



IOH. KEPLERI  
MATHEMATICI  
OLIM IMPERATORII  
S O M N I V M,

*Seu*

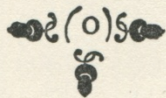
OPVS POSTHVMVM  
DE ASTRONOMIA  
L V N A R I.

*Divulgatum,*

*à*

M. LUDOVICO KEPLERO FILIO,  
Medicinæ Candidato.

*Impressum partim Sagani Silesiorum, absolutum Fran-  
cofurti, sumptibus heredum  
authoris.*



ANNO M DC XXXIV.

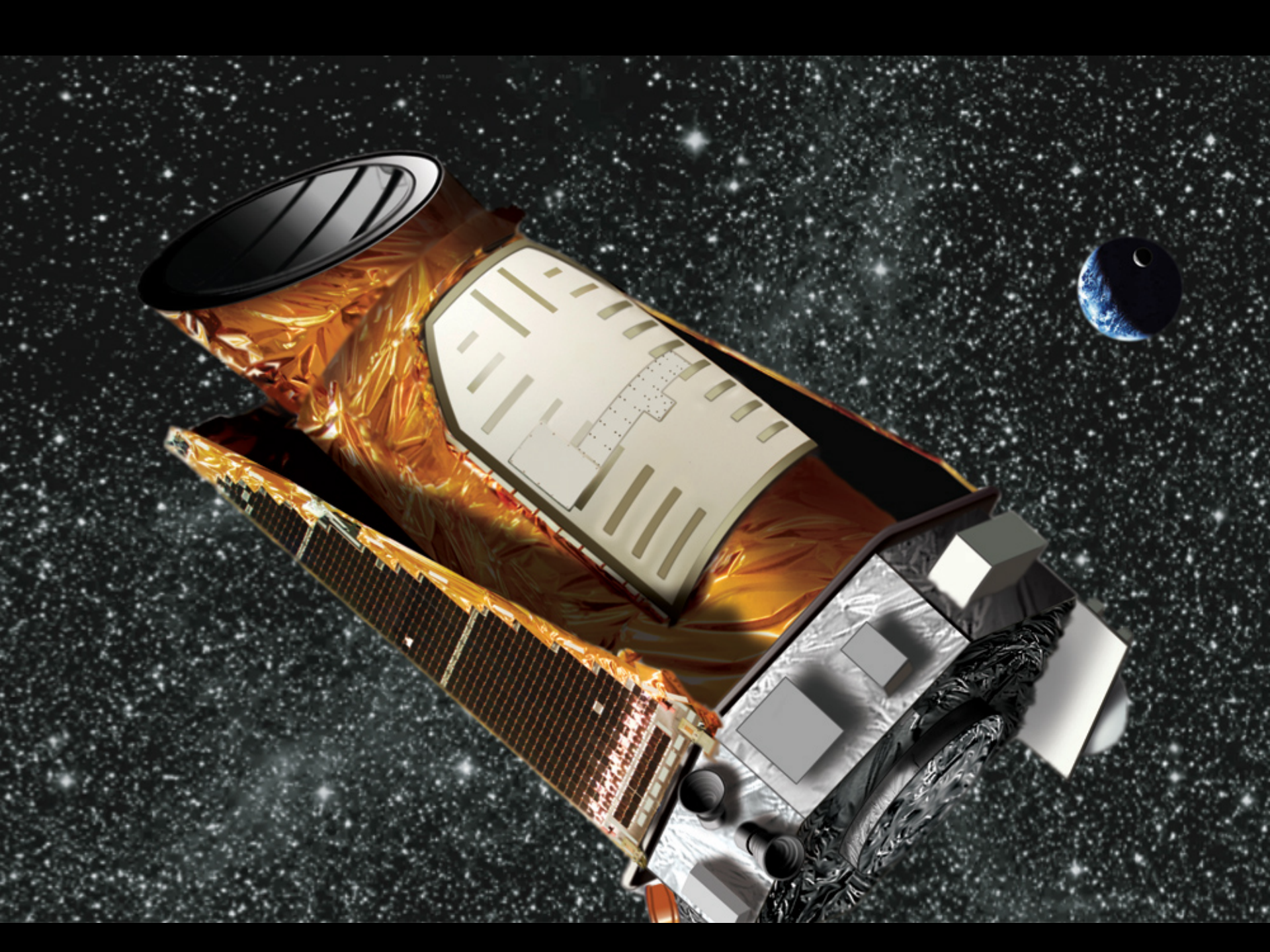


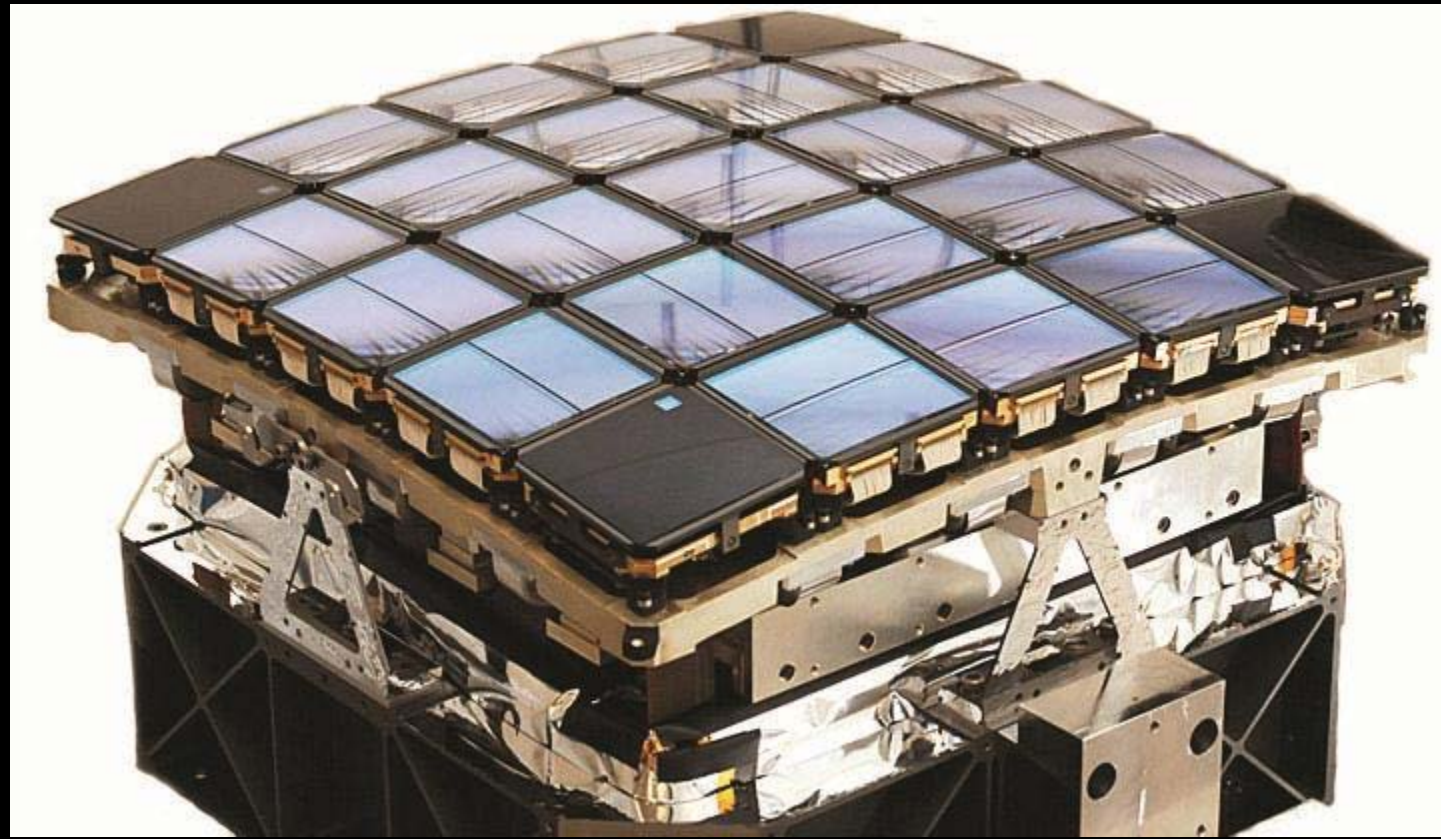
# SOMNIUM

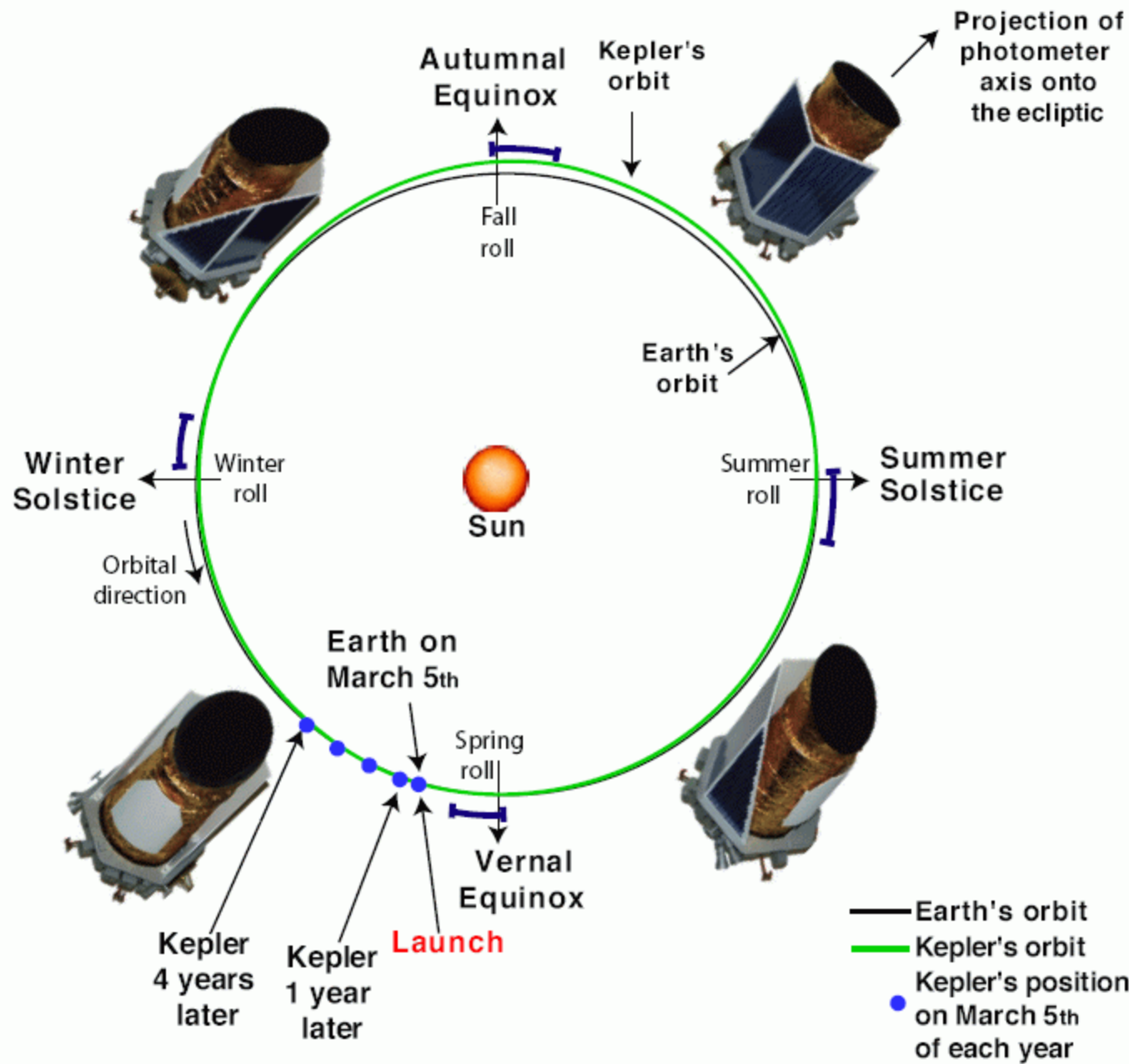
- a CYBERNETIC bio-technological landscape that provides Visitors with the ability to sensorily, cognitively and emotionally contemplate and experience exoplanetary discoveries, their macro and micro dimensions and the potential for exo-Earth life in our Galaxy

