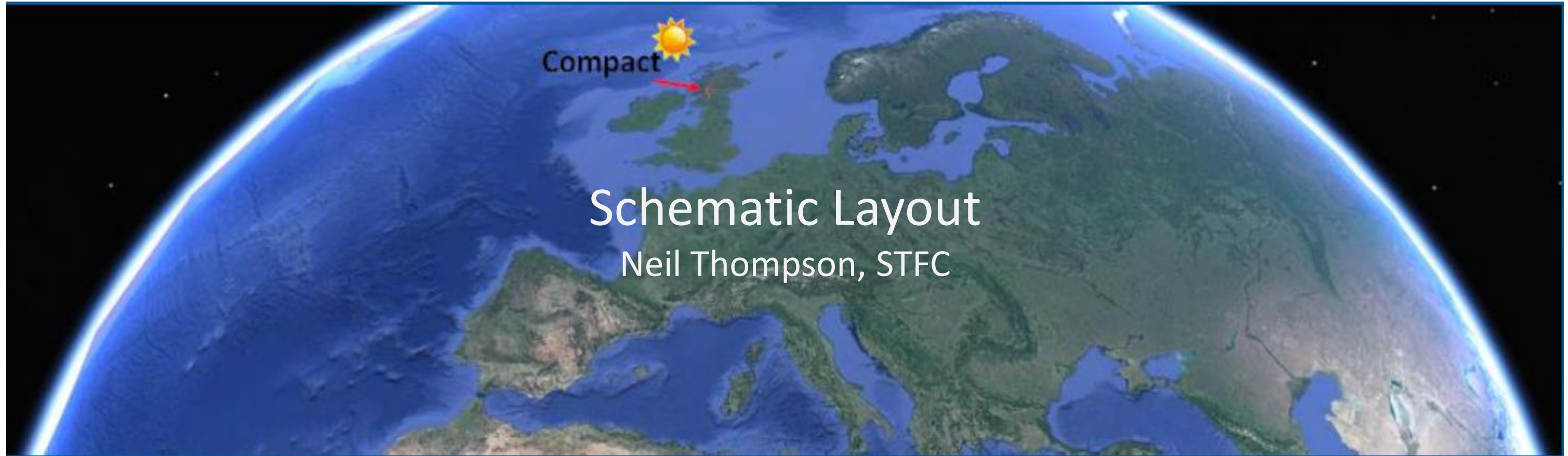




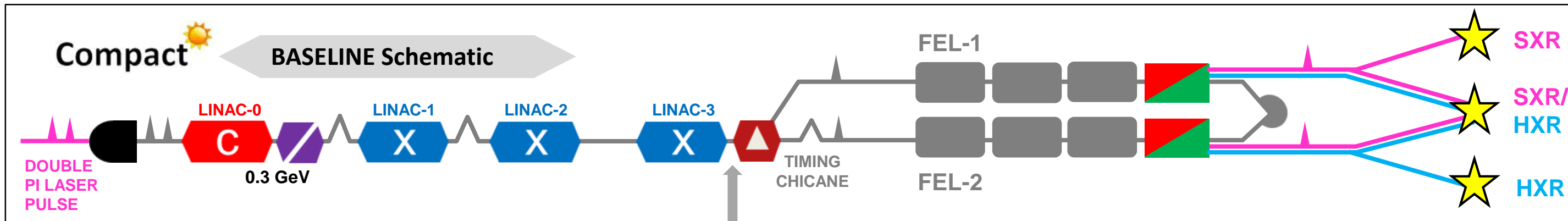
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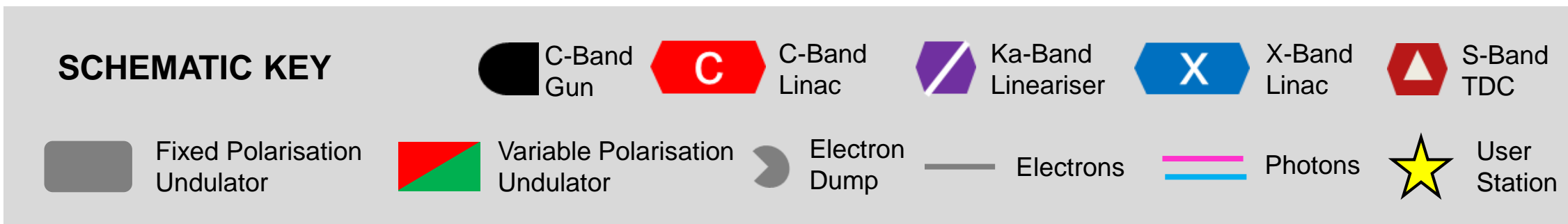


