

The background of the slide is a deep space image showing various galaxies, including spiral and elliptical ones, in shades of orange, red, and white against a black sky. A large, semi-transparent blue circle is positioned on the left side of the slide, partially overlapping the cosmic background.

OTVORENOST, PRISTUP, POVEZANOST I IDENTITET U ZNANOSTI

Vernesa Smolčić
Prof. dr. sc. @ PMF UniZg



Zagreb

ČIME SE BAVIM



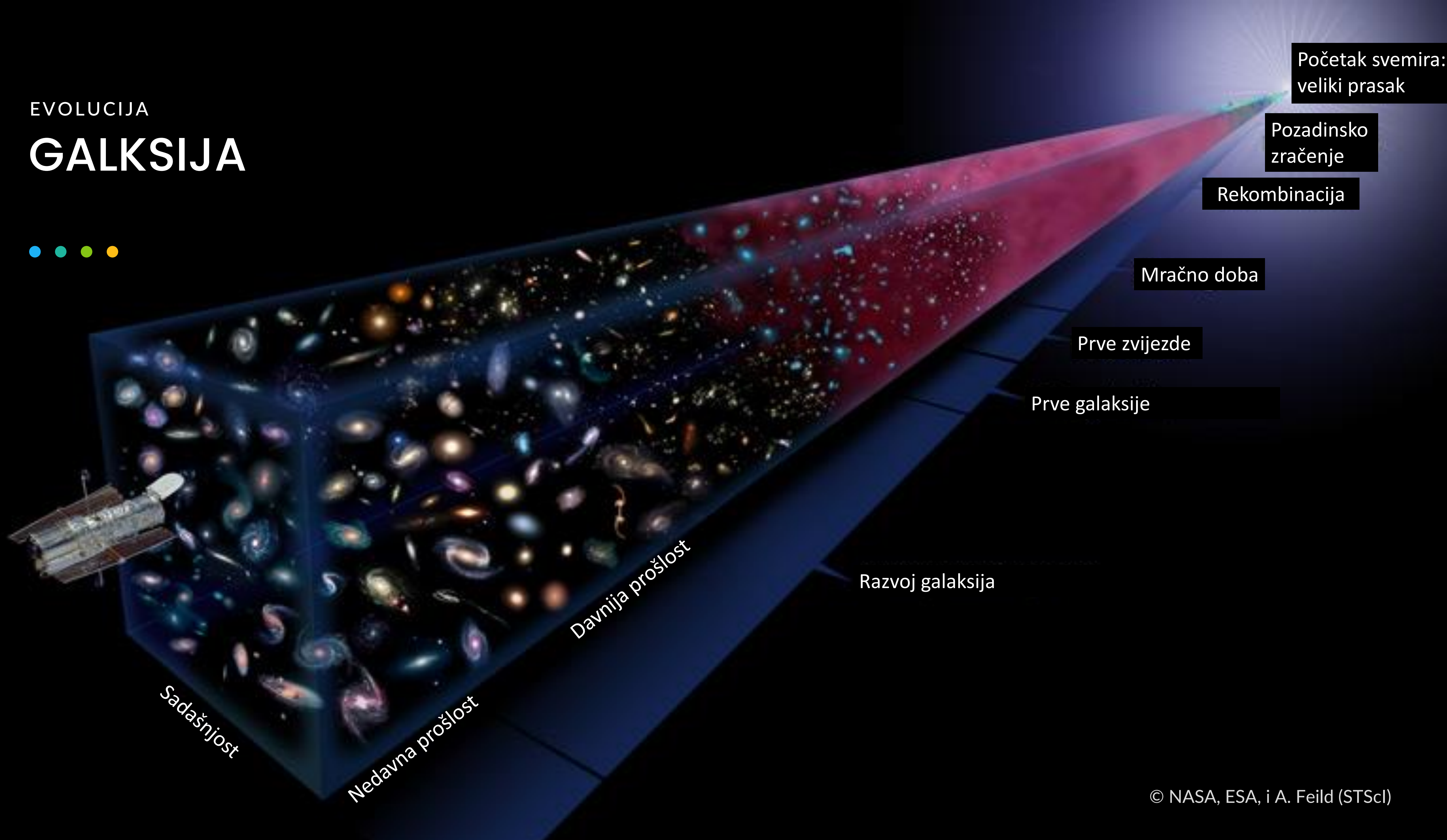
EVOLUCIJA

GALAKSIJA



EVOLUCIJA

GALAKSIJA



Početak svemira:
veliki prasak

Pozadinsko
zračenje

Rekombinacija

Mračno doba

Prve zvijezde

Prve galaksije

Razvoj galaksija

Davnija prošlost

Nedavna prošlost

Sadašnjost

OPAŽAČKA

ASTROFIZIKA

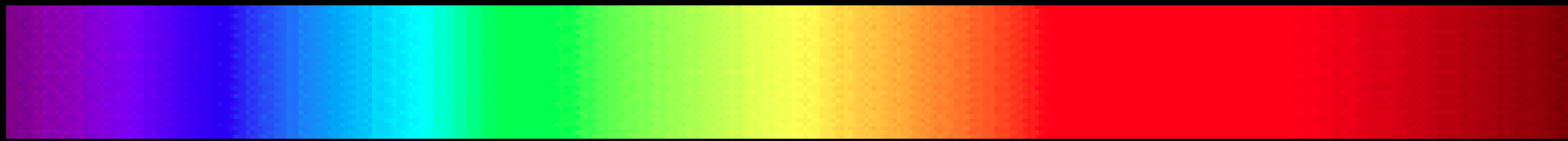


● Razvoj galaksija kroz svemirsko vrijeme