# KEPLER 1 MISSION

- May 12, 2009 – August 15, 2013
- Up now – 2335 confirmed exoplanets discovered
- A photometer is the main instrument of the mission
- Transit photometry observations, doppler spectroscopy, transit timing variation and validation by multiplicity are used for validation of exo planet candidates

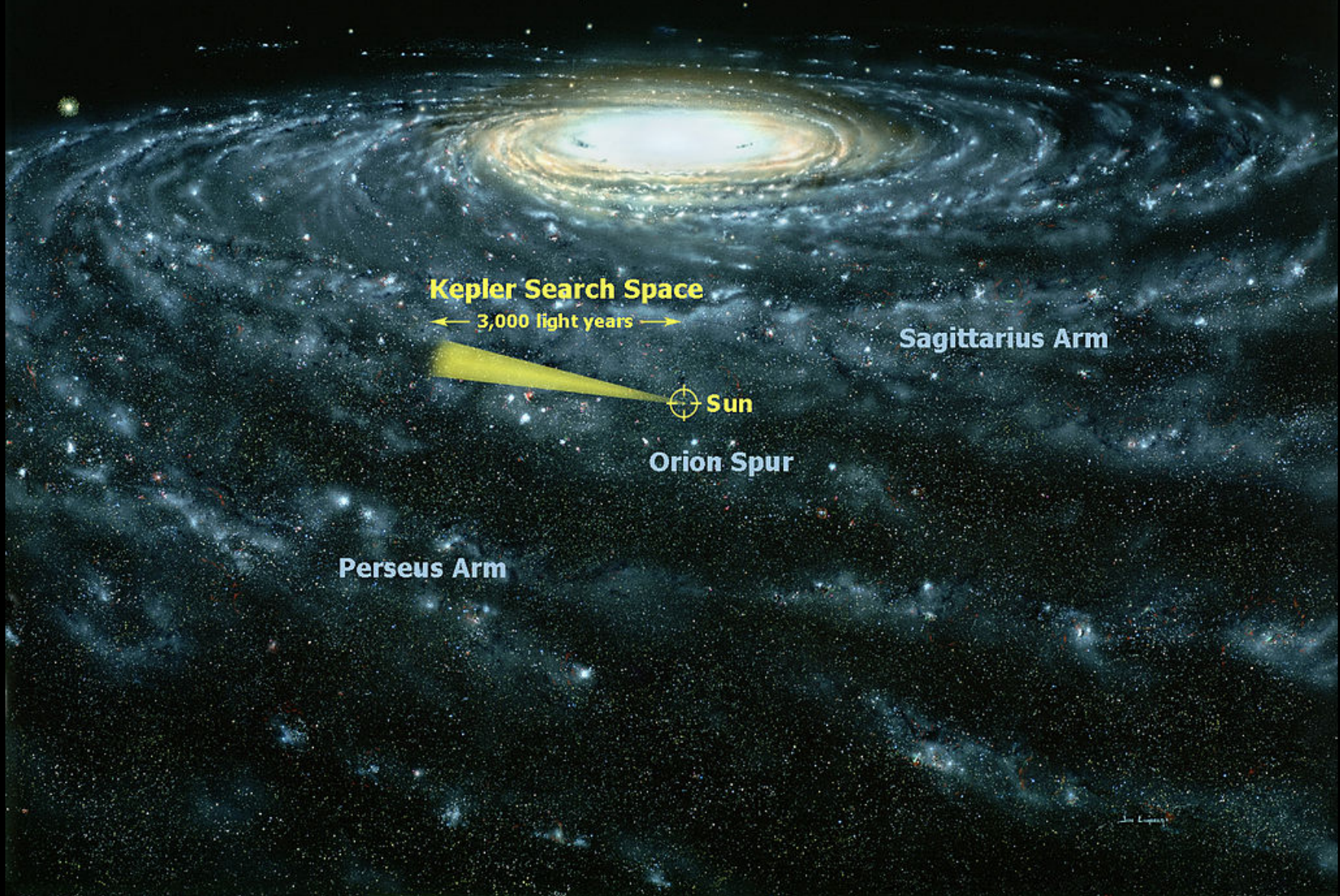








# Milky Way Galaxy



**Kepler Search Space**

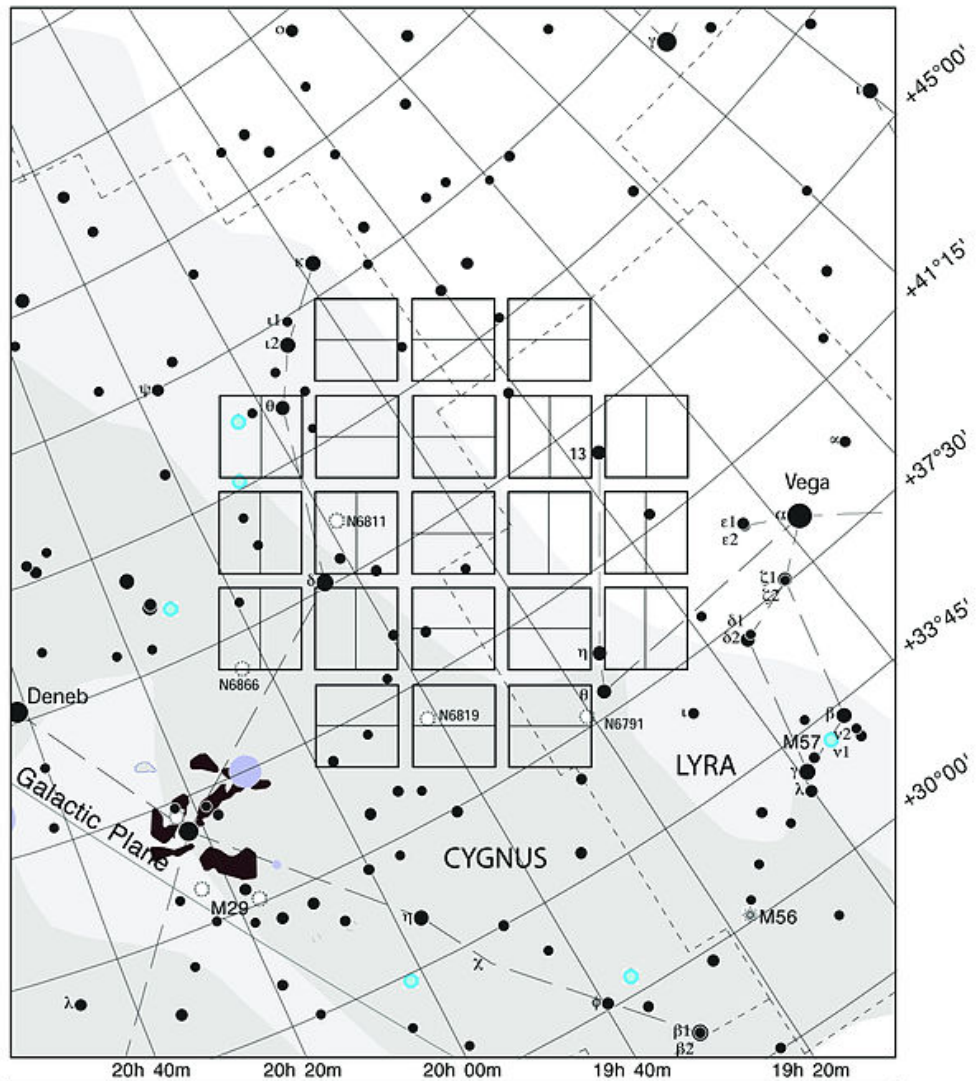
← 3,000 light years →

**Sagittarius Arm**

**Sun**

**Orion Spur**

**Perseus Arm**

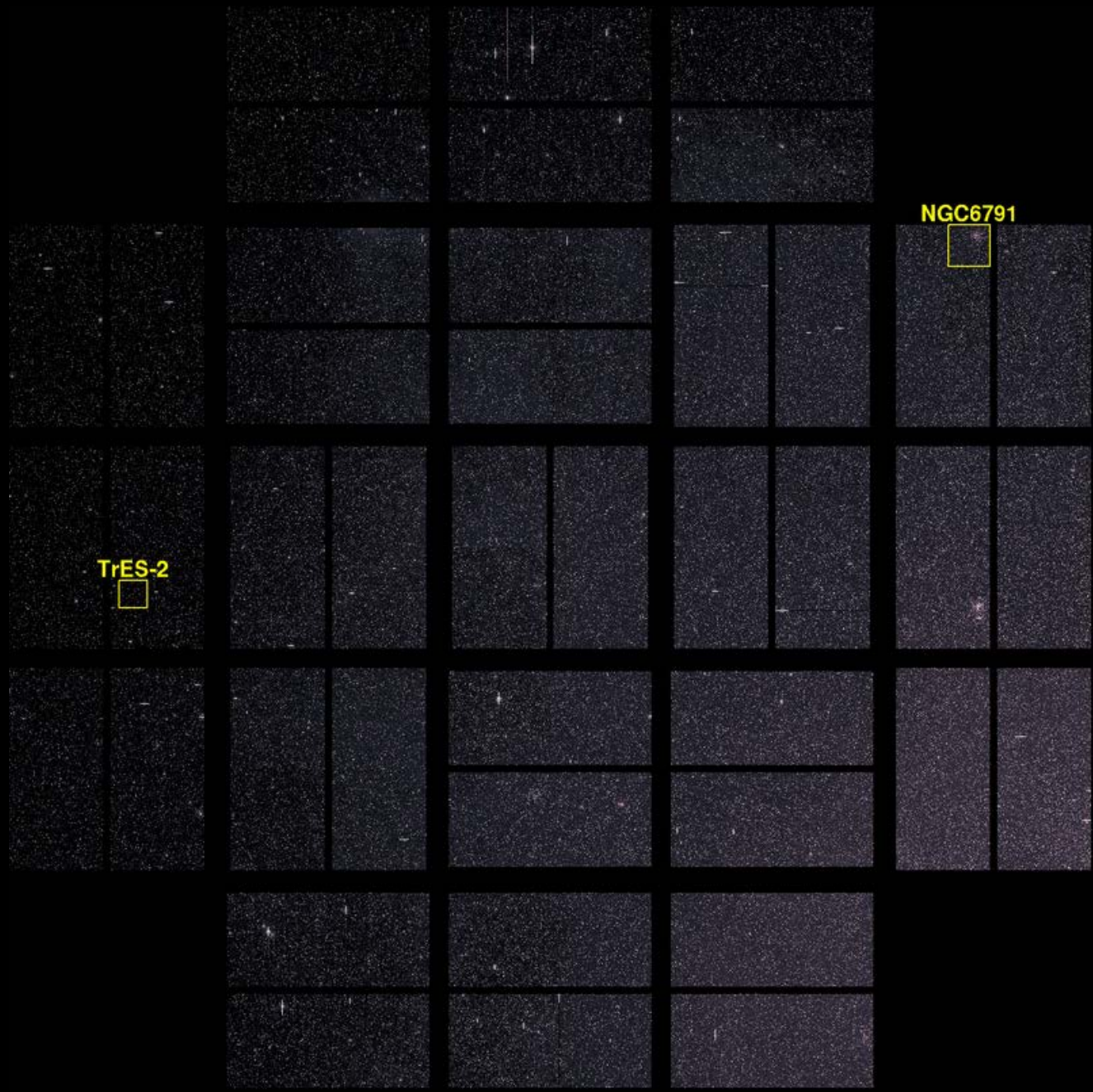


<p>Star Magnitudes</p> <p>● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6</p>	<p>○ Open Cluster</p> <p>⊛ Globular Cluster</p> <p>☁ Nebula</p> <p>● Planetary Nebula</p>	
<p><i>Kepler FOV</i></p>	<p>FOV Center RA: 19h 22m 40s Dec: +44 30' 00" 9/10/04</p>	

# SOMNIUM PREMISE

- Materializing the abstract KEPLER mission data on exoplanets in a closed loop observation system
- Having the analogue of the KEPLER photometer as a rotating glass disc which doubles as a sonification field

- MICRO – MACRO dimensions
- the distances and numbers are beyond comprehension, they need scale adjustments both on the visual and aural levels