BASELINE

'Dual Mode Linac' – single linac, single klystron

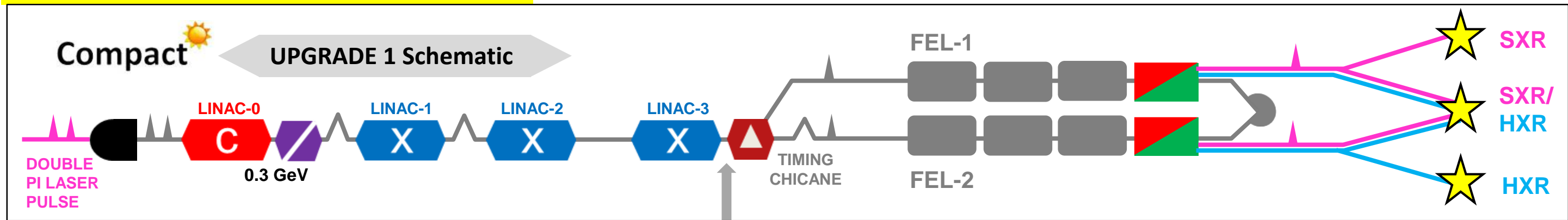


0.97 to 2.4 GeV @ 250 Hz (SXR/SXR)
2.75 to 5.5 GeV @ 100 Hz (HXR/HXR)














UPGRADE 1

'Dual Source Linac' – single linac, two klystrons



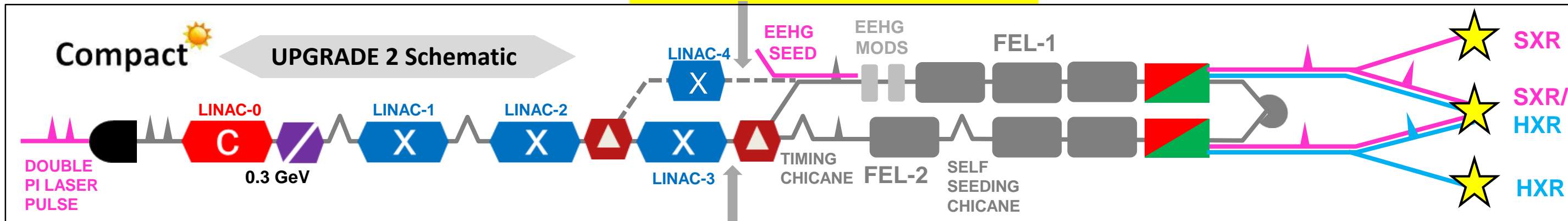
0.97 to 2.4 GeV @ 1000 Hz (SXR/SXR)
2.75 to 5.5 GeV @ 100 Hz (HXR/HXR)

SCHEMATIC KEY

	C-Band Gun		C-Band Linac		Ka-Band Lineariser		X-Band Linac		S-Band TDC		
	Fixed Polarisation Undulator		Variable Polarisation Undulator		Electron Dump		Electrons		Photons		User Station

UPGRADE 2

'Dual Source Linac' – single linac, two klystrons



0.97 to 2.4 GeV @ 100 Hz (SXR/HXR)

0.97 to 2.4 GeV @ 1000 Hz (SXR/SXR)
 2.75 to 5.5 GeV @ 100 Hz (HXR/HXR)
 2.75 to 5.5 GeV @ 100Hz (SXR/HXR)

