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INFN Pisa – Accademia dei Lincei

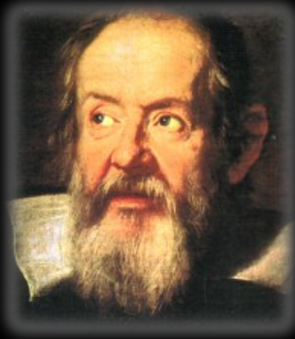


Virgo Collaboration

- ~750 members, ~450 authors, 128 institutions from 15 countries
- 34 Groups:
 - 31 full members
 - 3 in the first year (IFT Madrid, L2I Toulouse, KU Leuven)
- 9 countries represented in the VSC







SIDEREUS NUNCIUS (1610)



OBSERVAT. SIDEREAE

Ori.



Occ.

Stella occidentaliore maior, ambæ tamen valdè conspicuæ, ac splendide: vtra quæ distabat à Ioue scrupulis primis duobus; tertia quoque Stellula apparere cepit hora tertia prius minime conspecta, quæ ex parte orientali Iouem ferè tangebatur, eratque admodum exigua. Omnes fuerunt in eadem recta, & secundum Eclypticæ longitudinem coordinatæ.

Die decimatertia primum à me quatuor conspectæ fuerunt Stellulæ in hac ad Iouem constitutione. Erant tres occidentales, & vna orientalis; lineam proximè

Ori.



Occ.

rectam constituebant; media enim occidentaliū paululum à recta Septentrionem versus deflectebat. Aberrat orientaliore à Ioue minuta duo: reliquarum, & Iouis intercapedines erant singulæ vnius tantum minuti. Stellæ omnes eandem præ se ferebant magnitudinem; ac licet exiguam, lucidissimæ tamen erant, ac fixis eiusdem magnitudinis longe splendidiore.

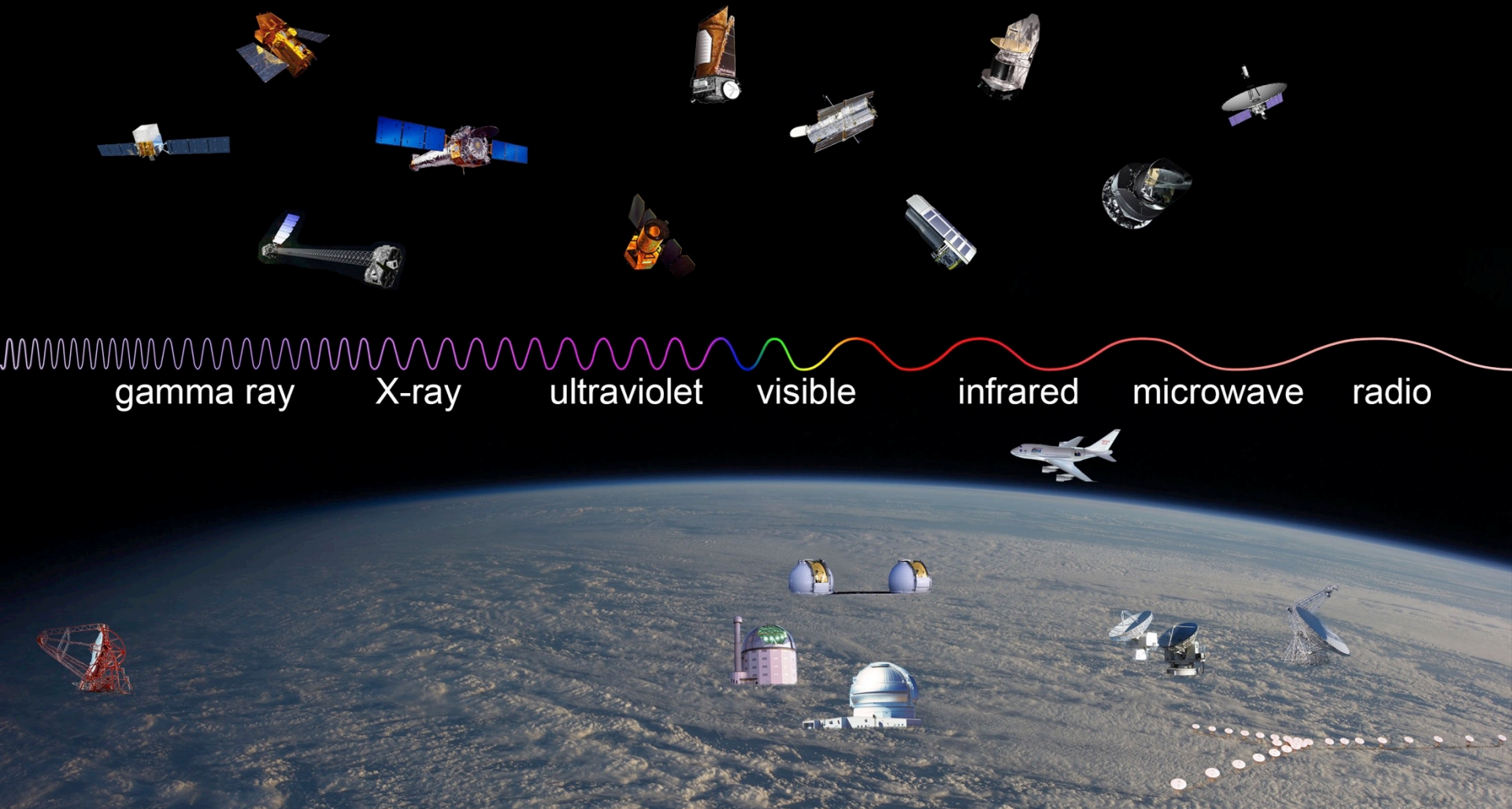
Die decimaquarta nubilosa fuit tempestas.