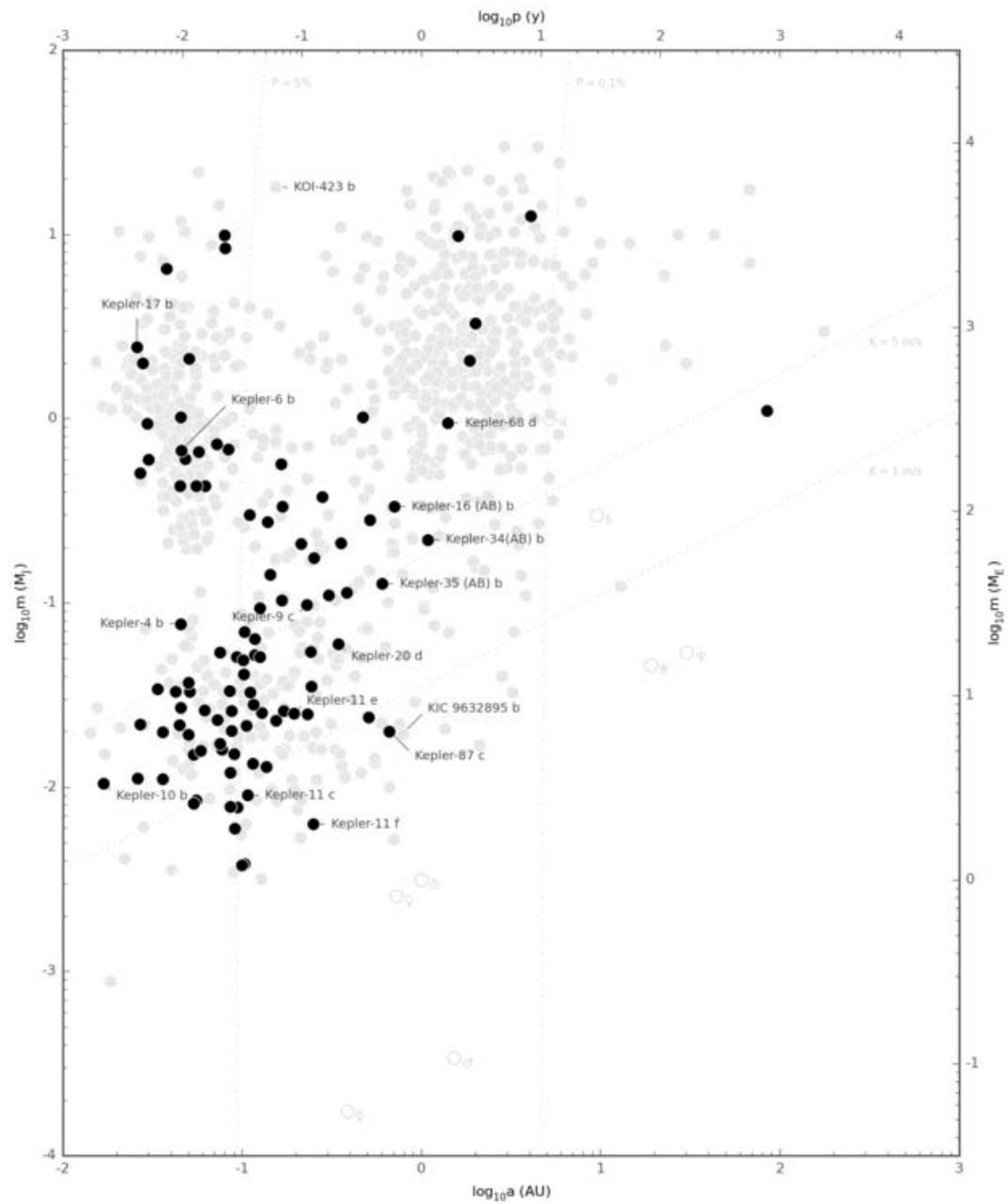


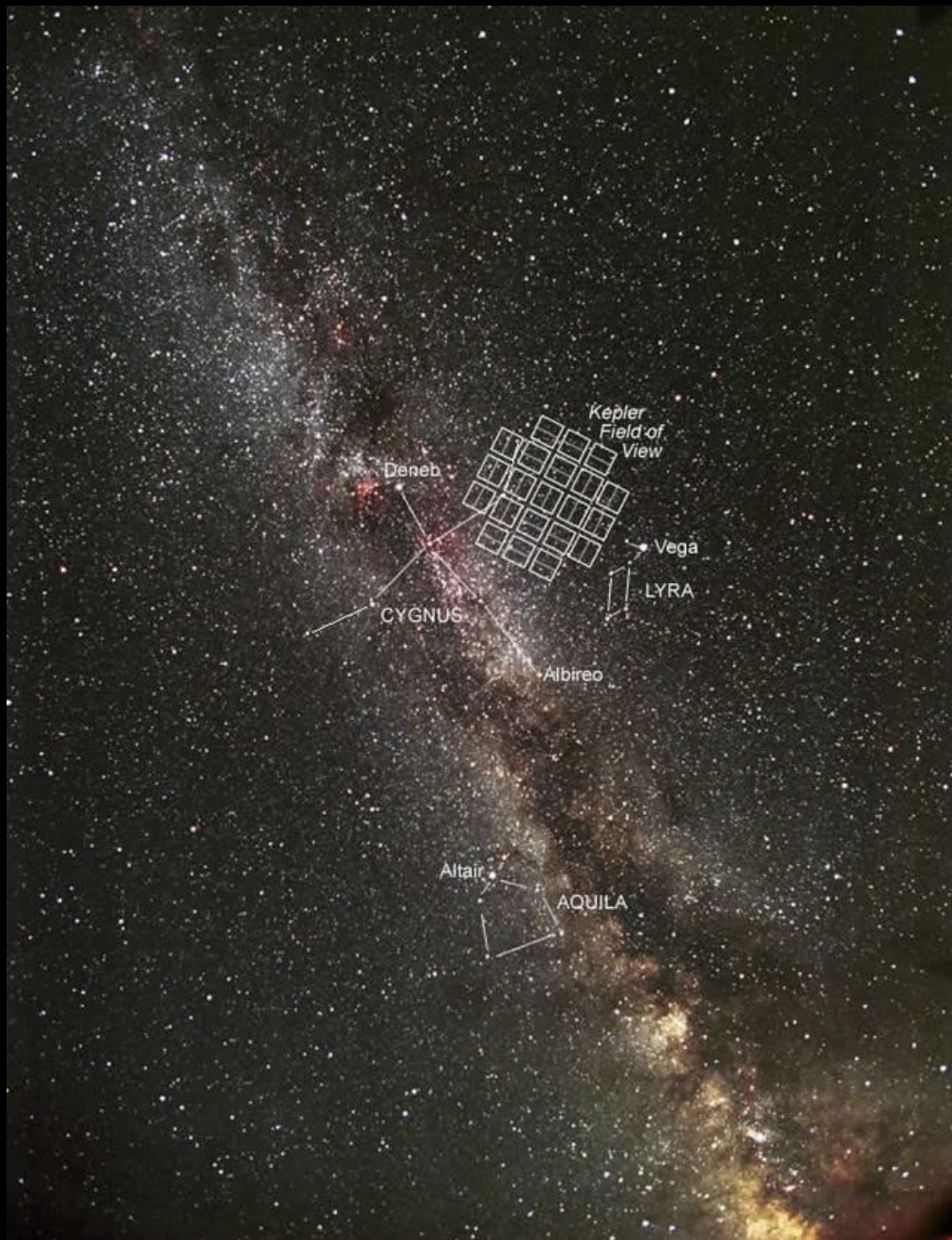
TrES-2



NGC6791

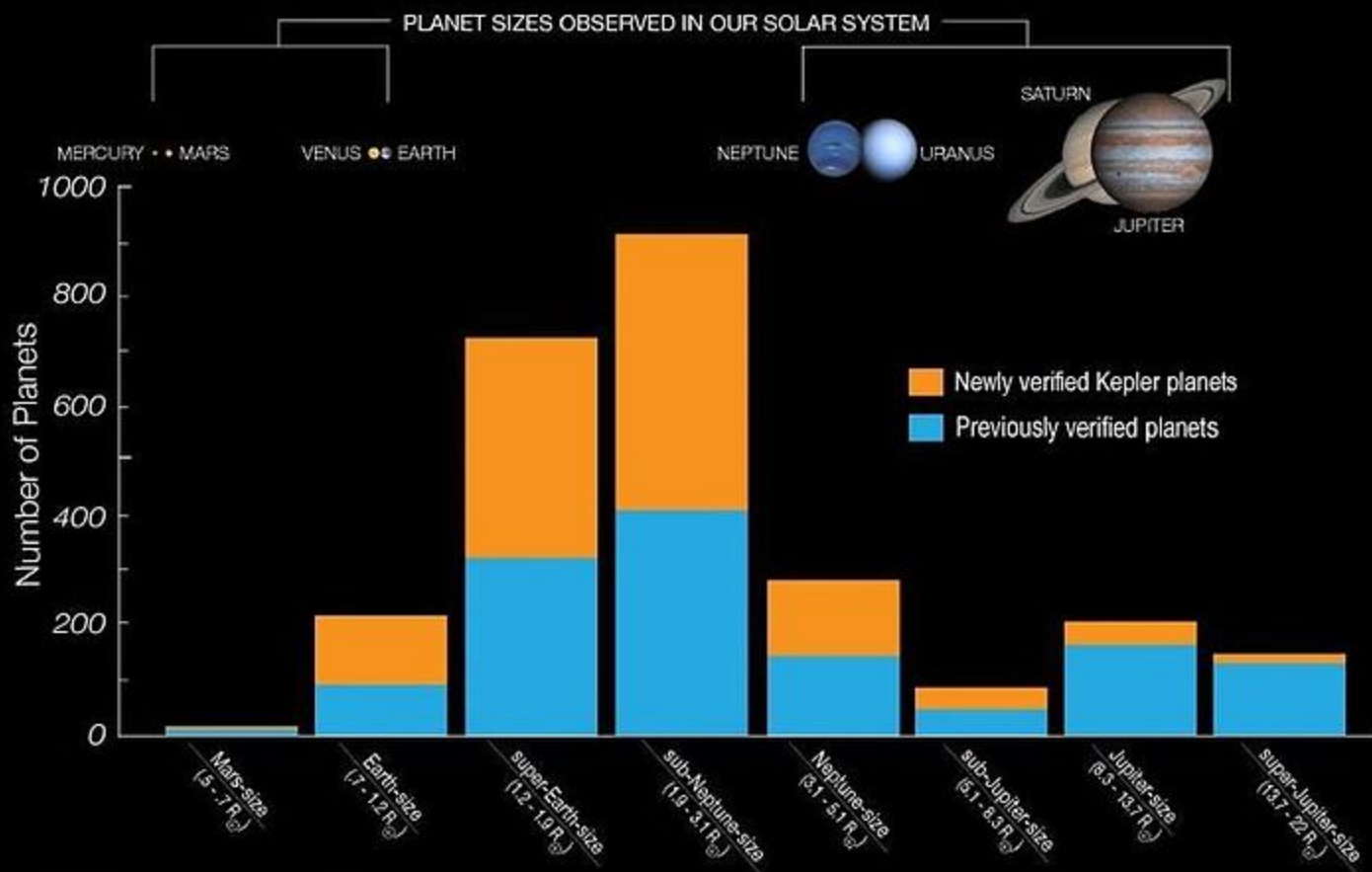






# Known Planets by Size

As of May 10, 2016





- Candidate exoplanets: 4,496
- Confirmed exoplanets: 2,335
- Confirmed exoplanets less than twice Earth-size in the habitable zone: 21

# DRAKE'S EQUATION AND CHILDREN

$$N = R_* \cdot f_p \cdot n_e \cdot f_1 \cdot f_i \cdot f_c \cdot L$$

$N$  = the number of civilizations in our galaxy with which communication might be possible (i.e. which are on our current past light cone);

and

$R_*$  = the average rate of star formation in our galaxy

$f_p$  = the fraction of those stars that have planets

$n_c$  = the average number of planets that can potentially support life per star that has planets

$f_l$  = the fraction of planets that could support life that actually develop life at some point

$f_i$  = the fraction of planets with life that actually go on to develop intelligent life (civilizations)

$f_c$  = the fraction of civilizations that develop a technology that releases detectable signs of their existence into space

$L$  = the length of time for which such civilizations release detectable signals into space

