

ChETEC-INFRA

Chemical Elements as Tracers of the Evolution of the Cosmos – Infrastructures for Nuclear Astrophysics

- EU Horizon 2020 **Starting Community** of research infrastructures to serve nuclear astrophysics
- H2020-INFRAIA-2020-1
- **32 partners** in 17 EU+ countries
- 1 May 2021 – 30 April 2025
- 5.0 M€ support by EU
- **13 research infrastructures** offer EU-supported transnational access, selection based on scientific merit
- <https://www.chetec-infra.eu>

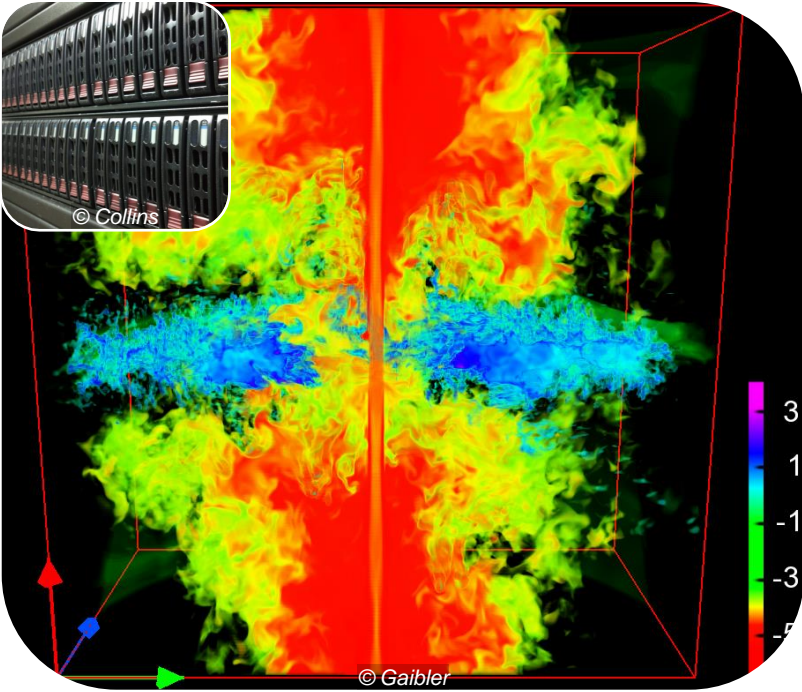