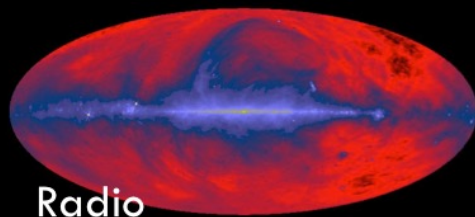
Die decimaquinta, hora noctis tertia in proximè depicta fuerunt habitudine quatuor Stellæ ad Iouem;

Ori.

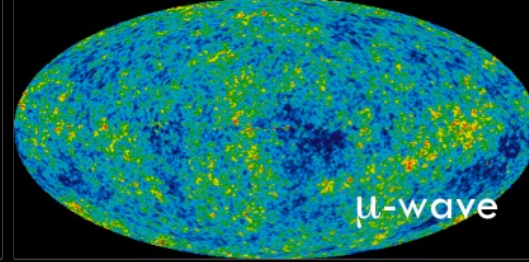


Occ.

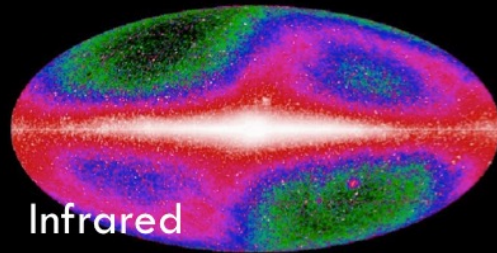




Radio



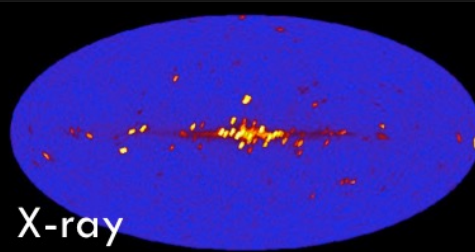
μ -wave



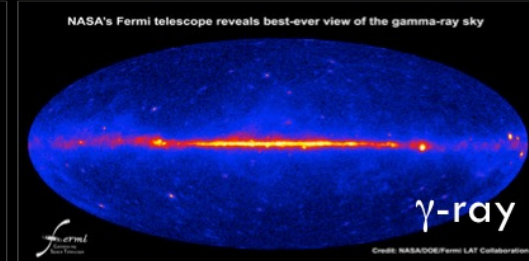
Infrared



Visible



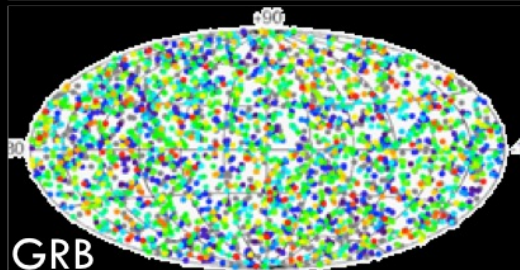
X-ray



NASA's Fermi telescope reveals best-ever view of the gamma-ray sky

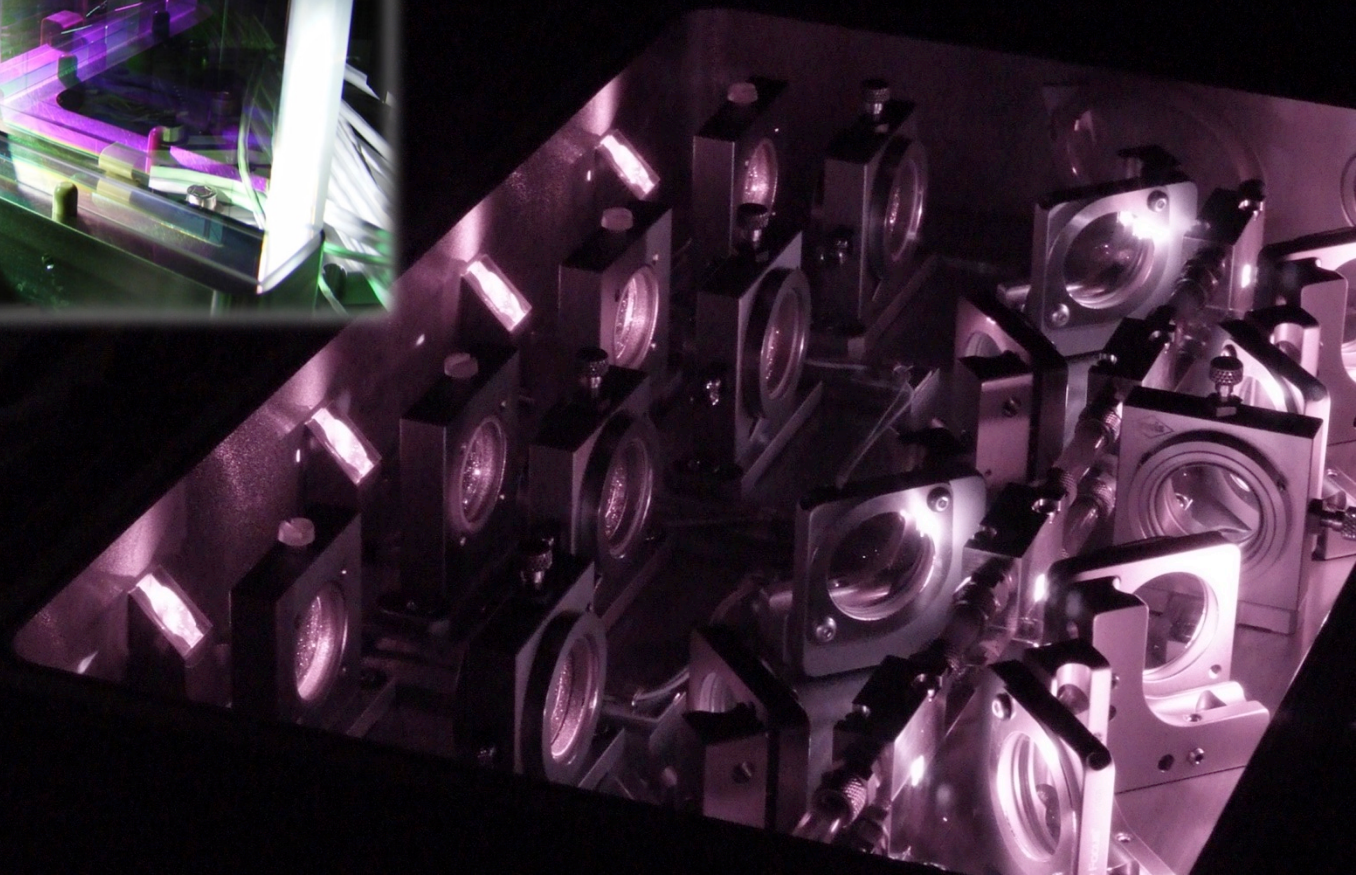
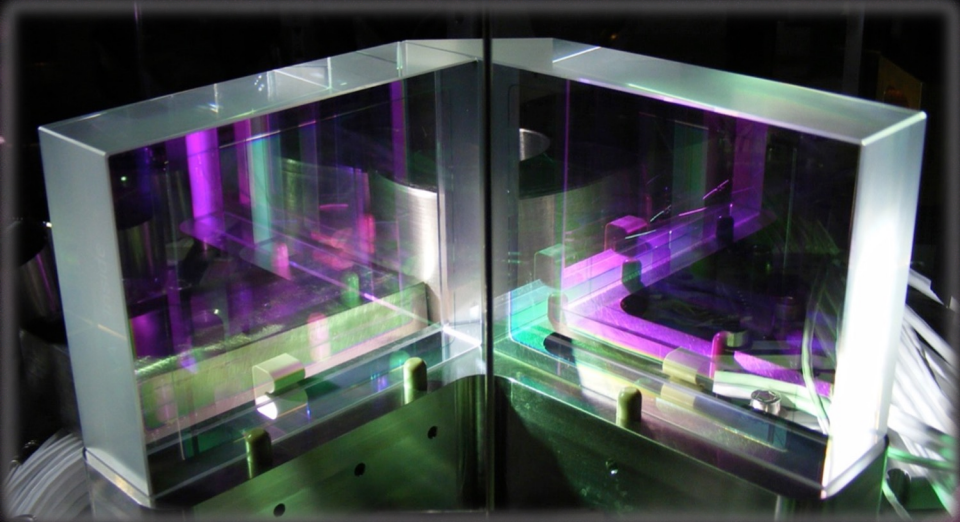
γ -ray