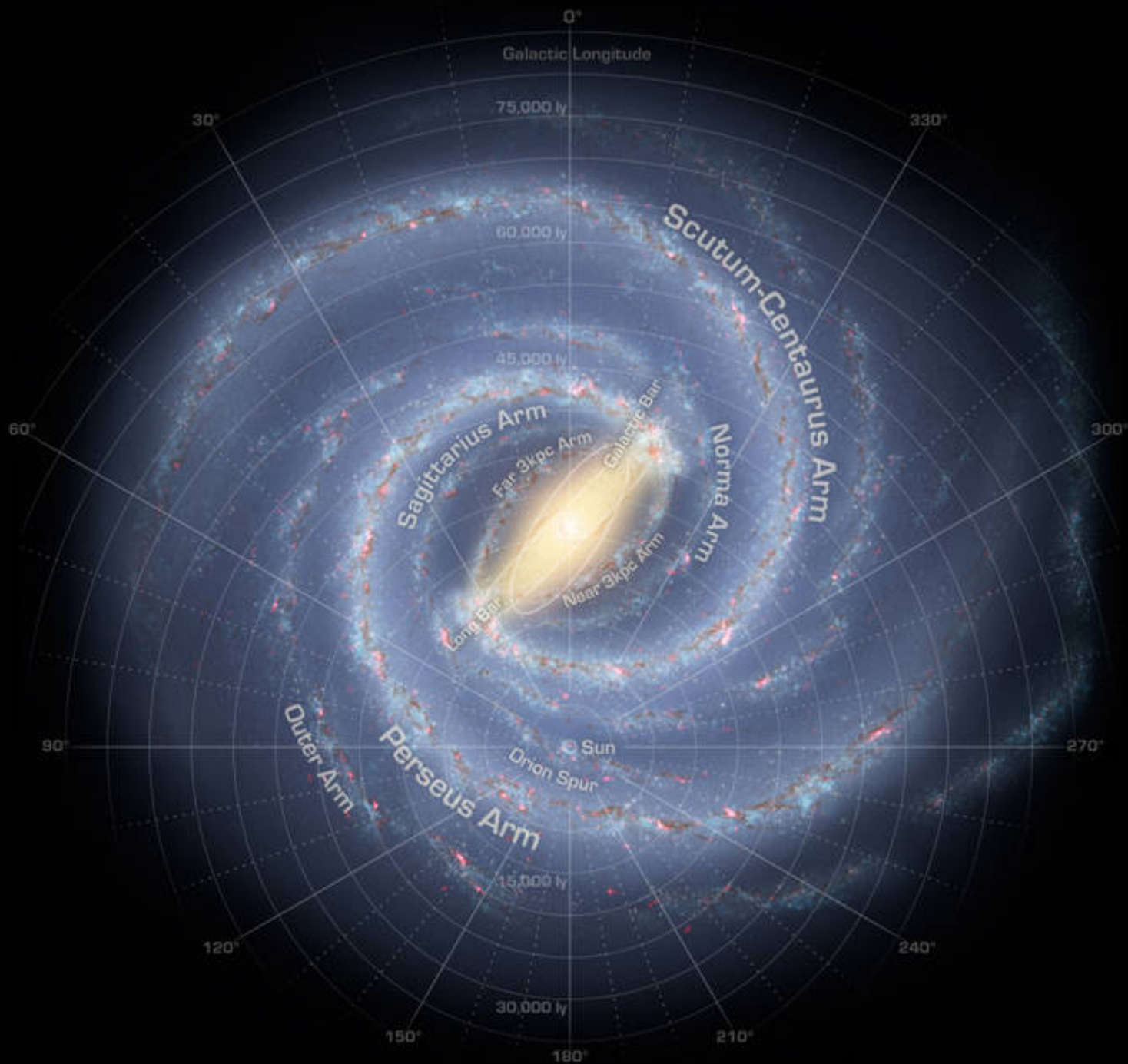
$$N = R_* \cdot f_p \cdot n_c \cdot f_l \cdot f_i \cdot f_c \cdot L$$

EQUATION GIVES WIDELY VARYING RESULTS,  
DUE TO MANY UNKNOWNNS AND STATISTICAL  
ESTIMATES:

From 0 life in the known universe to 156 million life  
supporting planets in our own MILKY WAY galaxy.

ZERO vs 156 000 000

For Earth to have the only civilization that has ever occurred in the universe, then the odds of any habitable planet ever developing such a civilization must be less than  $2.5 \times 10^{-24}$ . Similarly, for Earth to host the only civilization in our galaxy for all time, the odds of a habitable zone planet ever hosting intelligent life must be less than  $1.7 \times 10^{-11}$  (about 1 in 60 billion). The figure for the universe implies that it is highly unlikely that Earth hosts the only intelligent life that has ever occurred. The figure for our galaxy suggests that other civilizations may have occurred or will likely occur



OUR RADIO SIGNALS HAVE A REACH OF APPROXIMATELY 100 LIGHT YEARS AROUND OUR SOLAR SYSTEM.

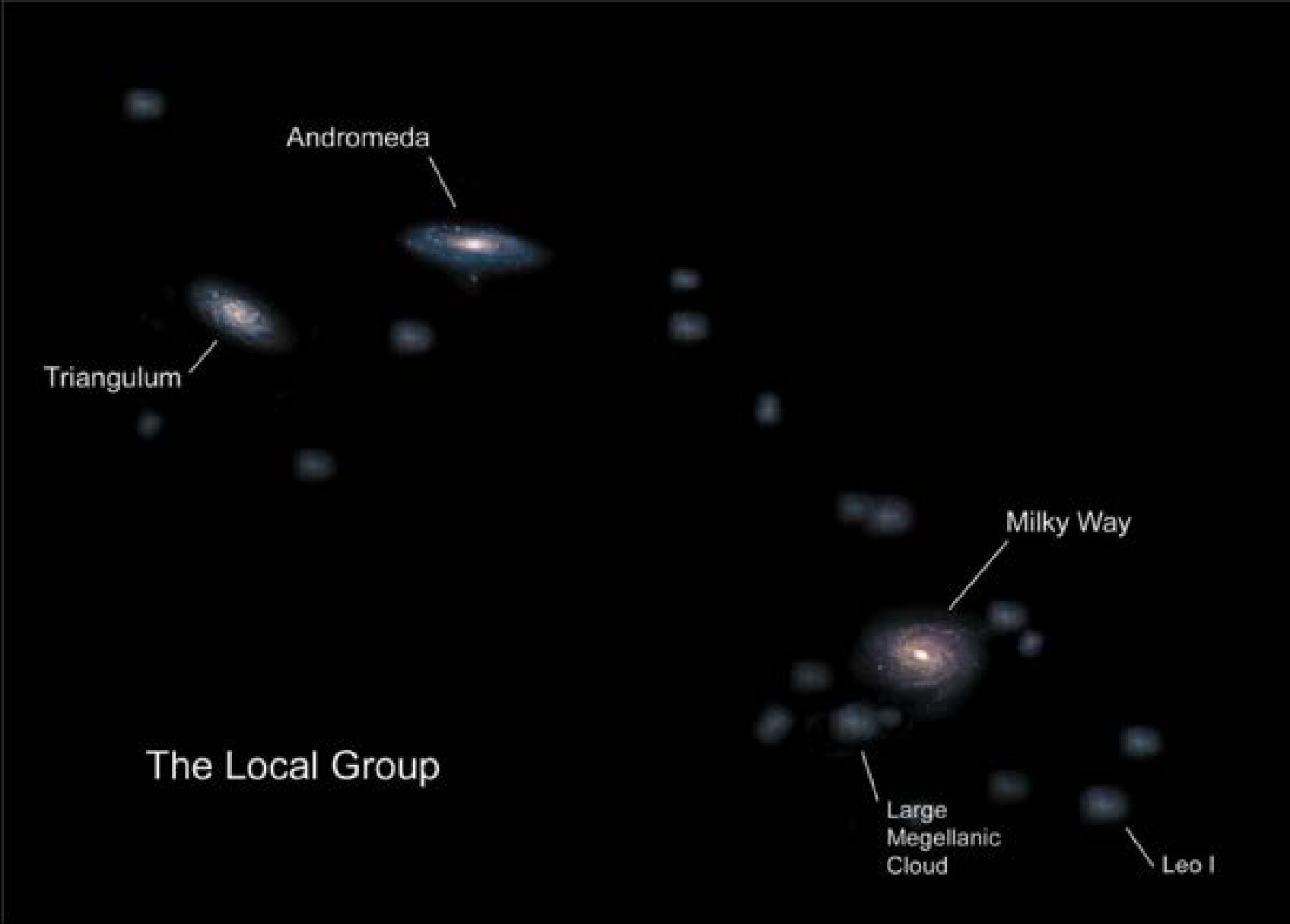
THERE ARE APPROXIMATELY 15000 STAR SYSTEMS THAT OUR COMMUNICATIONS WOULD HAVE REACHED, IF THEY WERE TRANSMITTED IN ALL DIRECTIONS FROM EARTH.