Interdisciplinarity of Nuclear Astrophysics

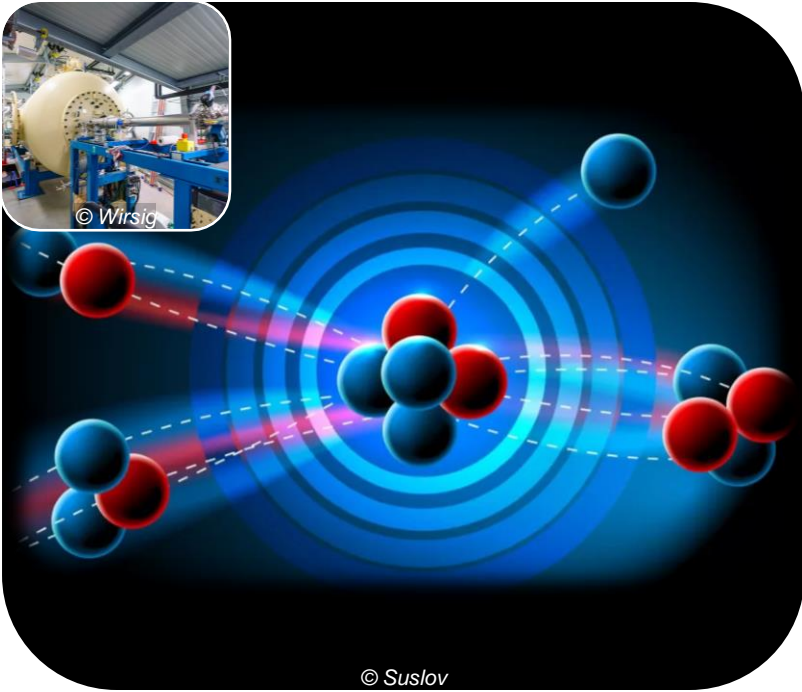
Astronomy and Observation



Astrophysics and Simulation



Nuclear Physics and Experiments



Nuclear Astrophysics

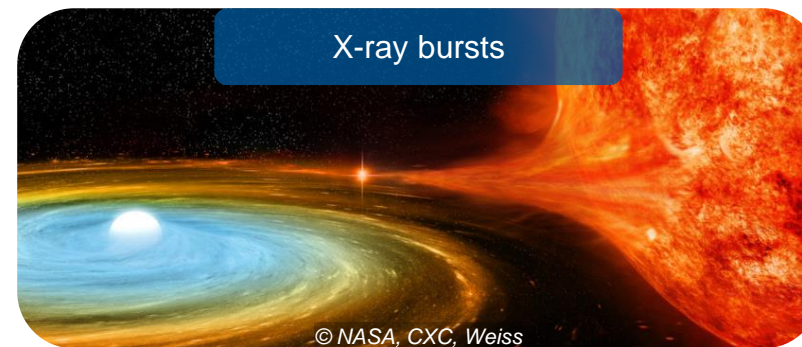
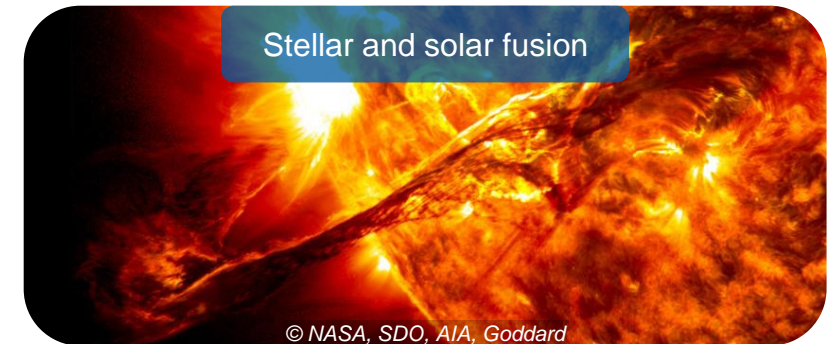
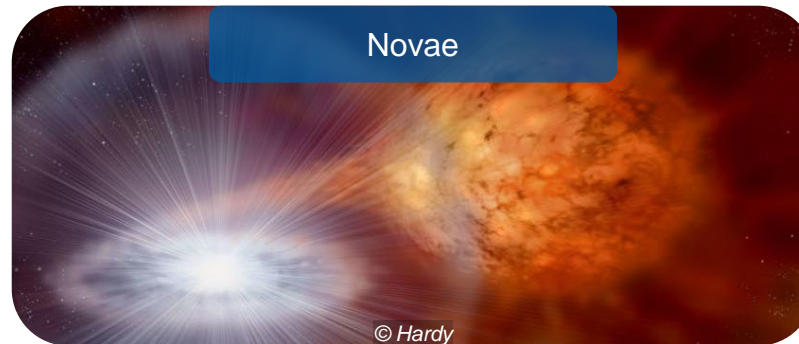
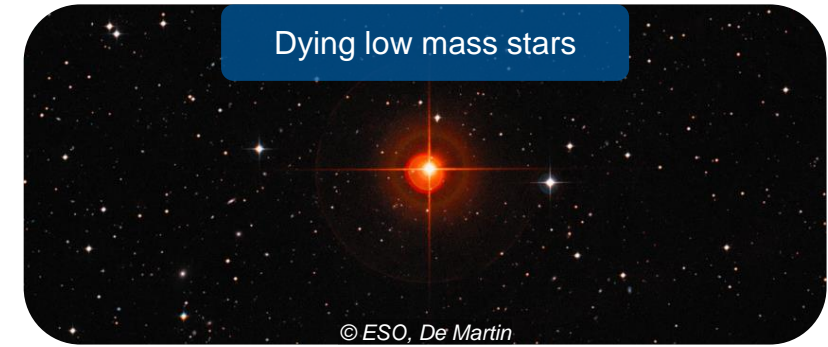
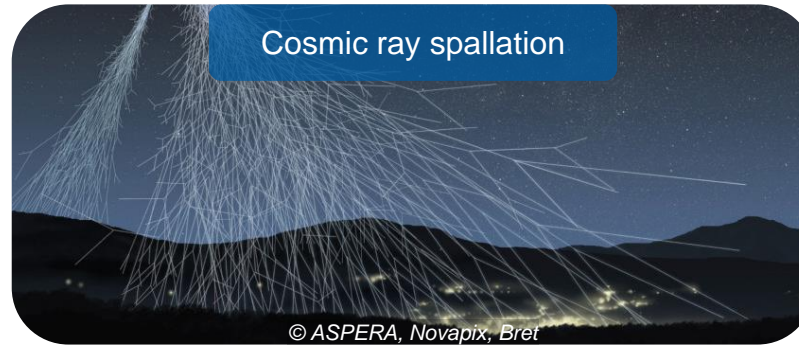
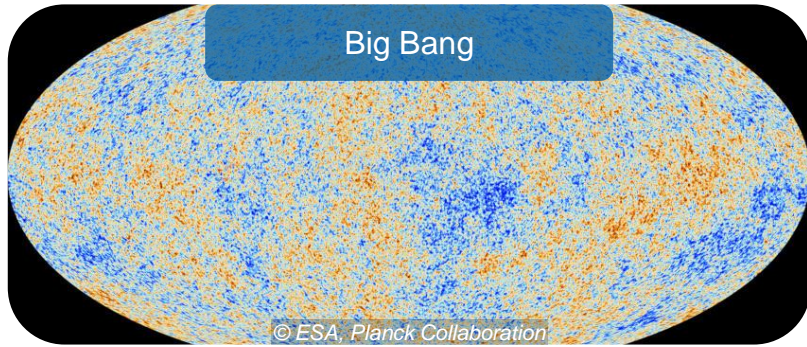
Goal of Nuclear Astrophysics