Credit: NASA/DOE/Fermi LAT Collaboration



GRB

surdo



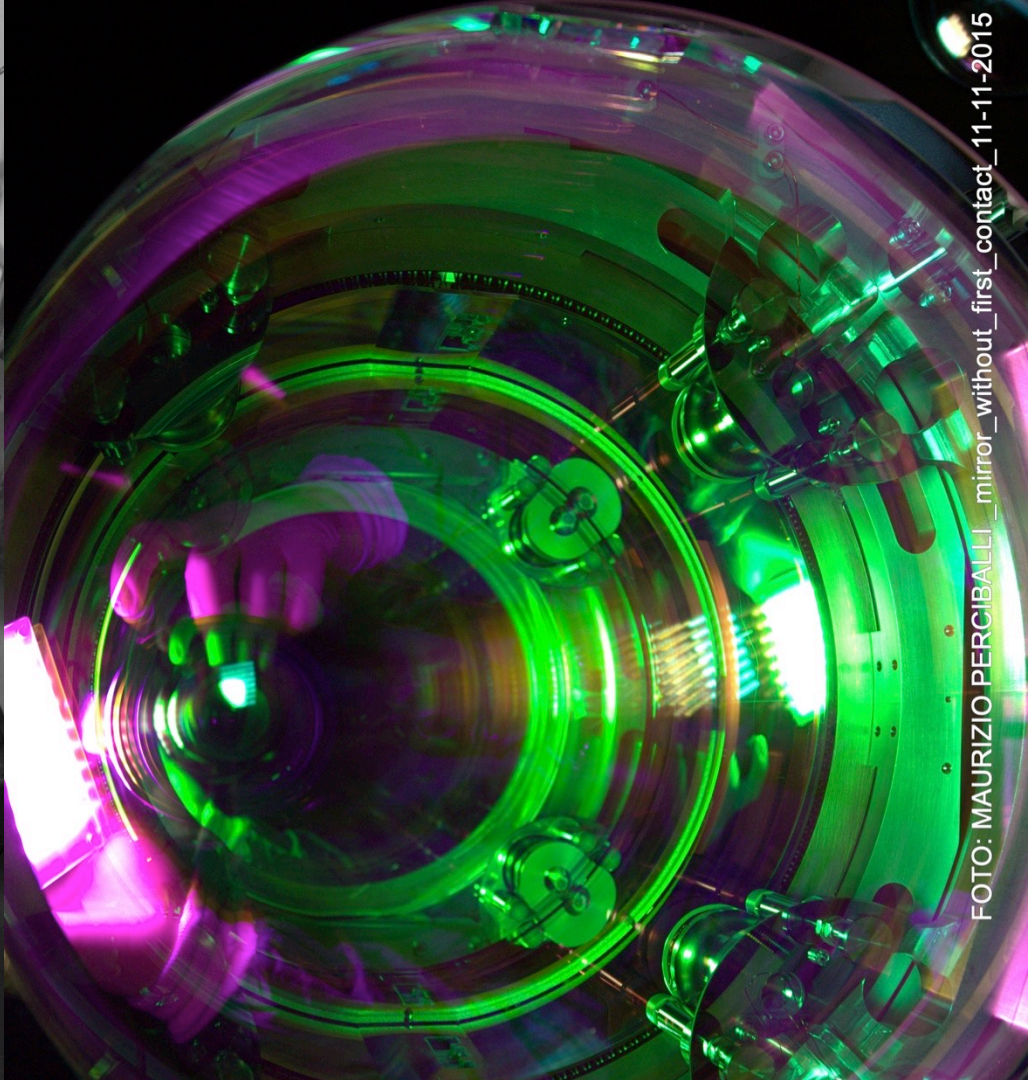