BUT THEY ARE NOT....

Using the 0.120 stars/cubic parsec number, and using a volume for a distance 100 light-years =  $100/3.26 = 30.7$  parsecs

Number = density \* volume =  $0.120 \text{ stars/cubic parsec} * \frac{4}{3} \text{ PI} (30.7 \text{ parsecs})^3$   
= 14,600 stars





Andromeda

Triangulum

Milky Way

Large  
Magellanic  
Cloud

Leo I

The Local Group



Copyright Bersonic

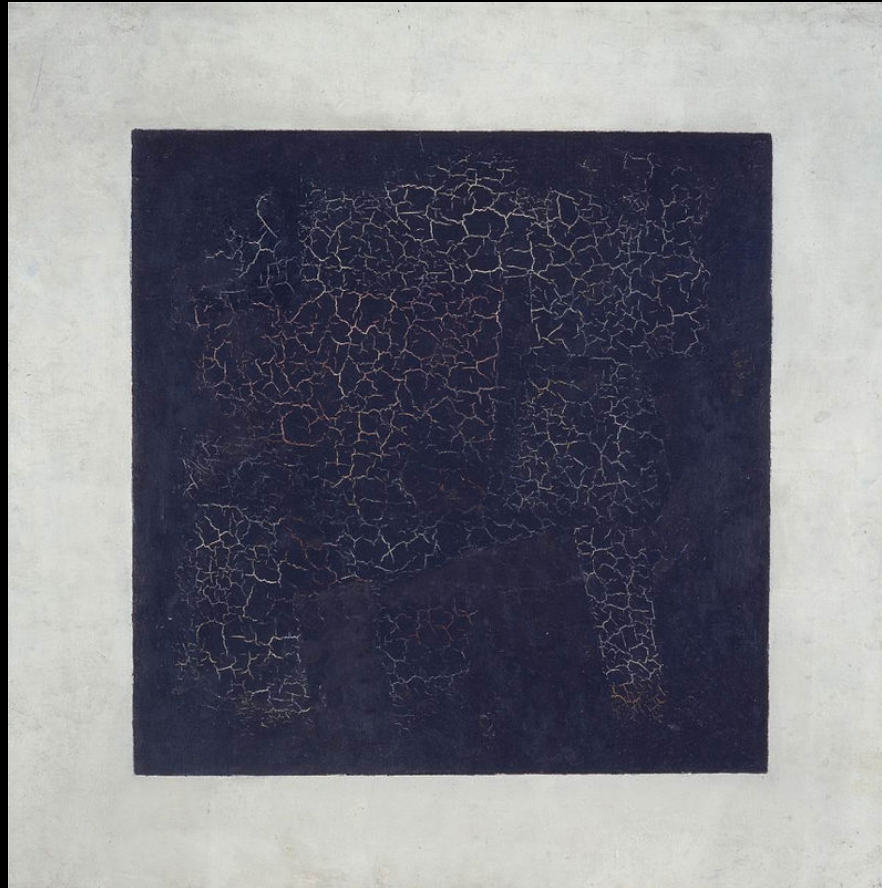






TO ANSWER A RANGE OF 0 to 156.000.000 WE DO NEED:

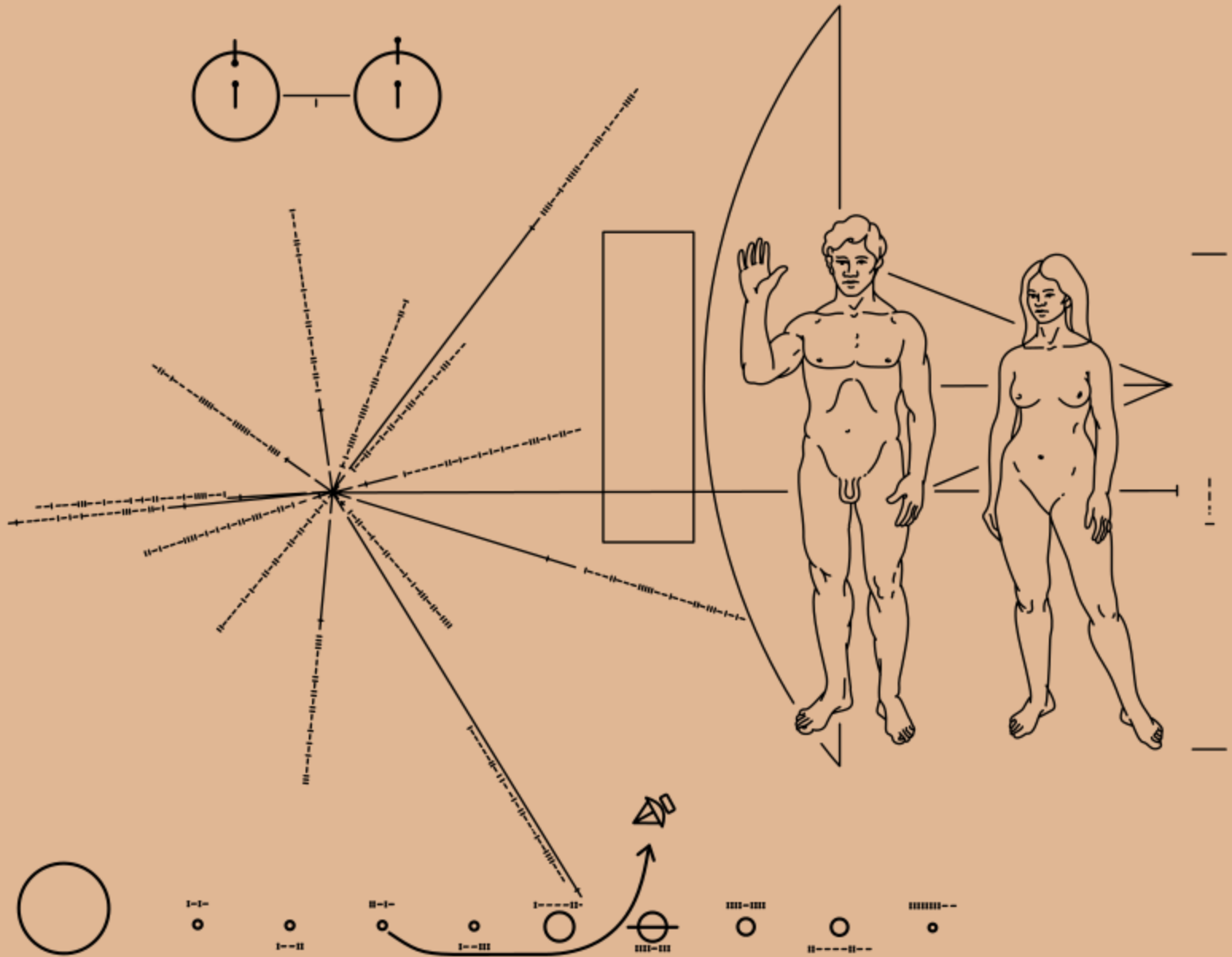
- PHILOSOPHERS and ARTISTS



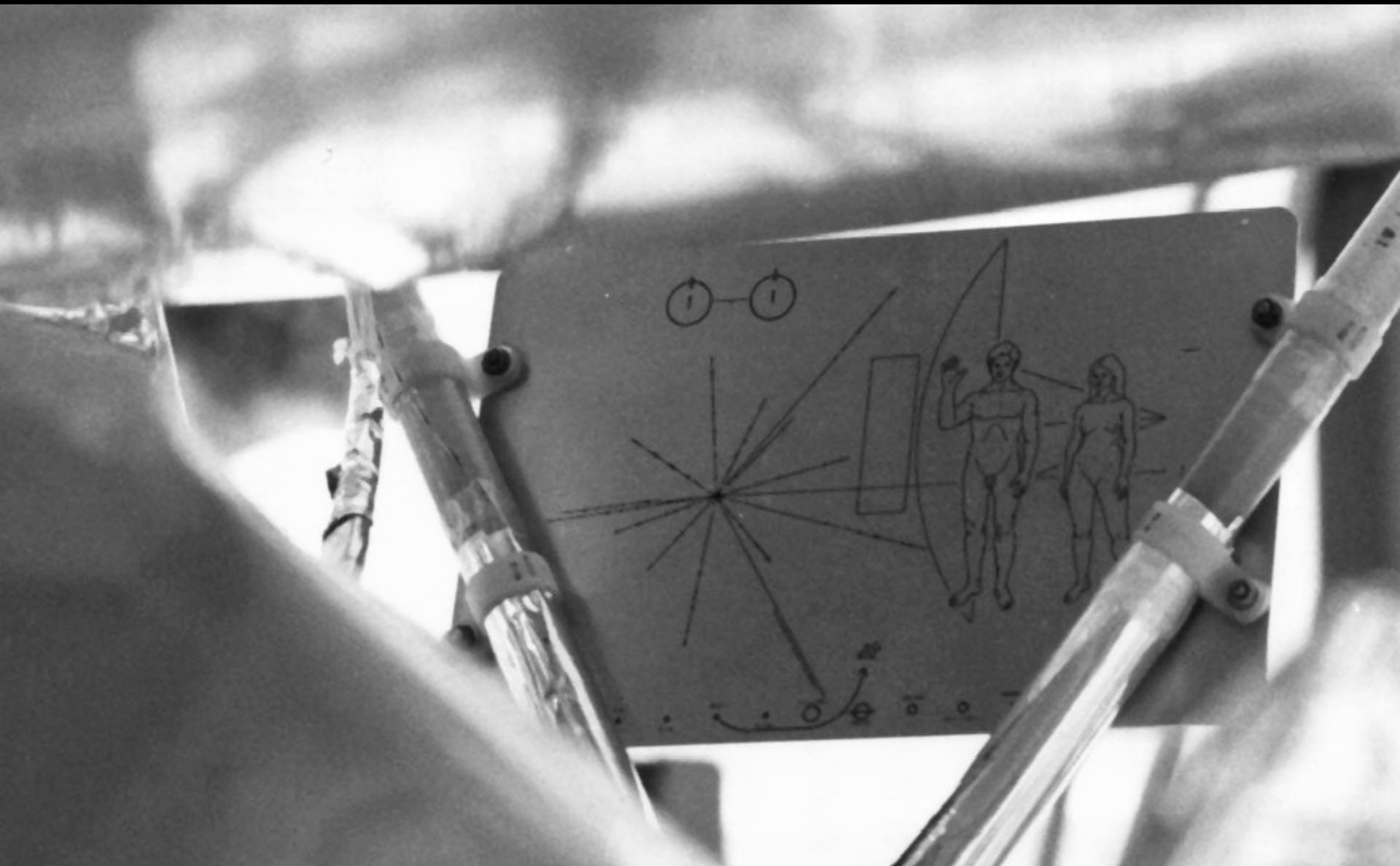
NIKOLAI  
FEDOROVICH  
FEDOROV

THE PHILOSOPHY  
OF COMMON TASK











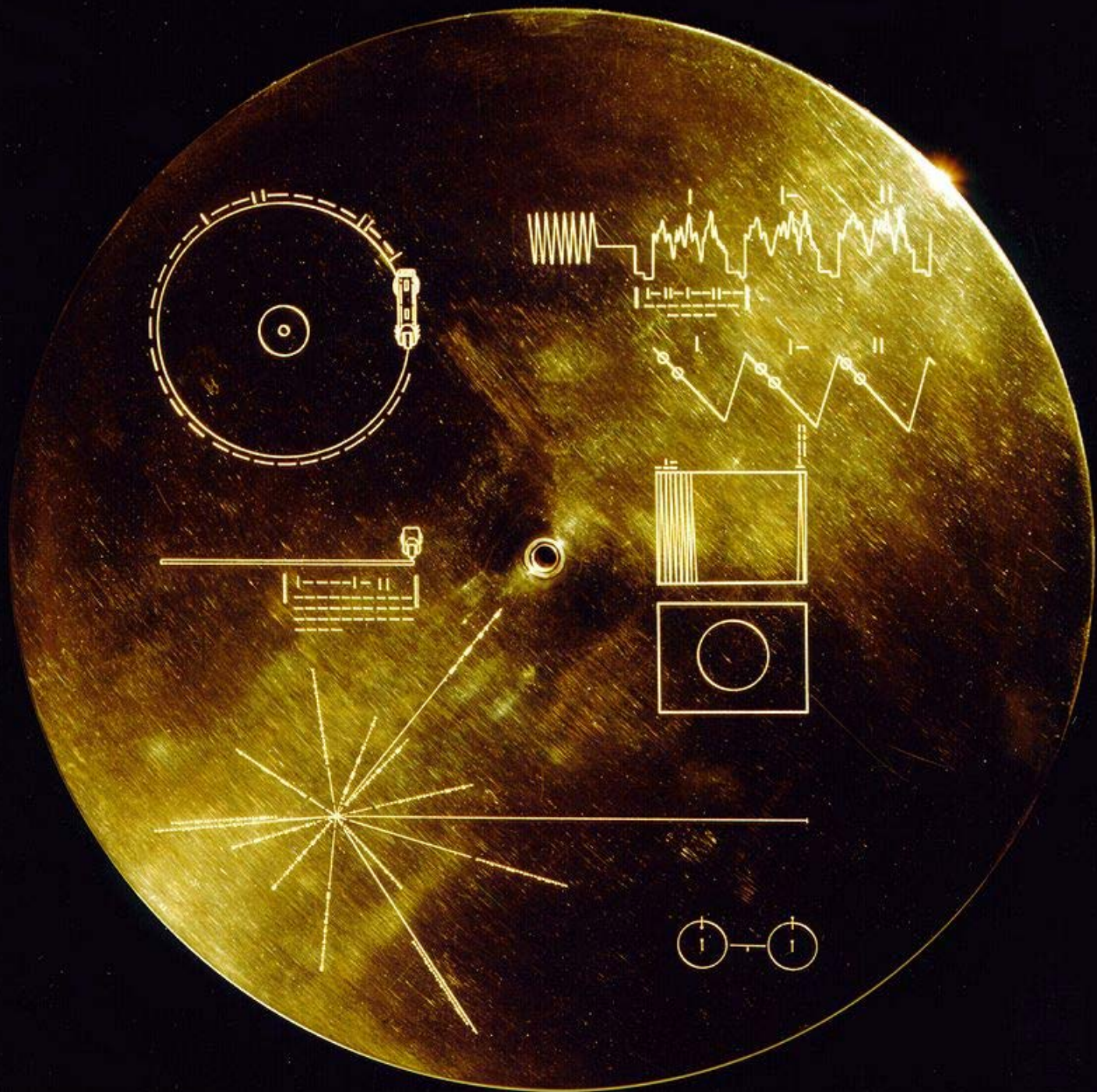
THE  
SOUNDS  
OF  
EARTH

Side 1

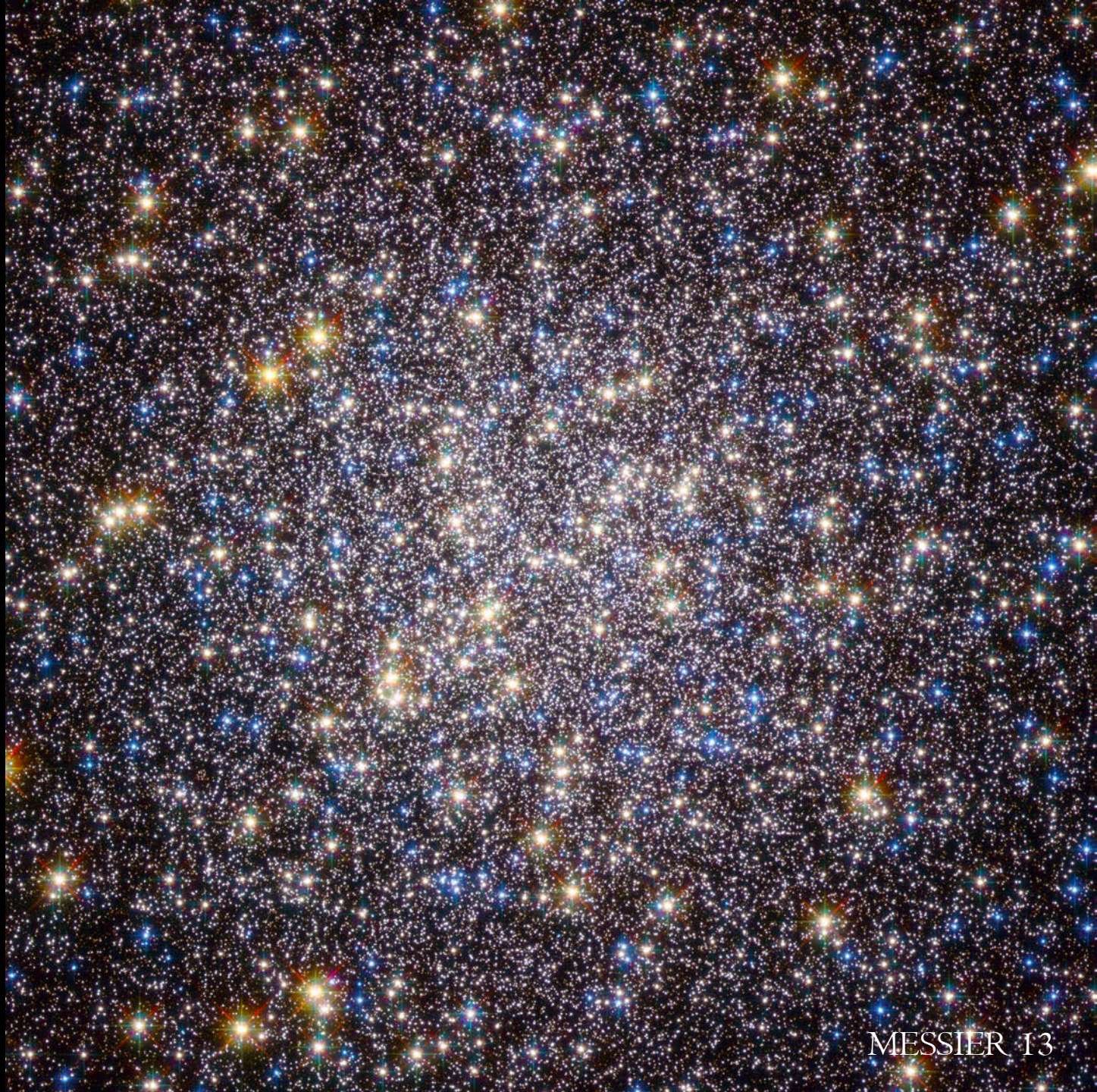
