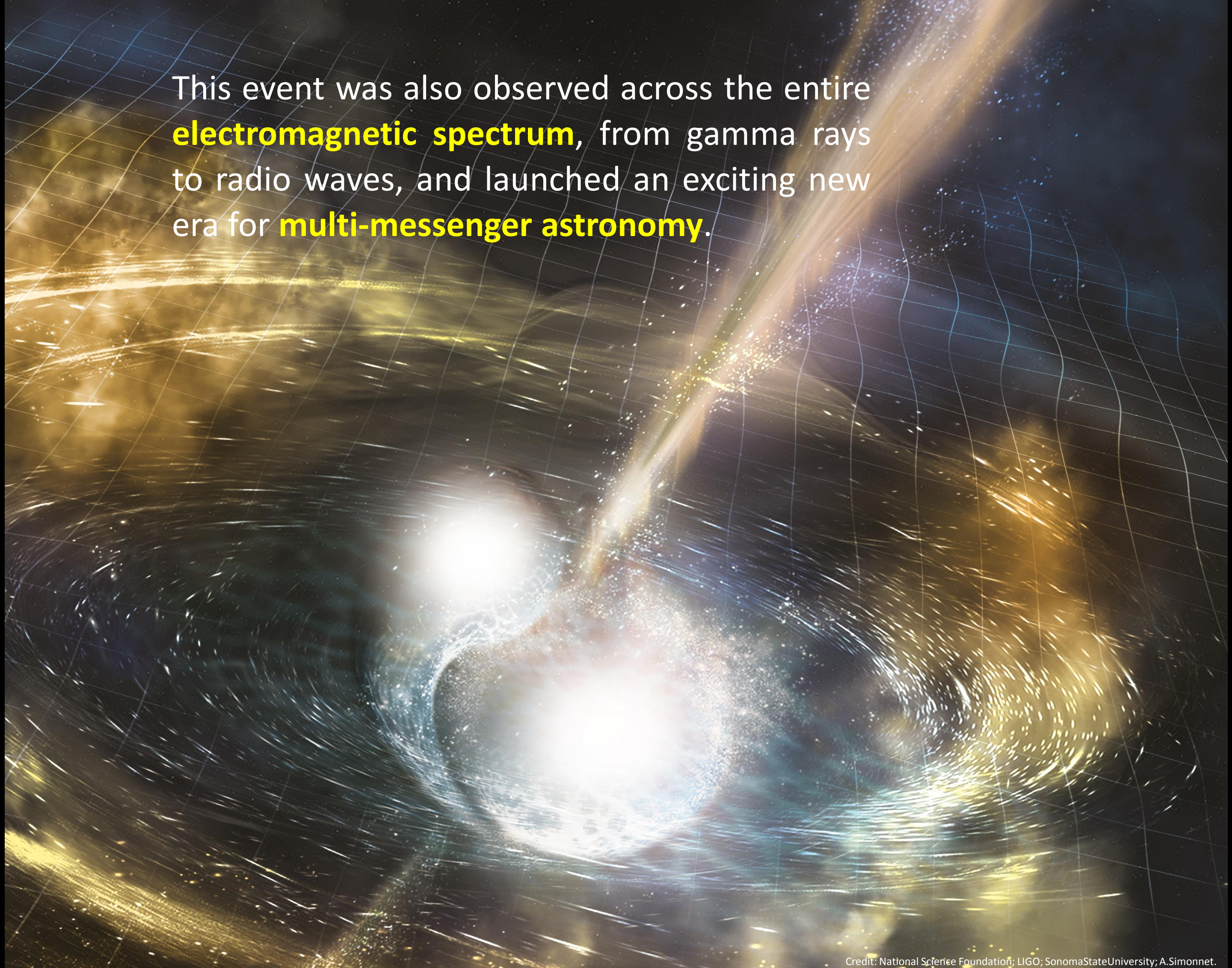


“Ripples of Gravity, Flashes of Light”

On Aug 17th 2017 the **LIGO** and **Virgo** Observatories made the first ever detection of **gravitational waves** from the merger of two **neutron stars** 130 million light years distant.

This event was also observed across the entire **electromagnetic spectrum**, from gamma rays to radio waves, and launched an exciting new era for **multi-messenger astronomy**.



Credit: National Science Foundation; LIGO; SonomaStateUniversity; A.Simonnet.



GW150914

GW151226

GW170104

Credit: LIGO; Virgo; NASA; Leo Singer

The **global network** of gravitational-wave observatories helped to pin-point the sky position of **GW170817** to within only **28 square degrees** – allowing **optical telescopes** to quickly identify its host galaxy, and the **kilonova** that formed its aftermath.

1 H	big bang fusion															cosmic ray fission										2 He									
3 Li	4 Be	merging neutron stars										exploding massive stars										5 B	6 C	7 N	8 O	9 F	10 Ne								
11 Na	12 Mg	dying low mass stars										exploding white dwarfs										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	57 Fr	58 Ra	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 La	88 Ce	89 Pr	90 Nd	91 Pm	92 Sm	93 Eu	94 Gd	95 Tb	96 Dy	97 Ho	98 Er	99 Tm	100 Yb	101 Lu																					
89 Ac	90 Th	91 Pa	92 U																																

Credit: Jennifer A. Johnson/The Ohio State University; NASA; ESA

Together, these first ever observations of **gravity and light** from the same cosmic event have brought spectacular new insights to many fundamental questions: from the **expanding universe** and the **speed of gravity** to the cosmic origin of precious elements like **platinum and gold**.

To find out more about the amazing science and technology of the **Laser Interferometer Gravitational-Wave Observatory**, visit our website at:

www.ligo.org

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