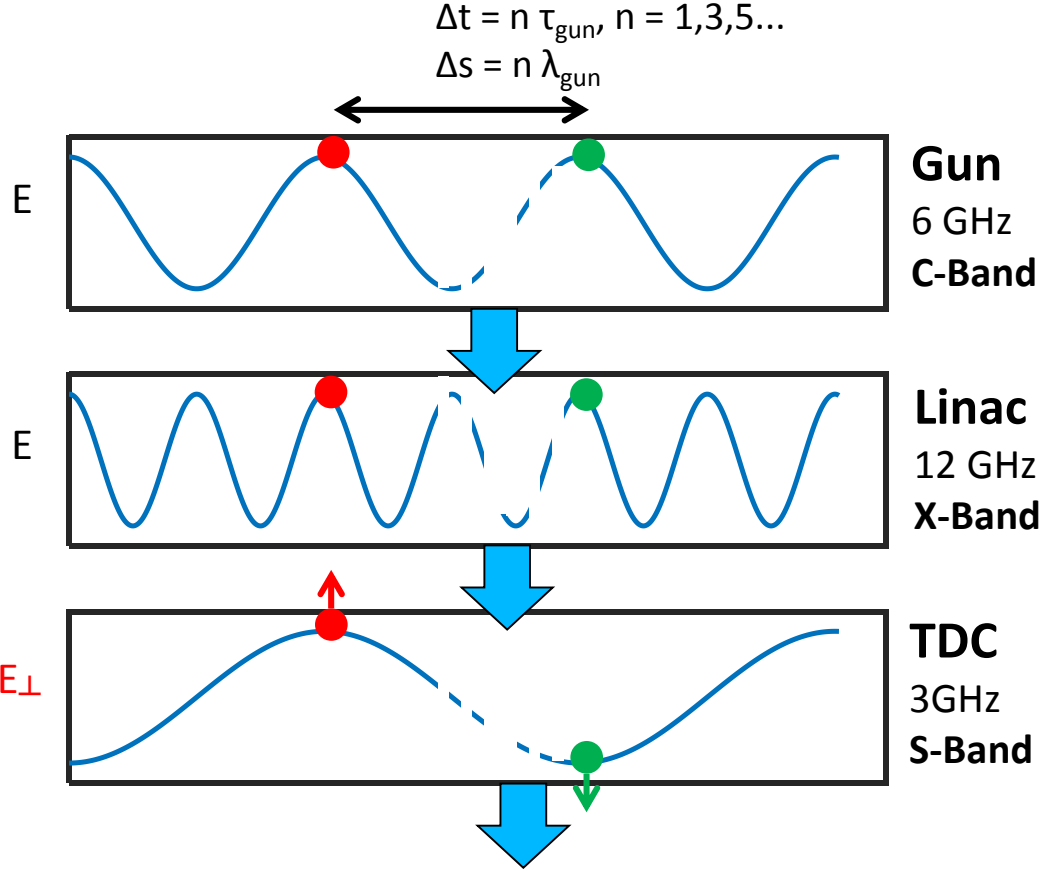
SCHEMATIC KEY

	C-Band Gun		C-Band Linac		Ka-Band Lineariser		X-Band Linac		S-Band TDC
	Fixed Polarisation Undulator		Variable Polarisation Undulator		Electron Dump		Electrons		Photons
					User Station				

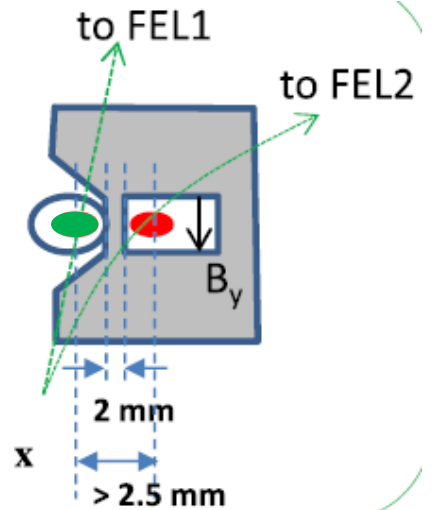
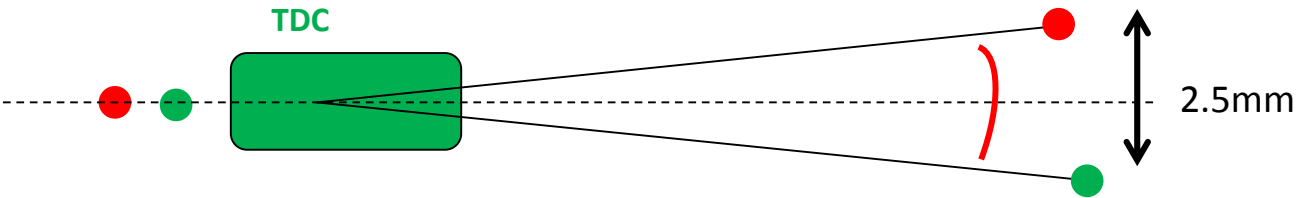
OPERATING MODE *	FEL1 WAVELENGTH	FEL2 WAVELENGTH	L0/L1/L2/L3 REP RATE	L3 OUTPUT ENERGY	L4 REP RATE	L4 OUTPUT ENERGY
BASELINE						
B-HH	HXR	HXR	100 Hz	2.75 – 5.5 GeV		
B-SS	SXR	SXR	250 Hz	0.95 – 2.4 GeV		
UPGRADE 1						
U1-HH	HXR	HXR	100 Hz	2.75 – 5.5 GeV		
U1-SS	SXR	SXR	1000 Hz	0.95 – 2.4 GeV		
UPGRADE 2 – ALL MODES FROM UPGRADE 1 PLUS EXTRA MODE						
U2-SH	SXR	HXR	100 Hz	2.75 – 5.5 GeV	100Hz	0.95 – 2.4 GeV