1965

UNITED STATES OF AMERICA

PLANET EARTH

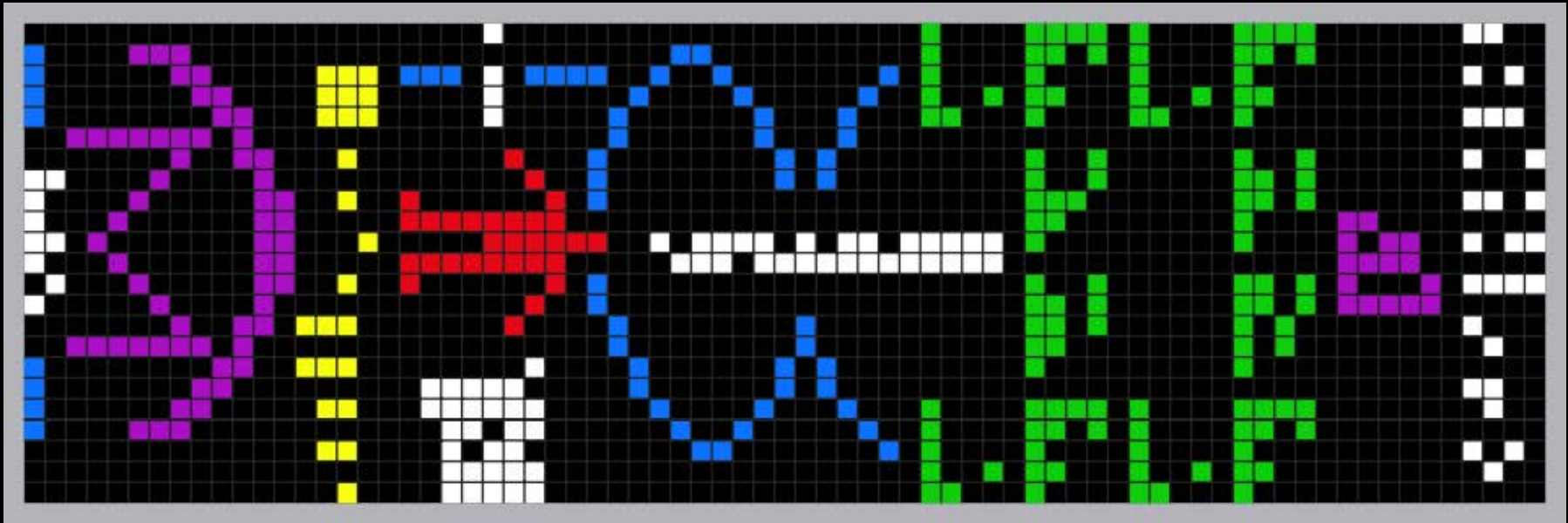


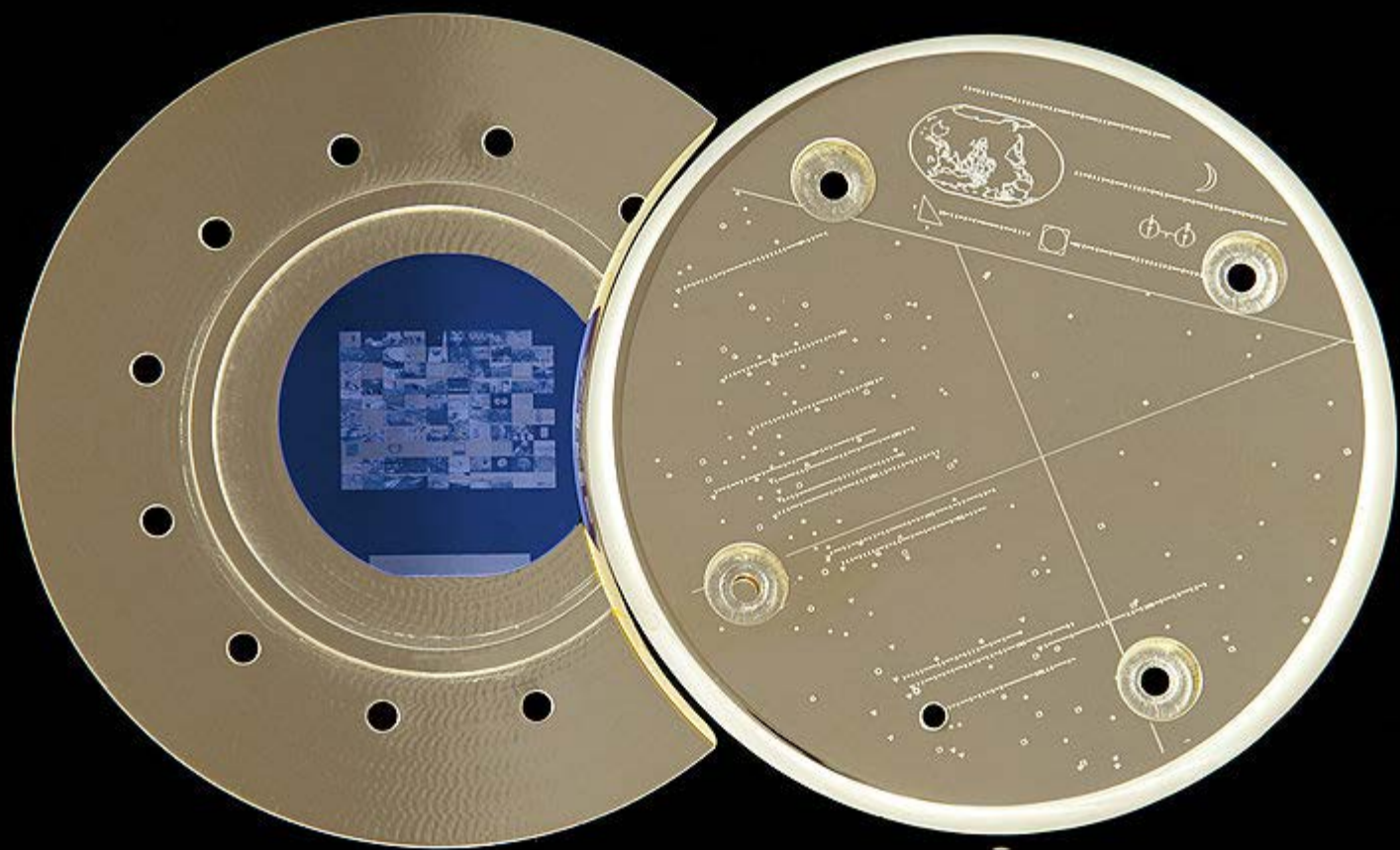




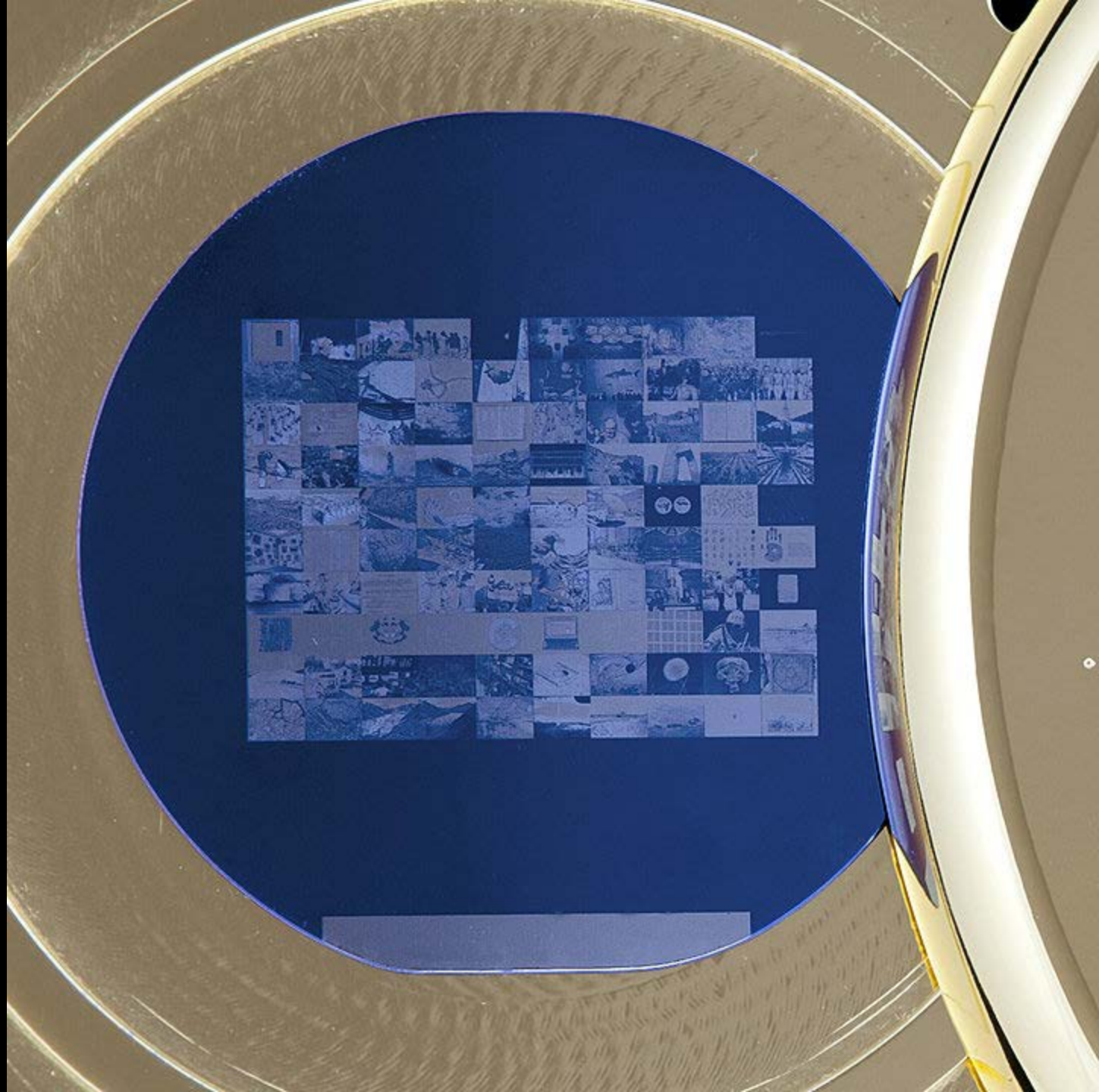
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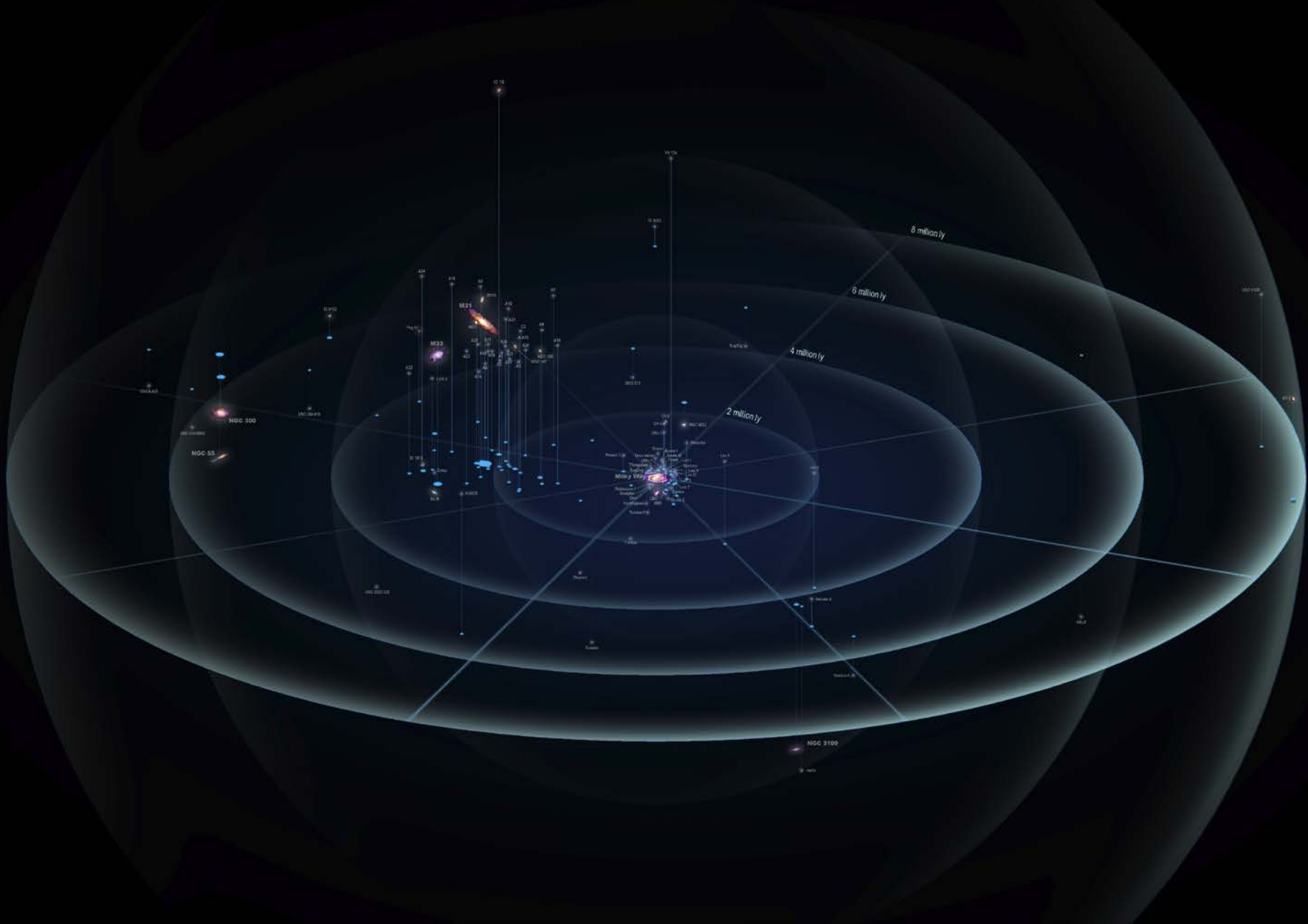