● Rast zvjezdane mase i mase središnjih supermasivnih crnih rupa u galaksijama

● Utjecaj prašine na opažanja galaksija u ranome svemiru

● Utjecaj rasta supermasivnih crnih rupa na stvaranje zvijezda u galaksijama



Hubble Space Telescope



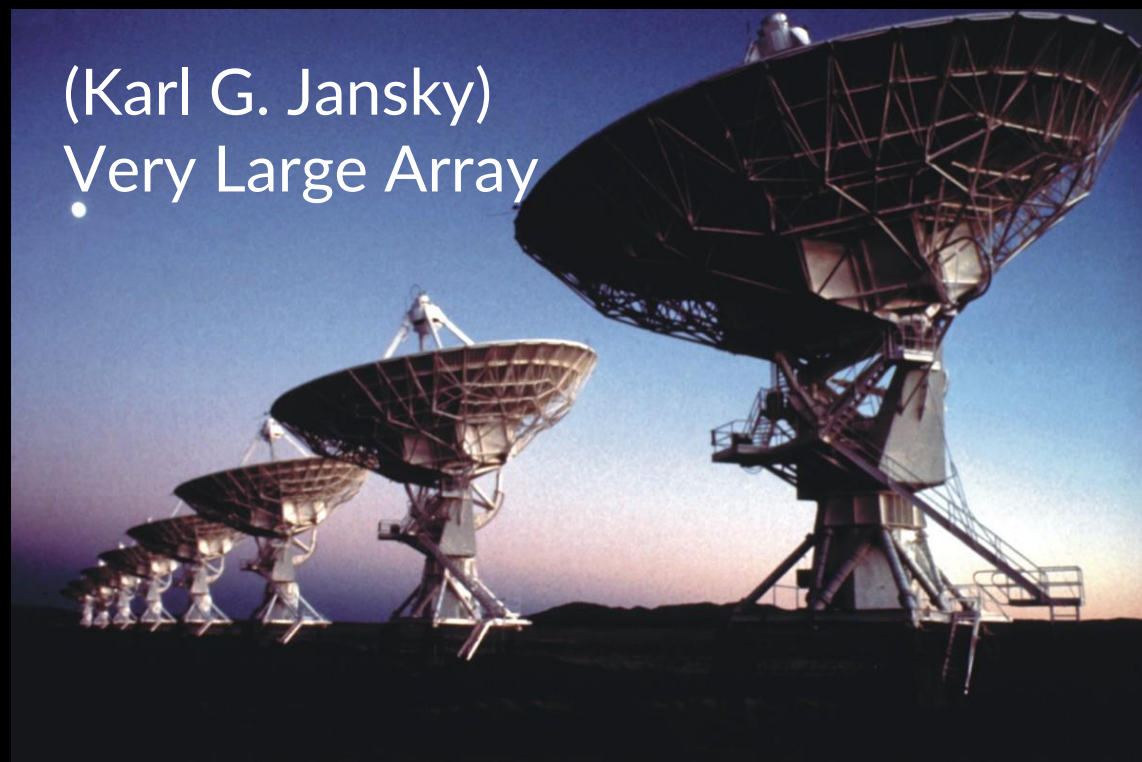
Very Large Telescope



Herschel Space Telescope

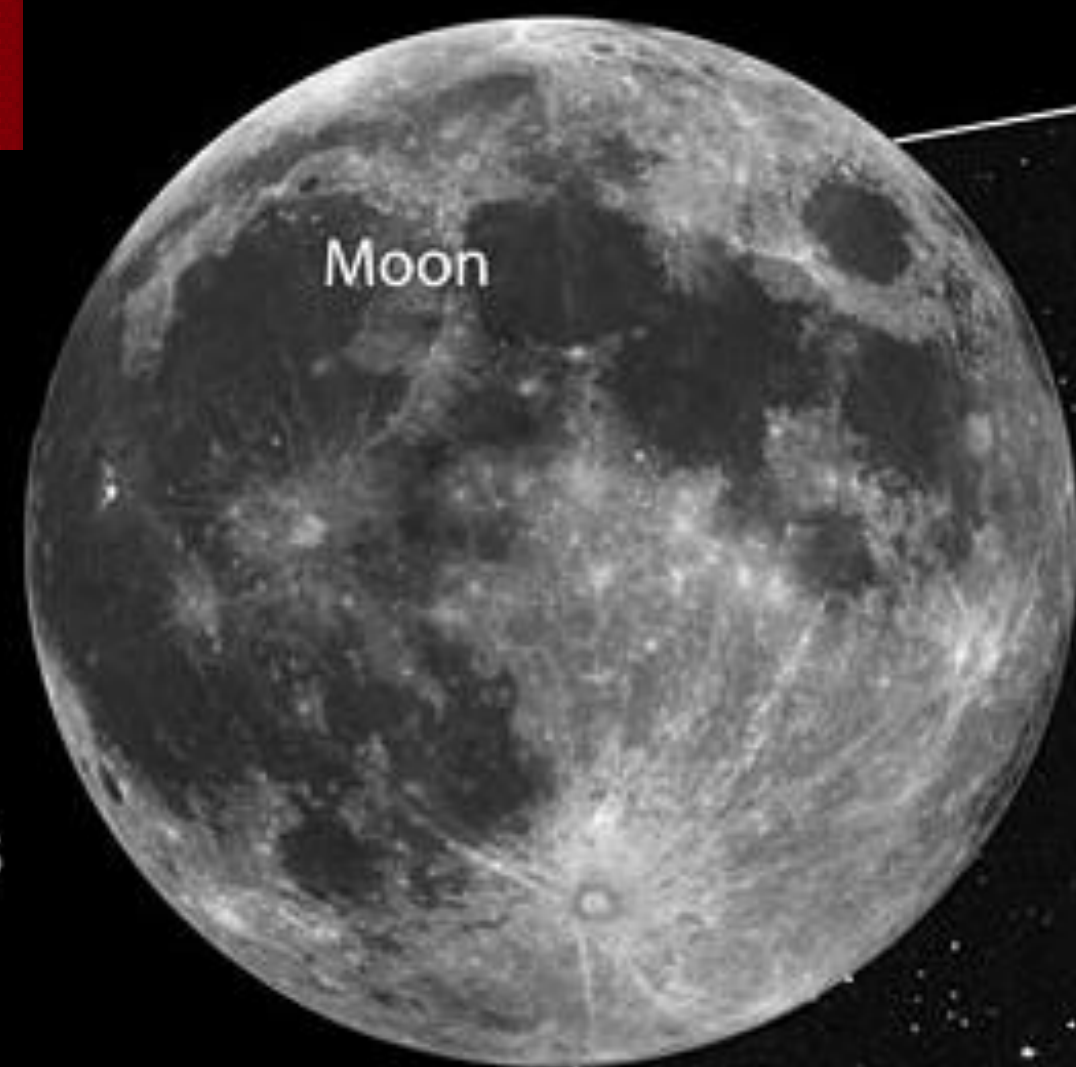
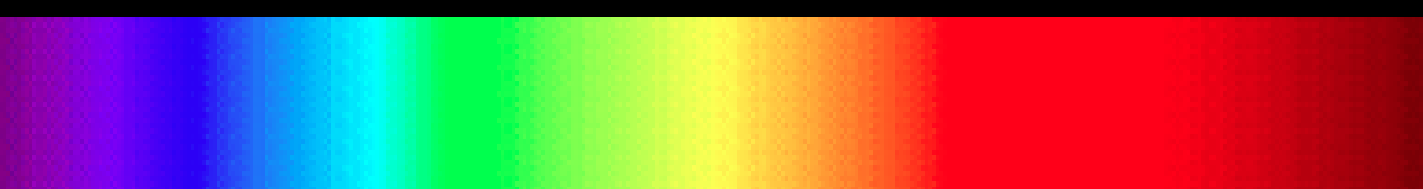