H 1	Periodic table of chemical elements (~3 minutes after the Big Bang)																He 2
Li 3																	



H 1	Periodic table of chemical elements (today)																He 2
Li 3	Be 4											B 5	C 6	N 7	O 8	F 9	Ne 10
Na 11	Mg 12											Al 13	Si 14	P 15	S 16	Cl 17	Ar 18
K 19	Ca 20	Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27	Ni 28	Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	Kr 36
Rb 37	Sr 38	Y 39	Zr 40	Nb 41	Mo 42	Tc 43	Ru 44	Rh 45	Pd 46	Ag 47	Cd 48	In 49	Sn 50	Sb 51	Te 52	I 53	Xe 54
Cs 55	Ba 56	*	Hf 72	Ta 73	W 74	Re 75	Os 76	Ir 77	Pt 78	Au 79	Hg 80	Tl 81	Pb 82	Bi 83	Po 84	At 85	Rn 86
Fr 87	Ra 88	**	Rf 104	Db 105	Sg 106	Bh 107	Hs 108	Mt 109	Ds 110	Rg 111	Cn 112	Nh 113	Fl 114	Mc 115	Lv 116	Ts 117	Og 118
		*	La 57	Ce 58	Pr 59	Nd 60	Pm 61	Sm 62	Eu 63	Gd 64	Tb 65	Dy 66	Ho 67	Er 68	Tm 69	Yb 70	Lu 71
		**	Ac 89	Th 90	Pa 91	U 92	Np 93	Pu 94	Am 95	Cm 96	Bk 97	Cf 98	Es 99	Fm 100	Md 101	No 102	Lr 103