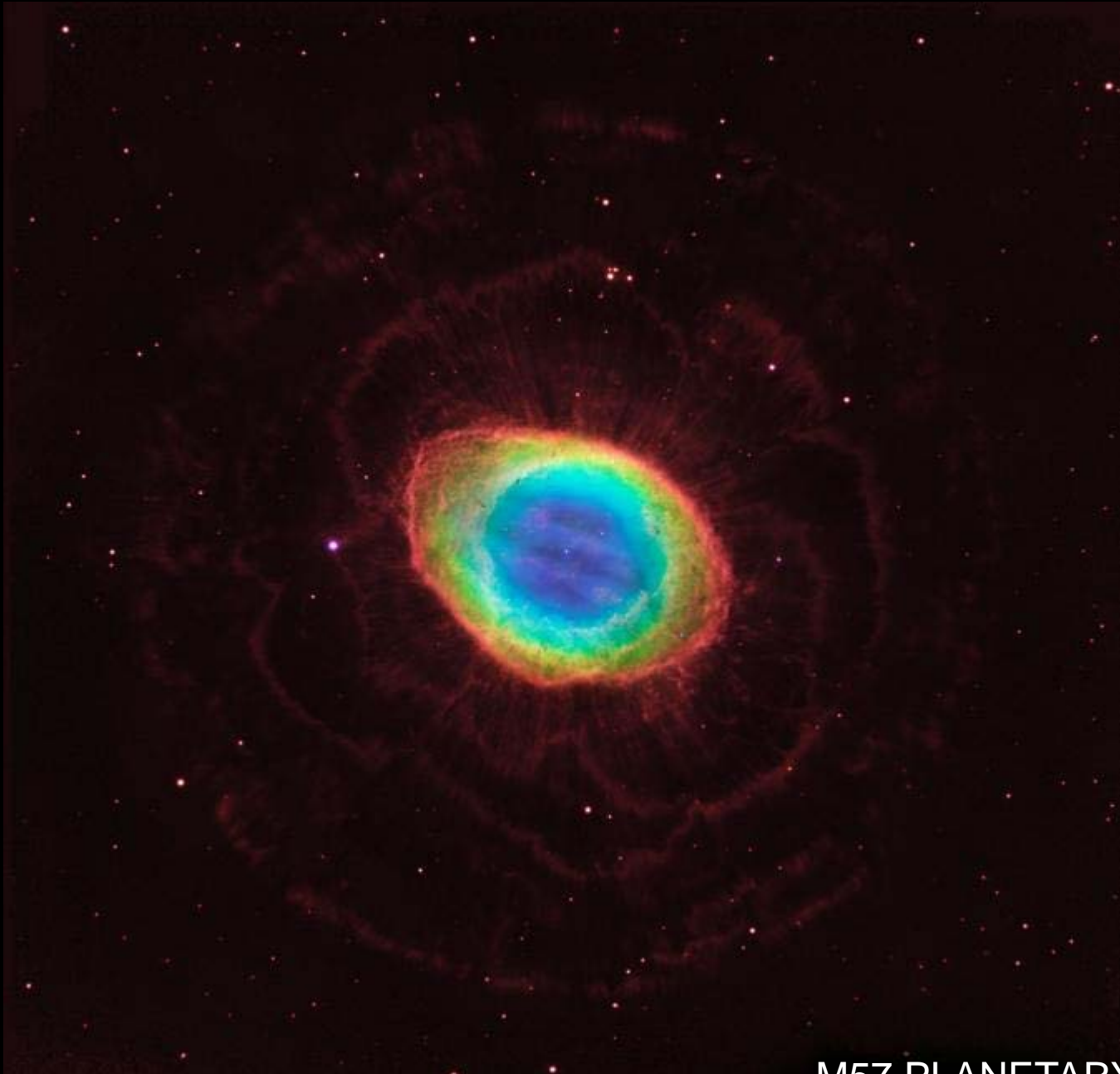


# Local Group and nearest galaxies





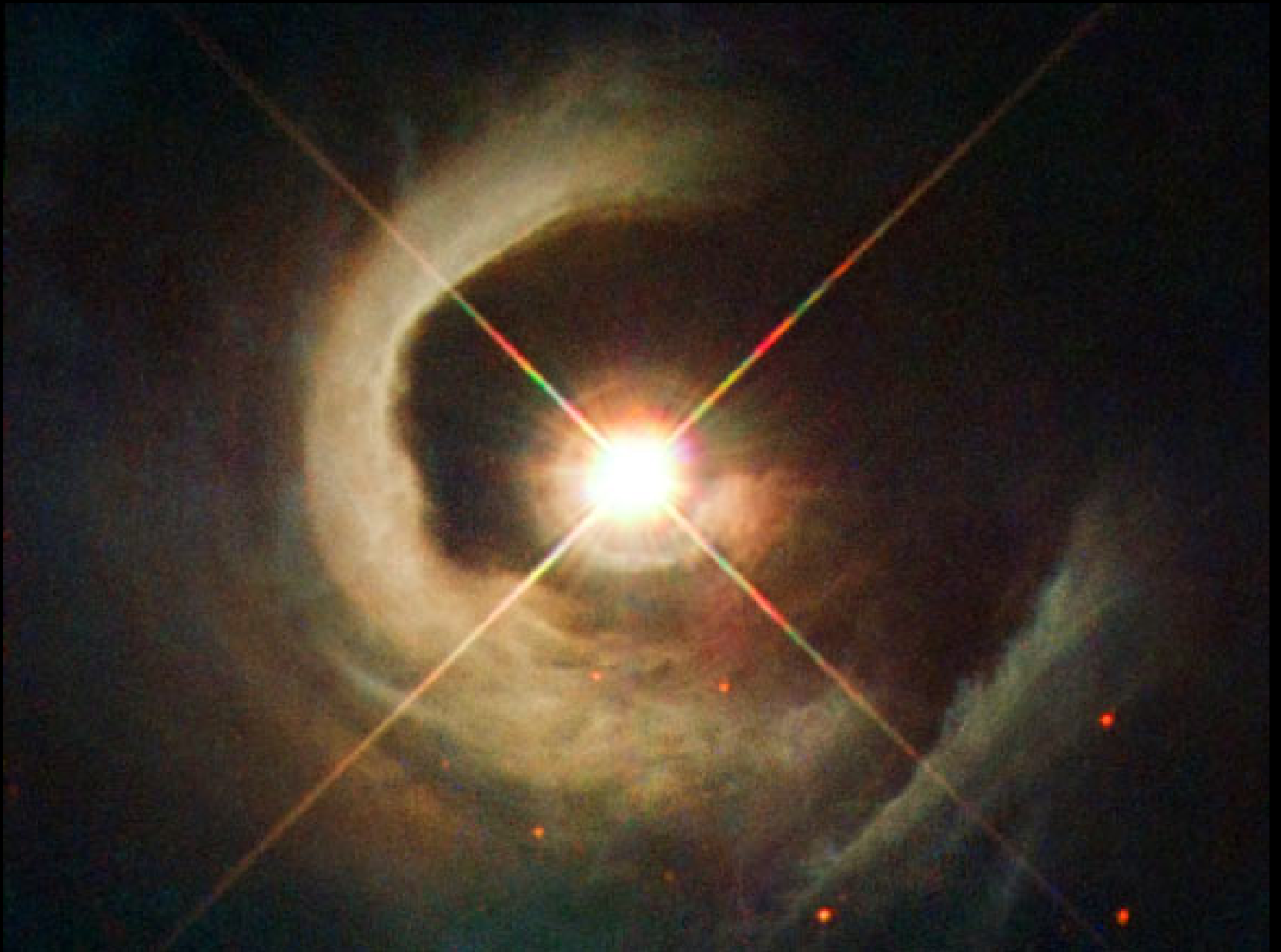
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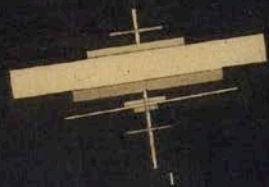
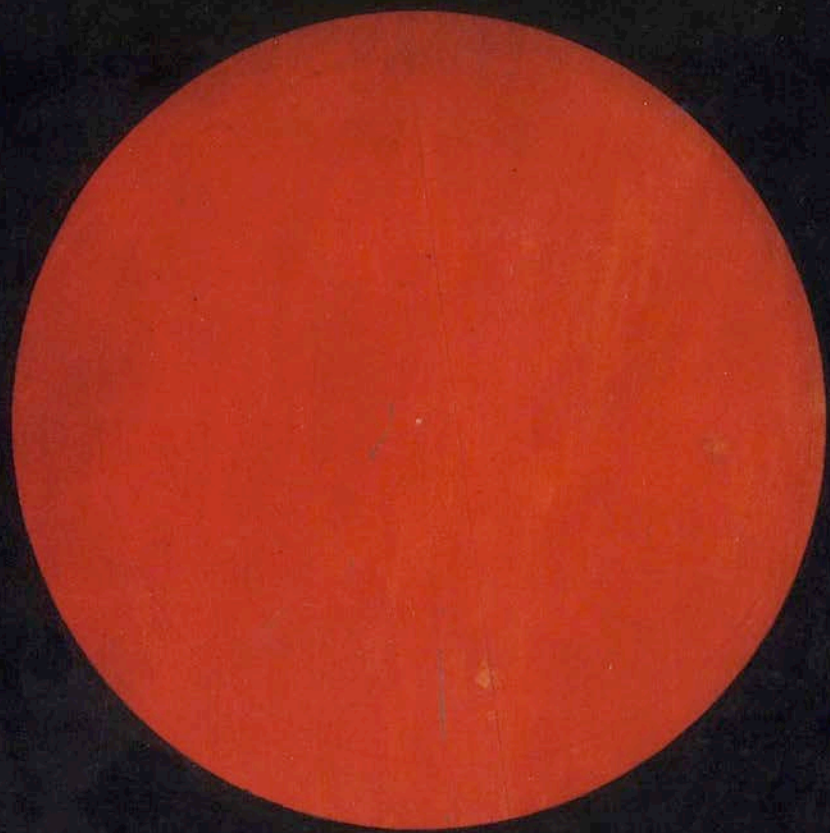
M57 PLANETARY NEBULA



SH2-106 NEBULA



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