(Karl G. Jansky)
Very Large Array

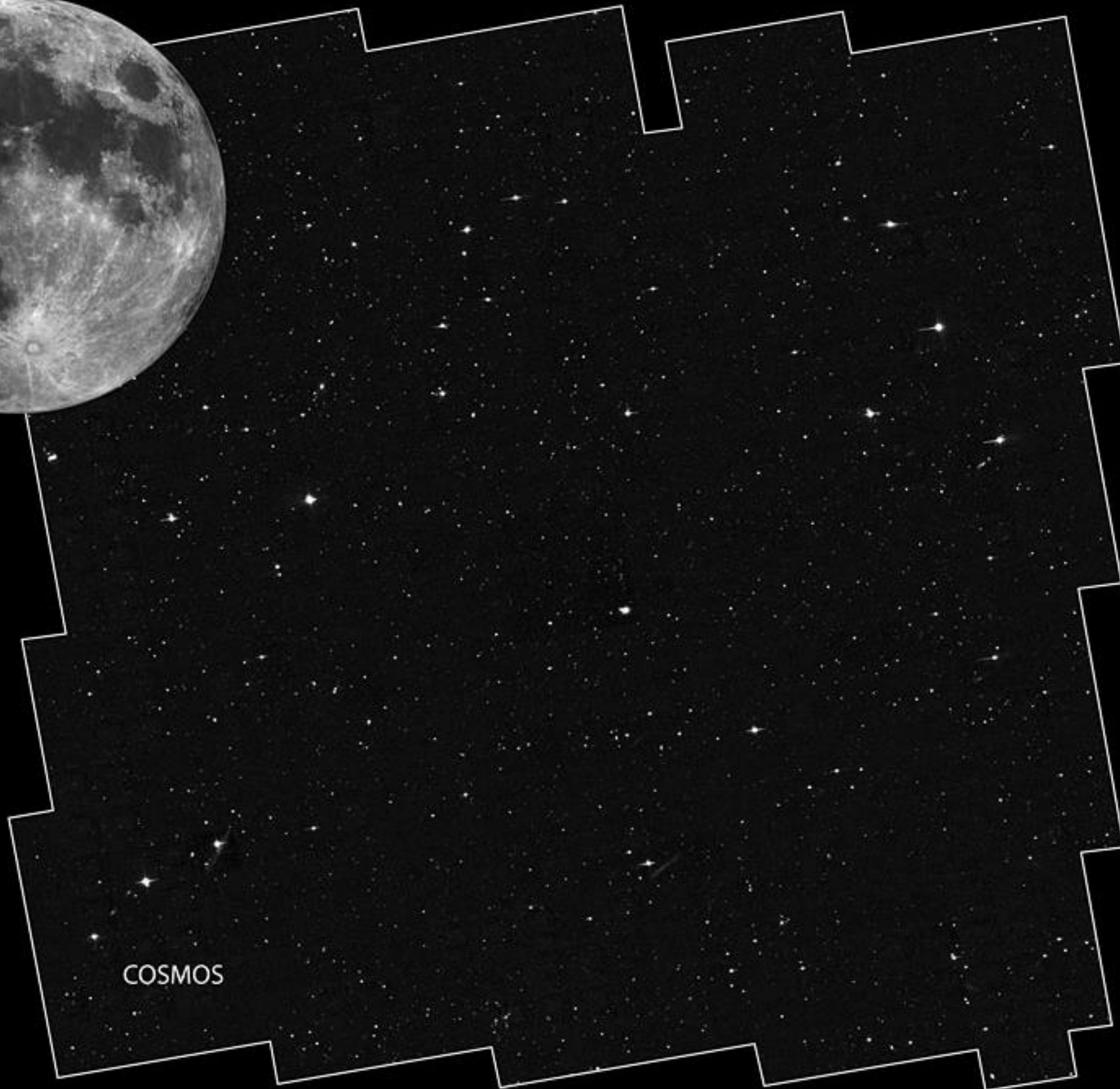
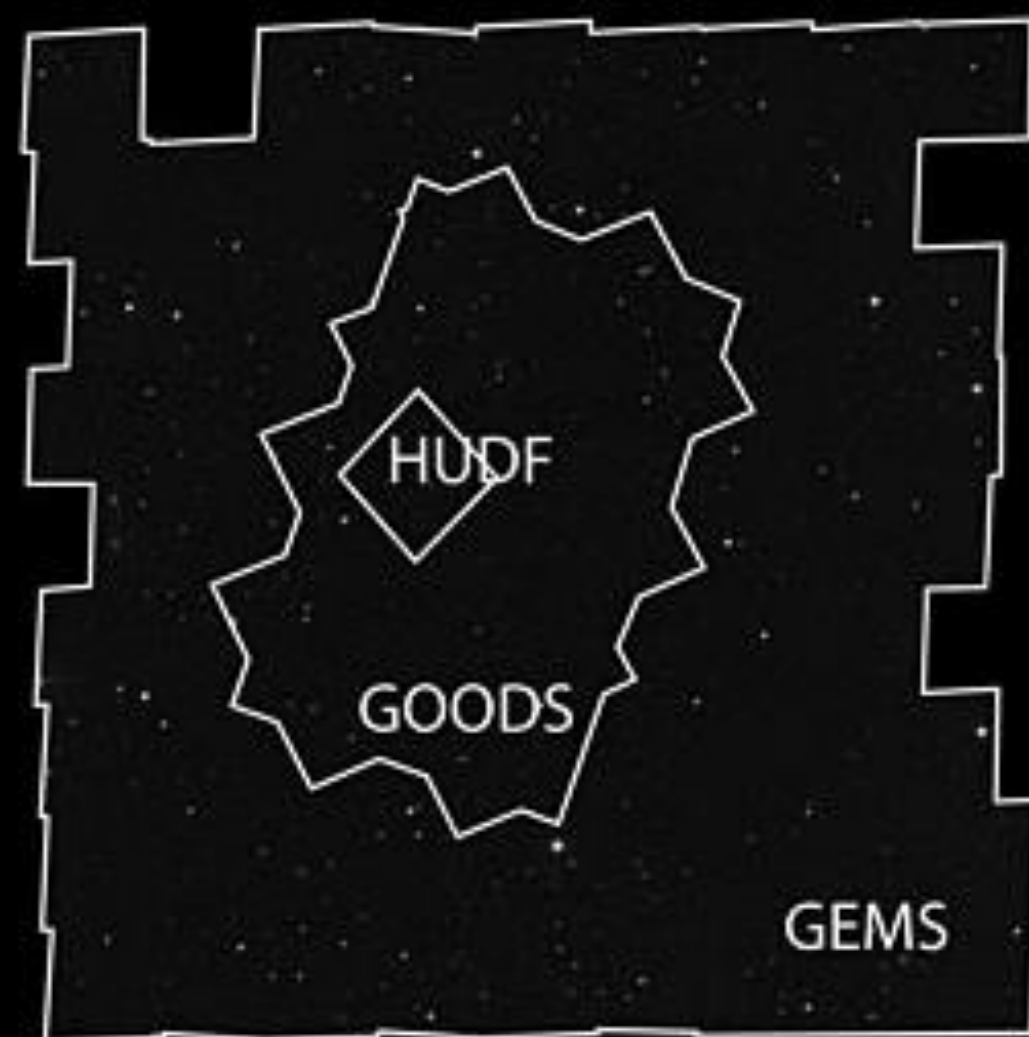


Atacama Large
Millimeter/Submillimeter Array





Relative Sizes of *HST* ACS Surveys



30'

KONAČNA

RADIOKARTA



Smolčić it dr. (2017.)