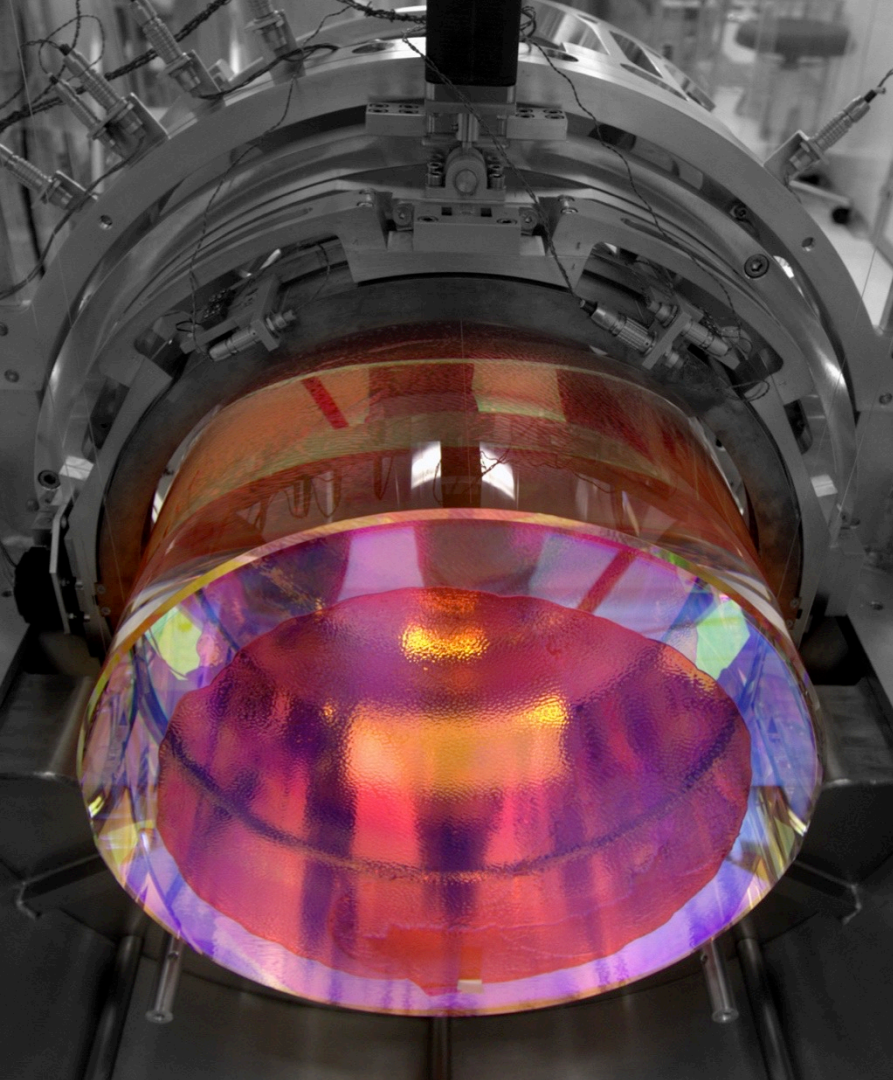
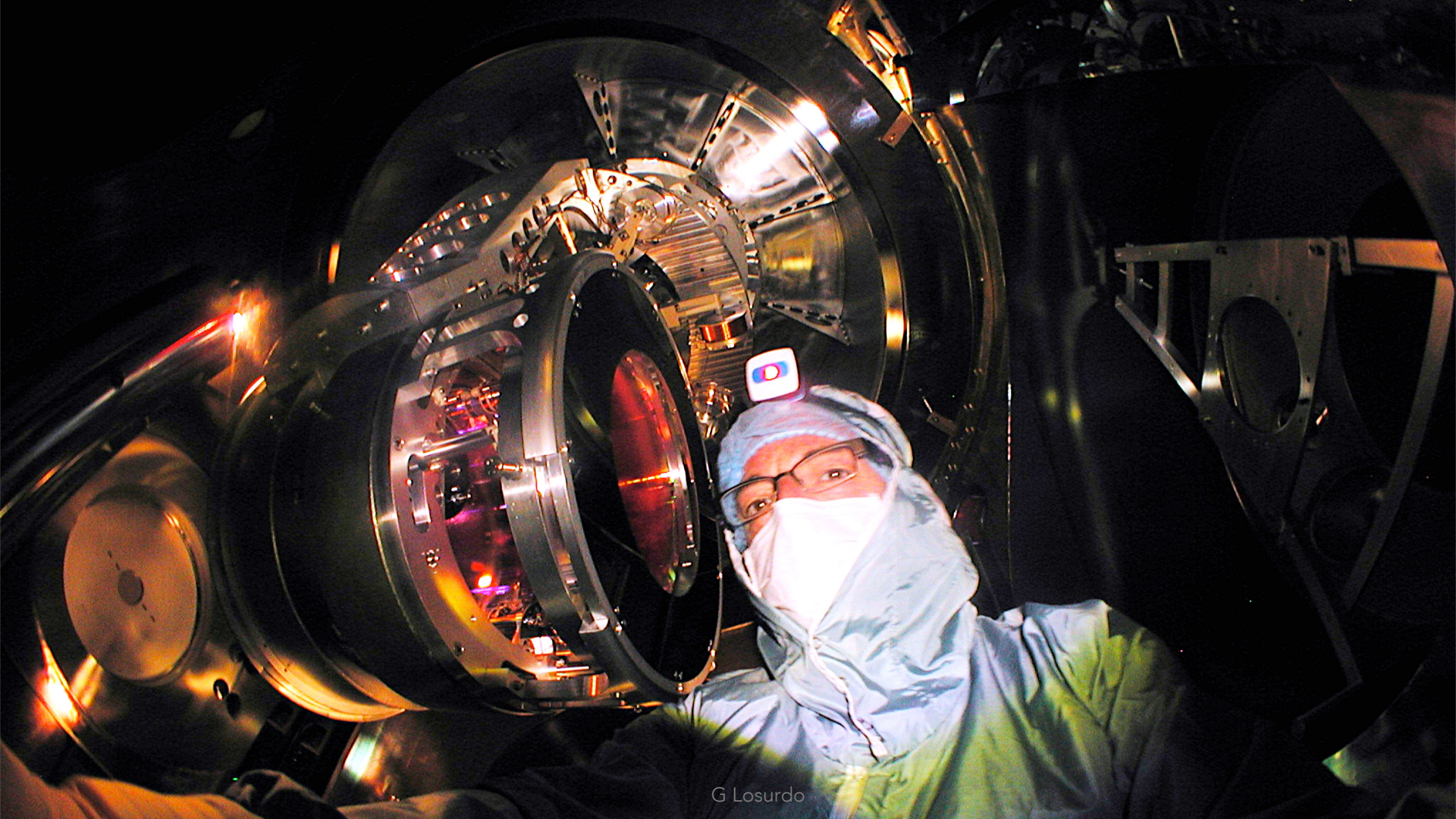