* For **ALL** operating modes FEL1 and FEL2 can be sent to **SEPARATE** user stations **OR** sent to the **SAME** user station with +/- 100fs separation

PULSE-SPLITTER CONCEPT



n	Δt	Δs
1	166 ps	50 mm
3	500 ps	150 mm
5	833 ps	250 mm
7	1.16 ns	350 mm
9	1.5 ns	450 mm



Working point was chosen in discussions between WP2, WP4, WP5

- Minimum temporal separation that long range wakes from first bunch have acceptably small effect on trailing bunch
- Achievable time of flight compensation in sensibly sized dog-leg with feasible emittance compensation
- Consistent with 2.5m separation between axes of FEL-1 and FEL-2 which is minimum for convenient installation and maintenance
- Consistent with acceptable photon beamline separation



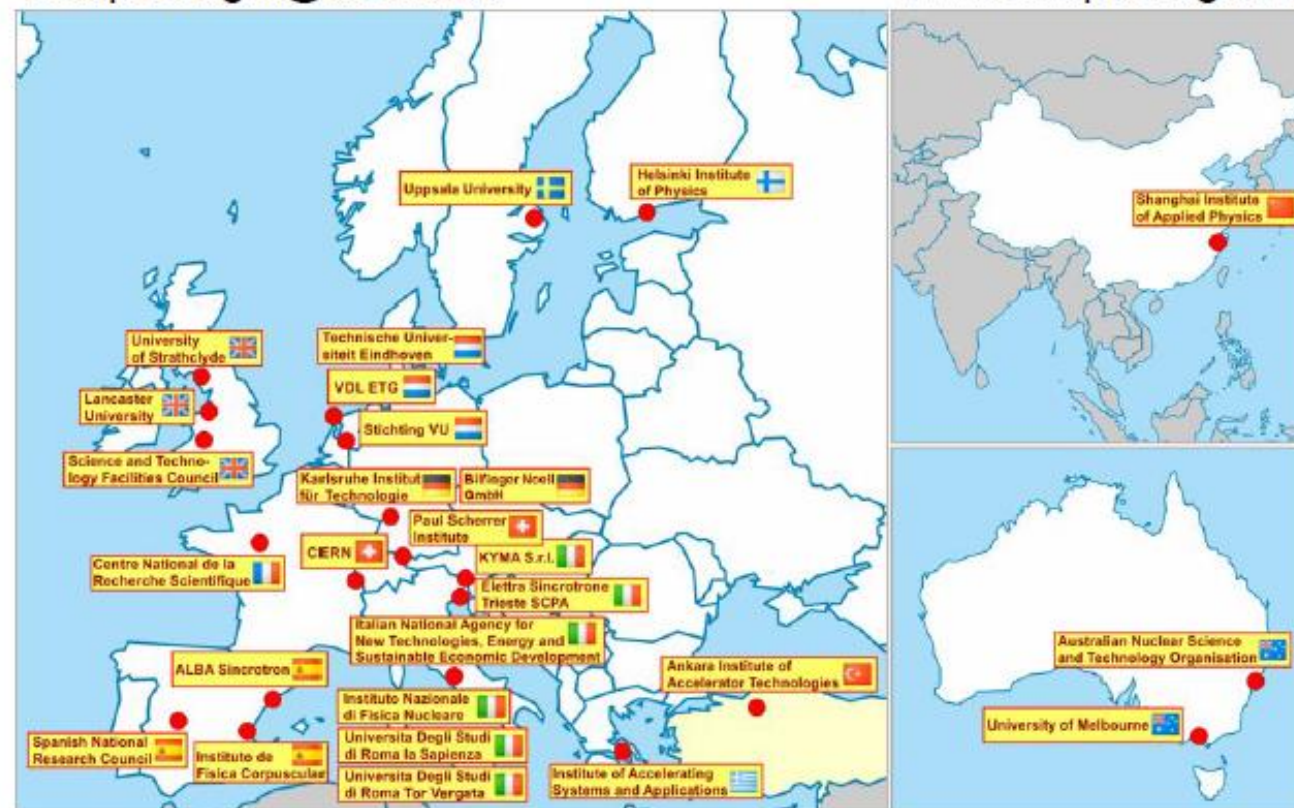
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Thank you!

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