Very
Large
Array

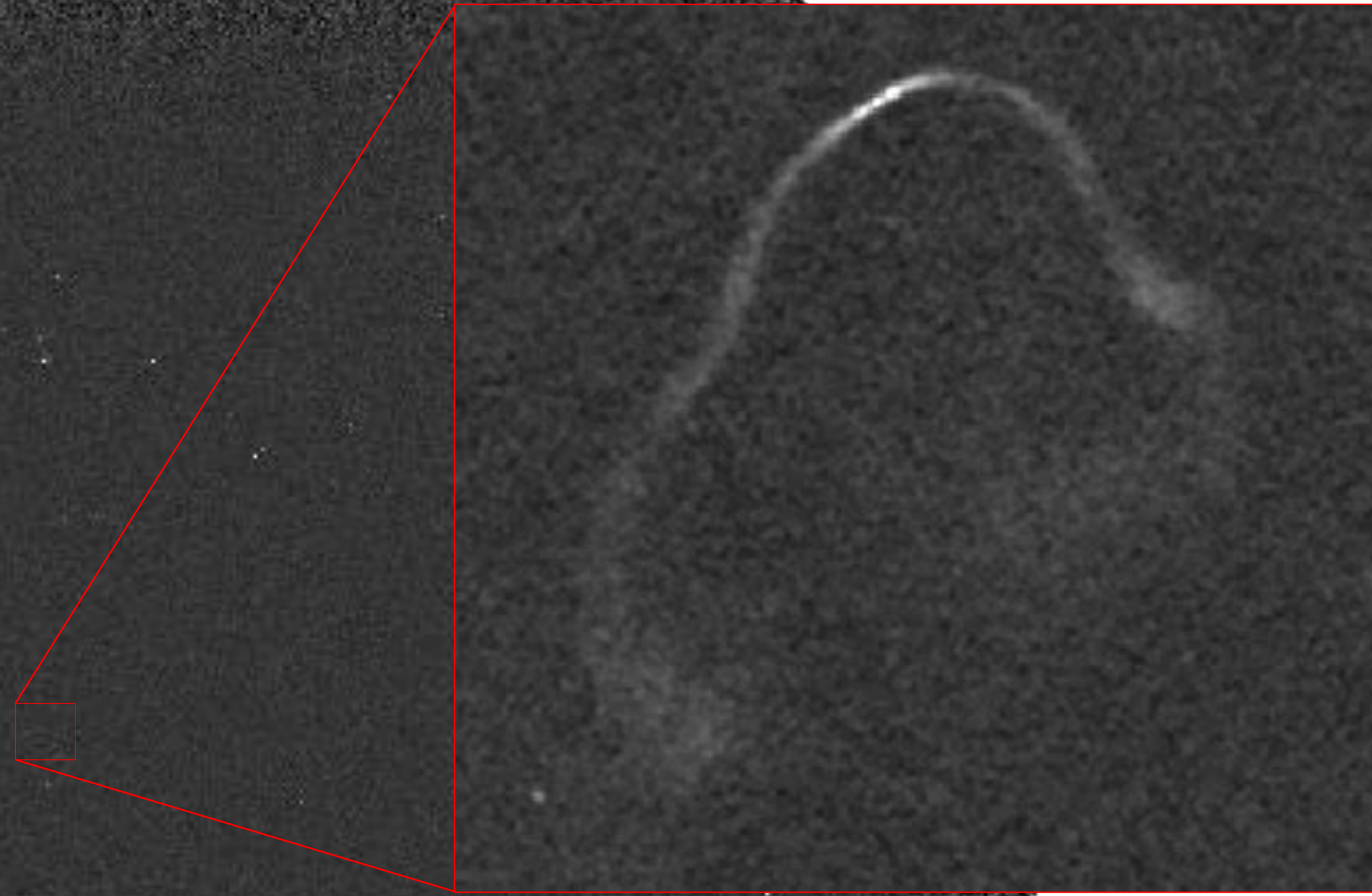


KONAČNA

RADIOKARTA



Smolčić it dr. (2017.)



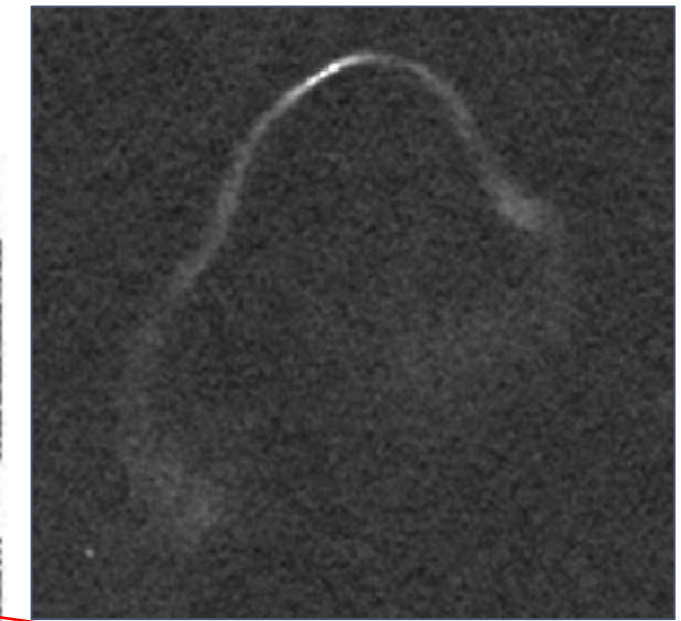
Very
Large
Array

KONAČNA

RADIOKARTA



Smolčić it dr. (2017.)