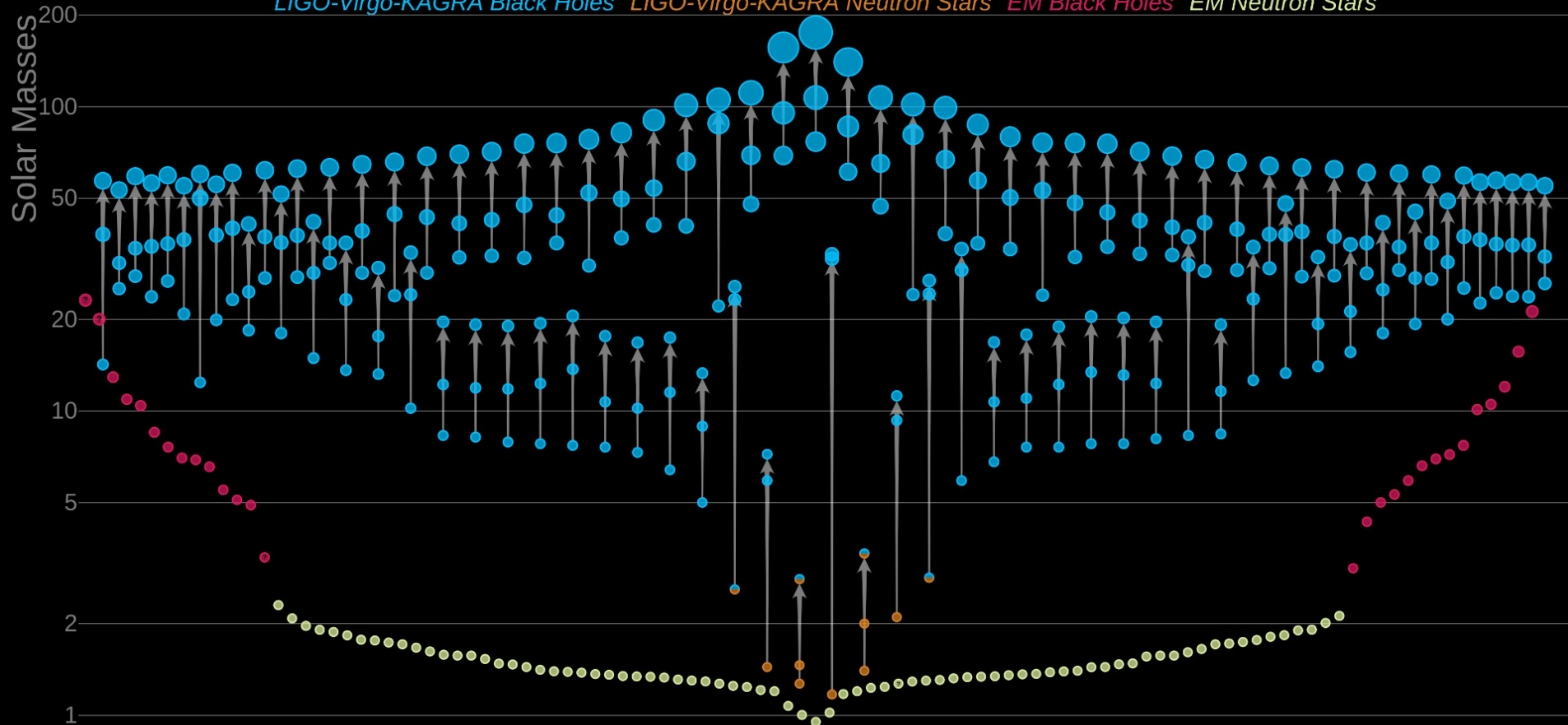
FOTO: MAURIZIO PERCIBALLI_mirror_without_first_contact_11-11-2015