Examples for the origin of the chemical elements



ChETEC-INFRA community


Astronomy
astronuclear
★ telescopes
for observations



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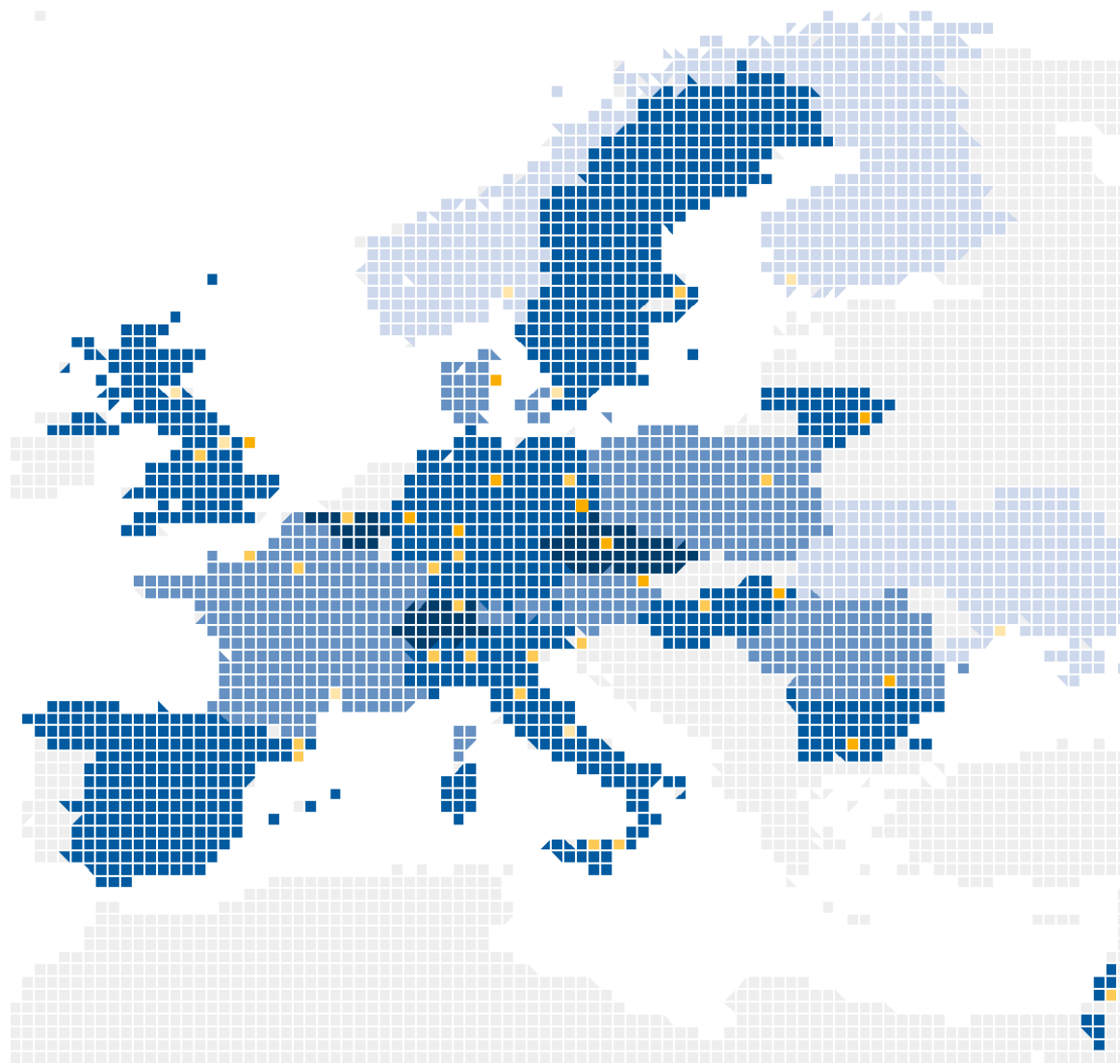
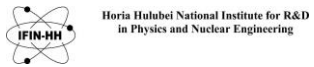
Nuclear Physics
astronuclear
★ laboratories
for experiments



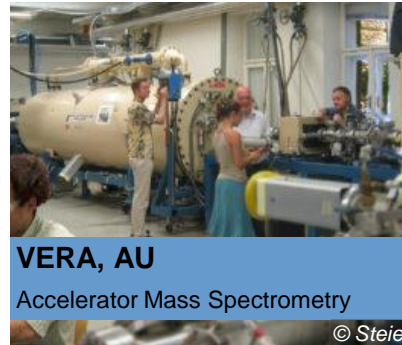

Astrophysics
astronuclear
★ supercomputers
for simulations



32 funded partners in 17 countries



13 research infrastructures



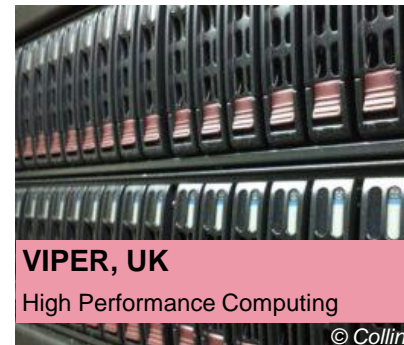
astronuclear laboratories



astronuclear supercomputers



astronuclear telescopes



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Astronuclear Library



Maria Lugaro
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Mass Spectrometry Network

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