Very
Large
Array

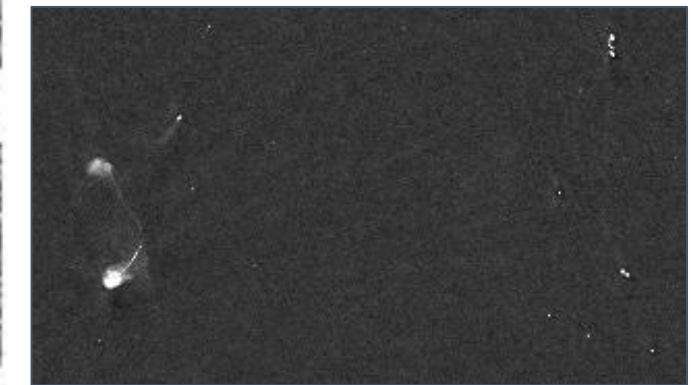
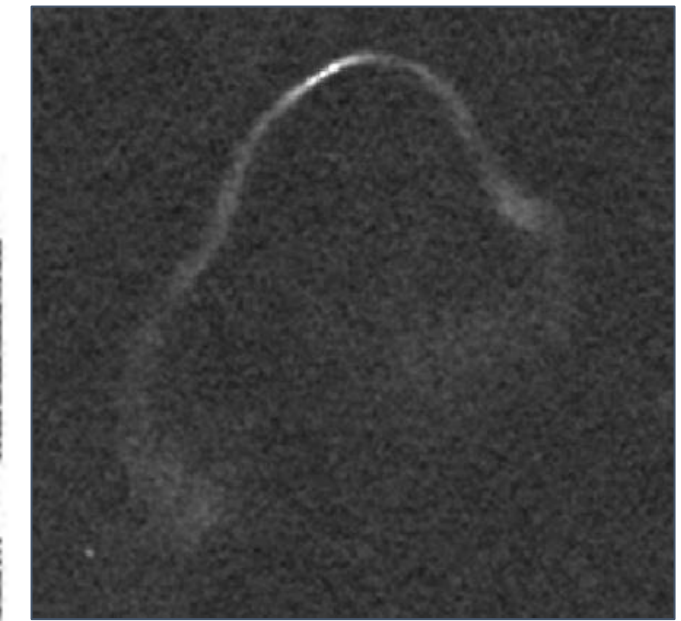


KONAČNA

RADIOKARTA

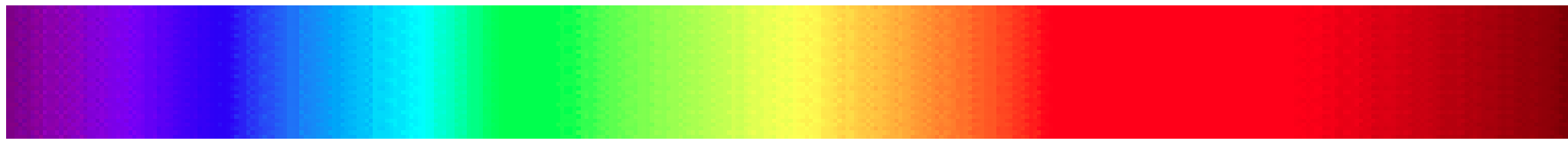


Smolčić it dr. (2017.)



Very
Large
Array





Opažanja / fizika / simulacije



$$\frac{SFR}{M_{\odot} \text{ yr}^{-1}} = f_{\text{IMF}} \times 10^{-24} 10^{q_{\text{TIR}}(z)} \frac{L_{1.4 \text{ GHz}}}{\text{W Hz}^{-1}}$$

$$L_{\text{tot}} = 1.2 \times 10^{27} D_{L, [\text{Mpc}]}^2 F_0 \nu_0^{\alpha} (1+z)^{-(1-\alpha)} \times (1-\alpha)^{-1} (\nu_2^{1-\alpha} - \nu_1^{1-\alpha}) [\text{ergs s}^{-1}]$$

$$t \sim 2.6 \times 10^4 \frac{B^{1/2}}{(B^2 + B_R^2) [(1+z)\nu]^{1/2}} [\text{yr}]$$

$$SFRD = \int_{L_{\text{min}}}^{L_{\text{max}}} \Phi(L, z, \alpha_D, \alpha_L) \times SFR(L) d\log L$$

$$q_{\text{TIR}} = \log\left(\frac{L_{\text{TIR}}}{3.75 \times 10^{12} \text{ W}}\right) - \log\left(\frac{L_{1.4 \text{ GHz}}}{\text{W Hz}^{-1}}\right)$$

$$q_{\text{TIR}}(z) = (2.78 \pm 0.02) \times (1+z)^{-0.14 \pm 0.01}$$

$$u_{\text{me}} = \frac{7}{3} \frac{B_{\text{me}}^2}{8\pi} [\text{dyn cm}^{-2}],$$

$$B_{\text{me}} = 5.69 \times 10^{-5} \left[\frac{1+k}{\eta} (1+z)^{3+\alpha} \times \frac{1}{\Theta_x \Theta_y l \sin^{3/2} \Phi} \frac{F_0}{\nu_0^{\alpha}} \frac{\nu_2^{1/2-\alpha} - \nu_1^{1/2-\alpha}}{(1/2) - \alpha} \right]^{2/7} [\text{G}]$$