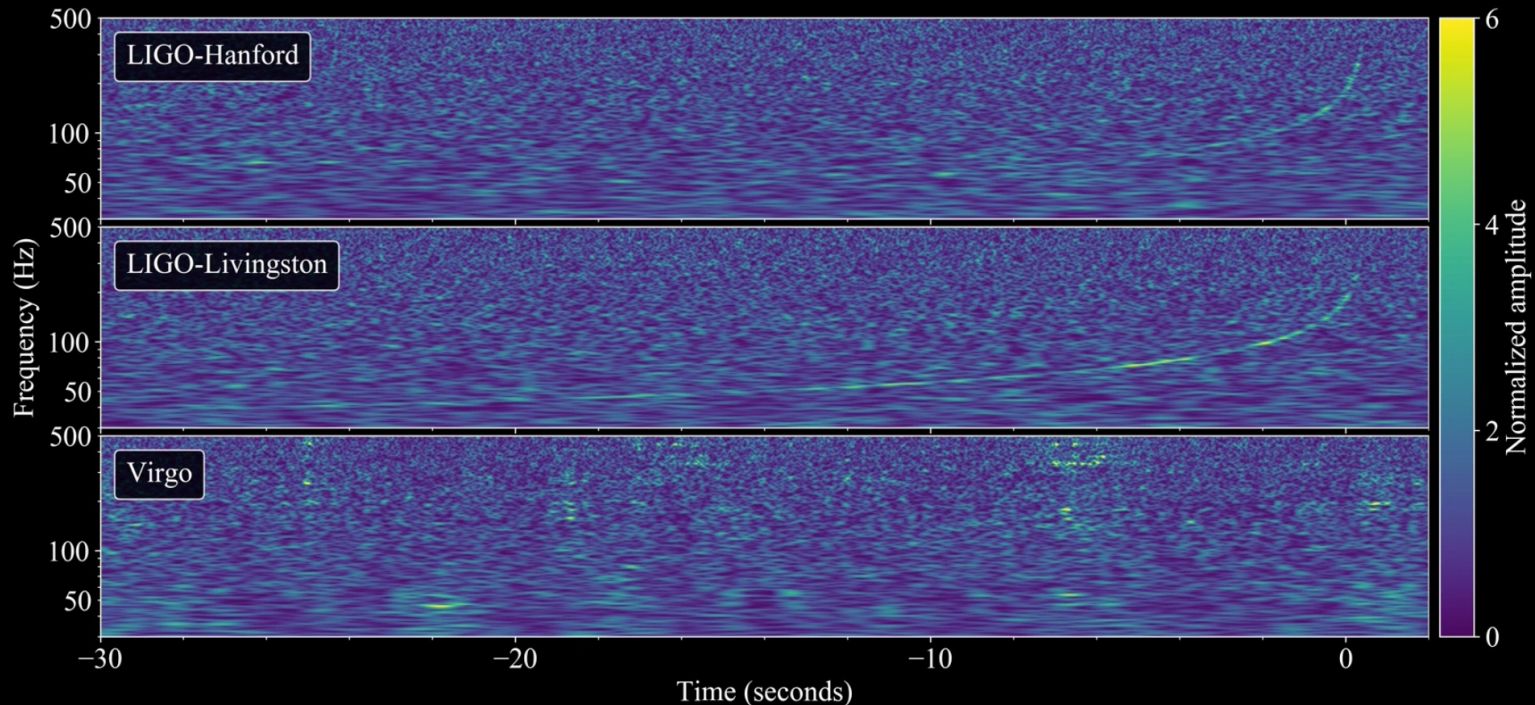
Masses in the Stellar Graveyard

LIGO-Virgo-KAGRA Black Holes *LIGO-Virgo-KAGRA Neutron Stars* *EM Black Holes* *EM Neutron Stars*



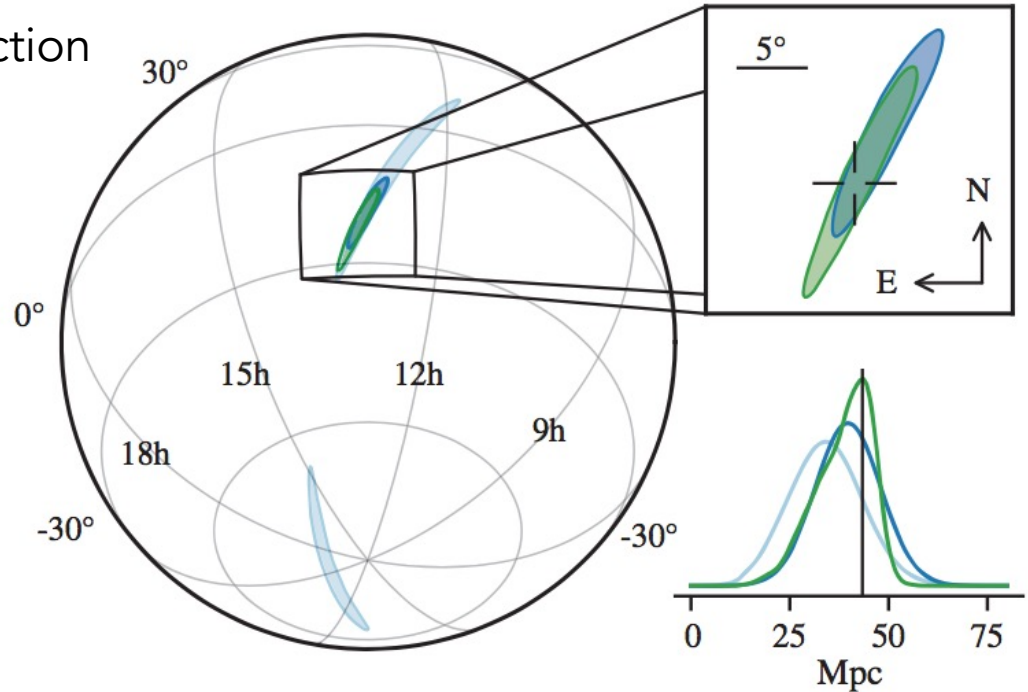
GW180817

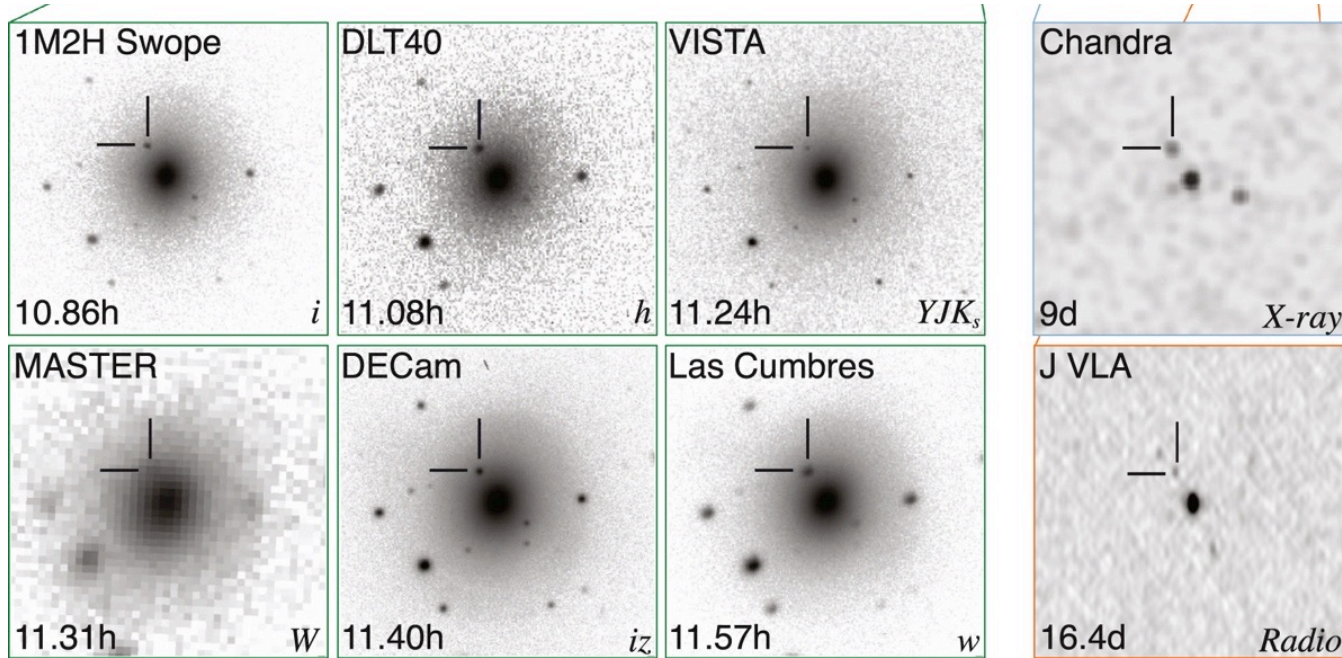
Aug 17th 2017 at 12:41 UTC Advanced LIGO-Virgo detected a binary neutron star inspiral



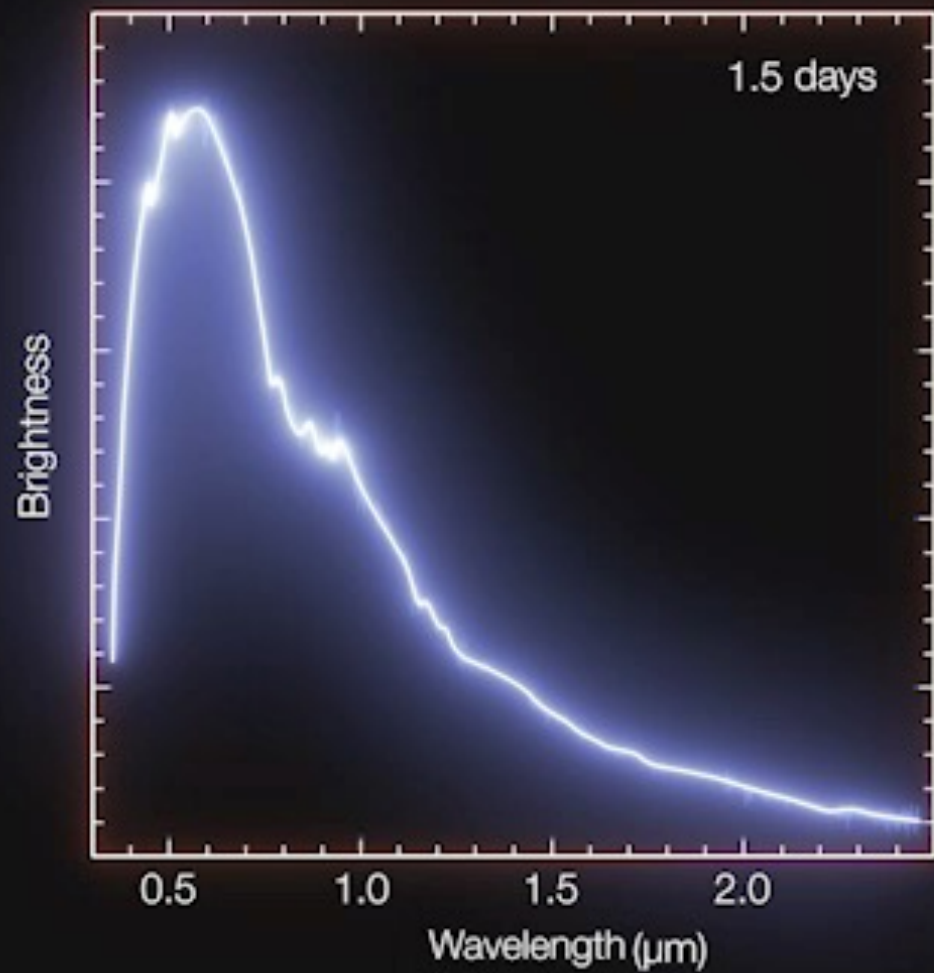
- Final sky maps: localization within 28 sq deg (90% probability): vital for subsequent EM follow-up
- Initial alert: 27' after detection

Abbott et al., PRL., 119, 161101 (2017)





Abbott et al., ApJL, 848:L12 (2017)



Periodic Table of the Elements

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1 H																	2 He		
3 Li	4 Be													5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg													13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr		
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe		
55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn		
87 Fr	88 Ra																		
			57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu		
			89 Ac	90 Th	91 Pa	92 U													

Yellow: Formed by Merging Neutron Stars

EINSTEIN TELESCOPE