Tim XXL



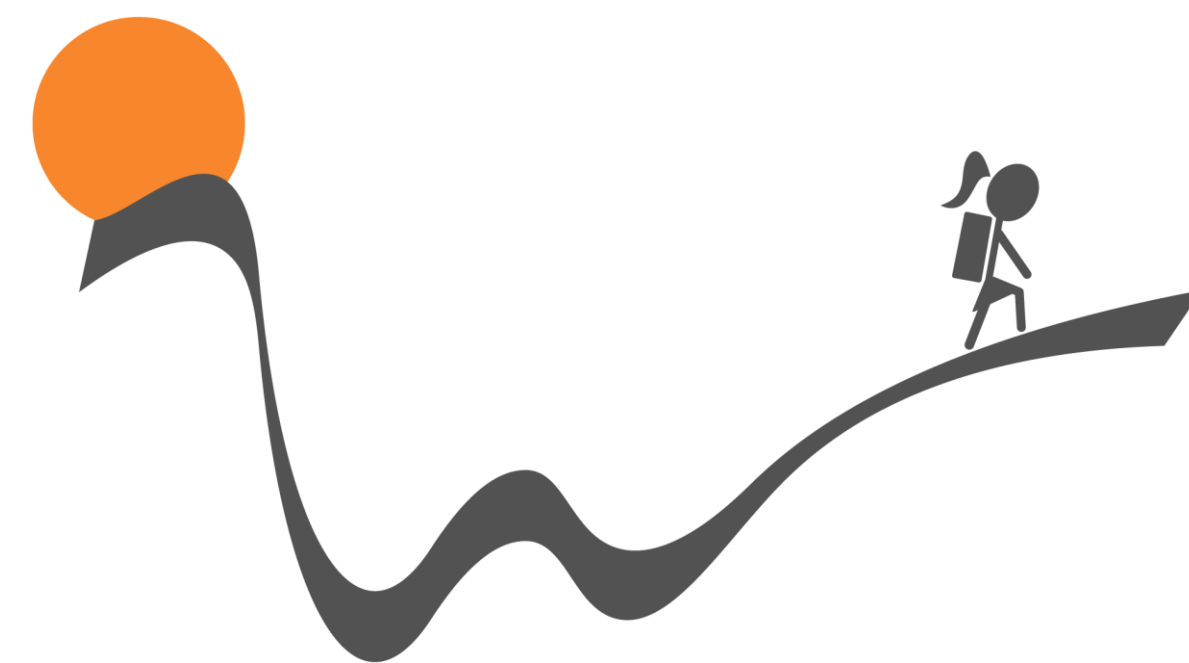
Tim Zgal – ERC



Tim COSMOS

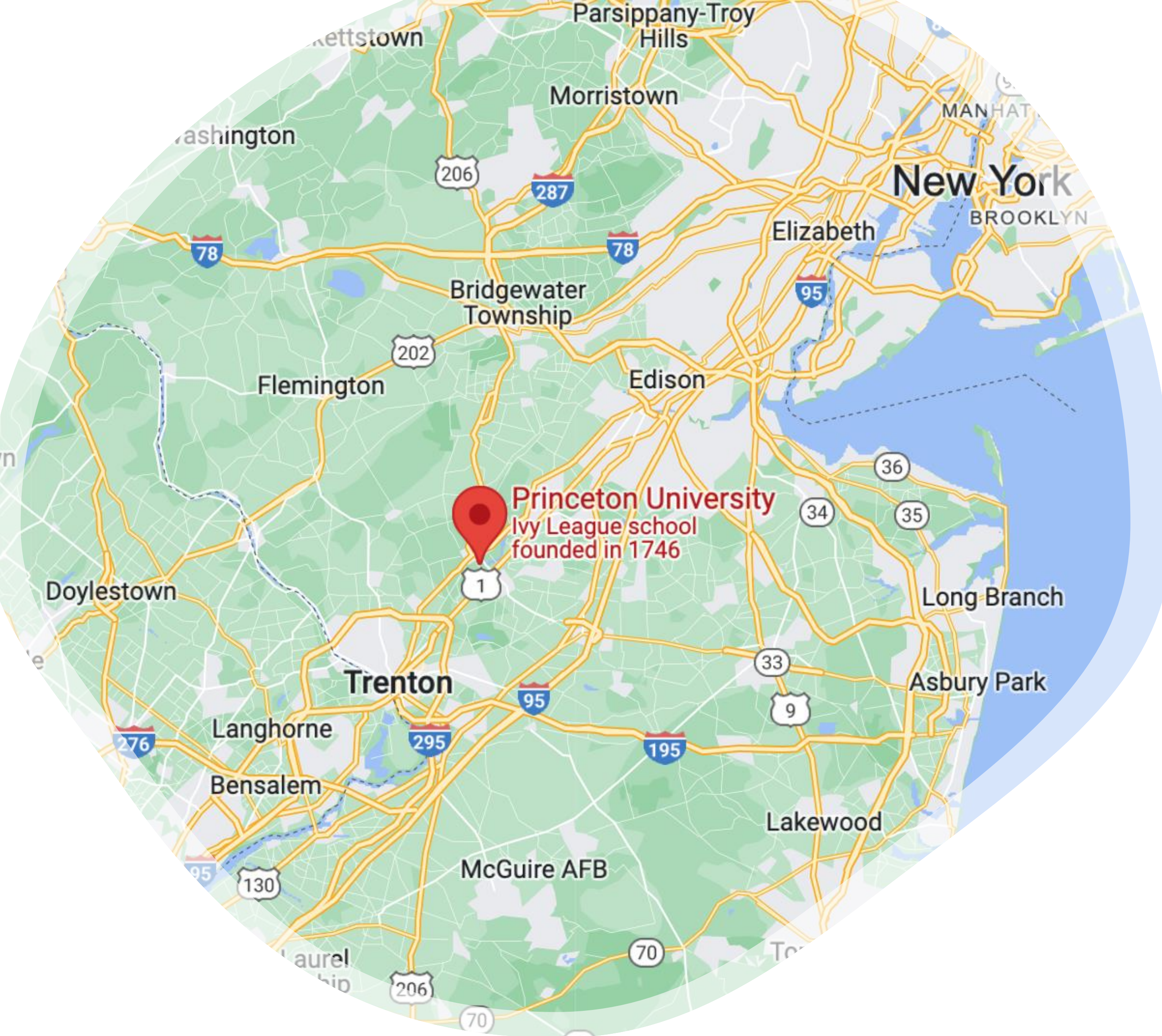


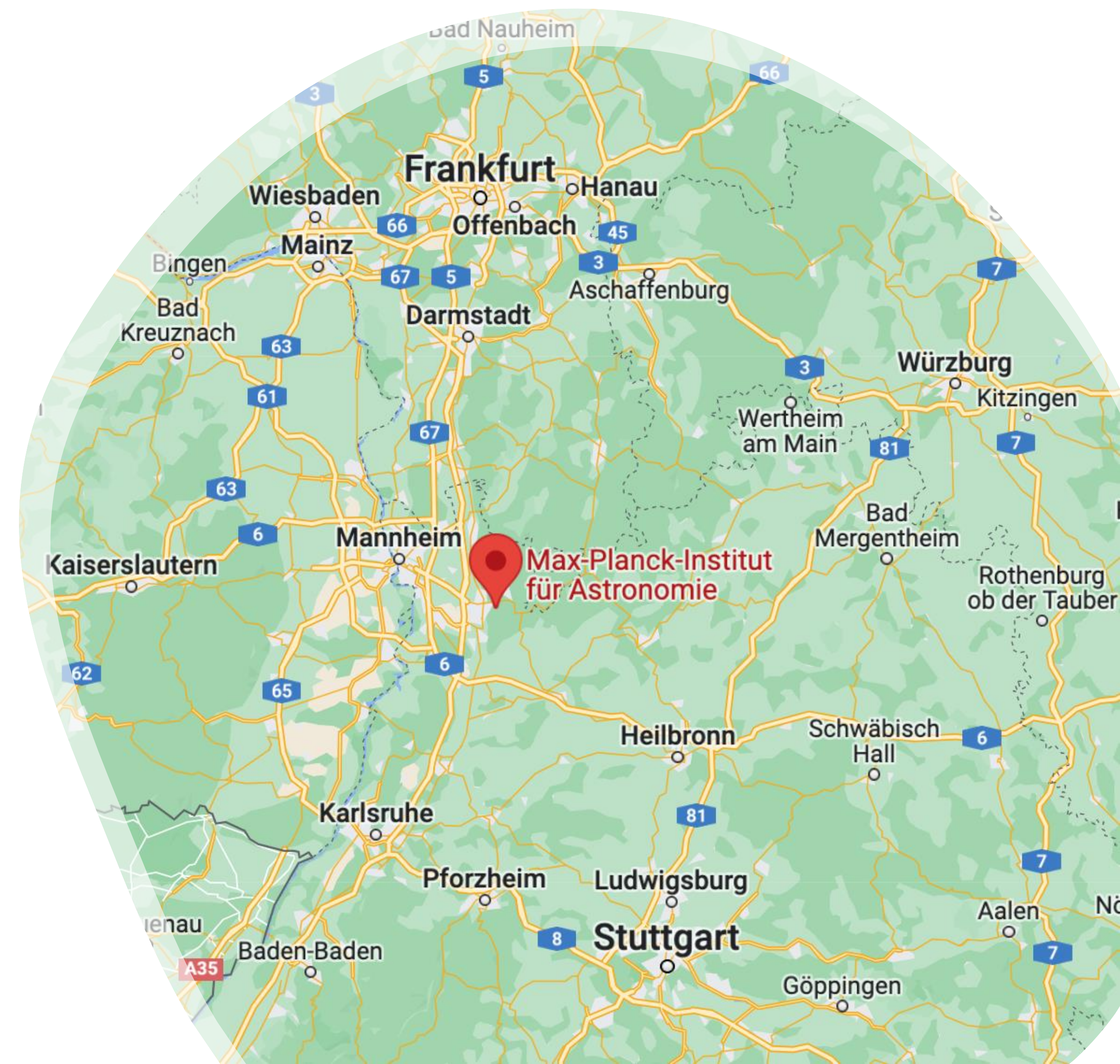
MOJE PUTOVANJE















● 2004 – 2007 (doktorat)

- Sveučilište u Heidelbergu, Heidelberg, Njemačka
- *Max-Planck-Institute for Astronomy*, Heidelberg, Njemačka

● 2008 – 2013 (postdok)

- *CARMA postdoctoral scholar*, *California Institute of Technology*, Pasadena, Kalifornija, SAD
- *ESO ALMA COFUND Fellow*, *European Southern Observatory & Argelander Institute*, Njemačka

● 2013 – danas (profesura)

- Docentica, izvanredna & redovita profesorica, Fizički odsjek, PMF, Sveučilište u Zagrebu, Hrvatska

RAD S RADIOVALNIM
TELESKOPOM VLA &
MEĐUNARODNIM
KOLABORACIJAMA

RAD S
RADIOVALNIM
TELESKOPIMA
CARMA, PdBI
& ALMA

RAD SA
STUDENTIMA





Tim Zgal – ERC
(2014. – 2019.)

Upišite tečaj za djecu "Mjesec, Zemlja, Sunce"

www.astroucionica.hr

https://bit.ly/m/astroucionica

SVE OBJAVE



NASLOVNA

PROČITAJ ▾

ZAIGRAJ

UPIŠI ▾

KLIKNI I PREUZMI ▾

O ASTROUČIONICI

KONTAKT

Što je polarna svjetlost i kako nastaje?

NAJNOVIJE OBJAVE



Što nas čeka u lipnju (2022.)?
| Astronomija i astrofizika |
8. lipnja 2022.



Što je polarna svjetlost i kako
nastaje?
| Astronomija i astrofizika |
16. svibnja 2022.



Što nas čeka u svibnju
(2022.)?
| Astronomija i astrofizika |
5. svibnja 2022.



Što nas čeka u travnju
(2022.)?



Link: bit.ly/litvs



Fotografija: zadovoljna.hr

How to Write a Successful ERC Proposal

E-COURSE, WORKSHOPS
& CONSULTATIONS

bit.ly/erccourse

vscreative.hr





A

Otvorenost

B

Pristup

C

Povezanost

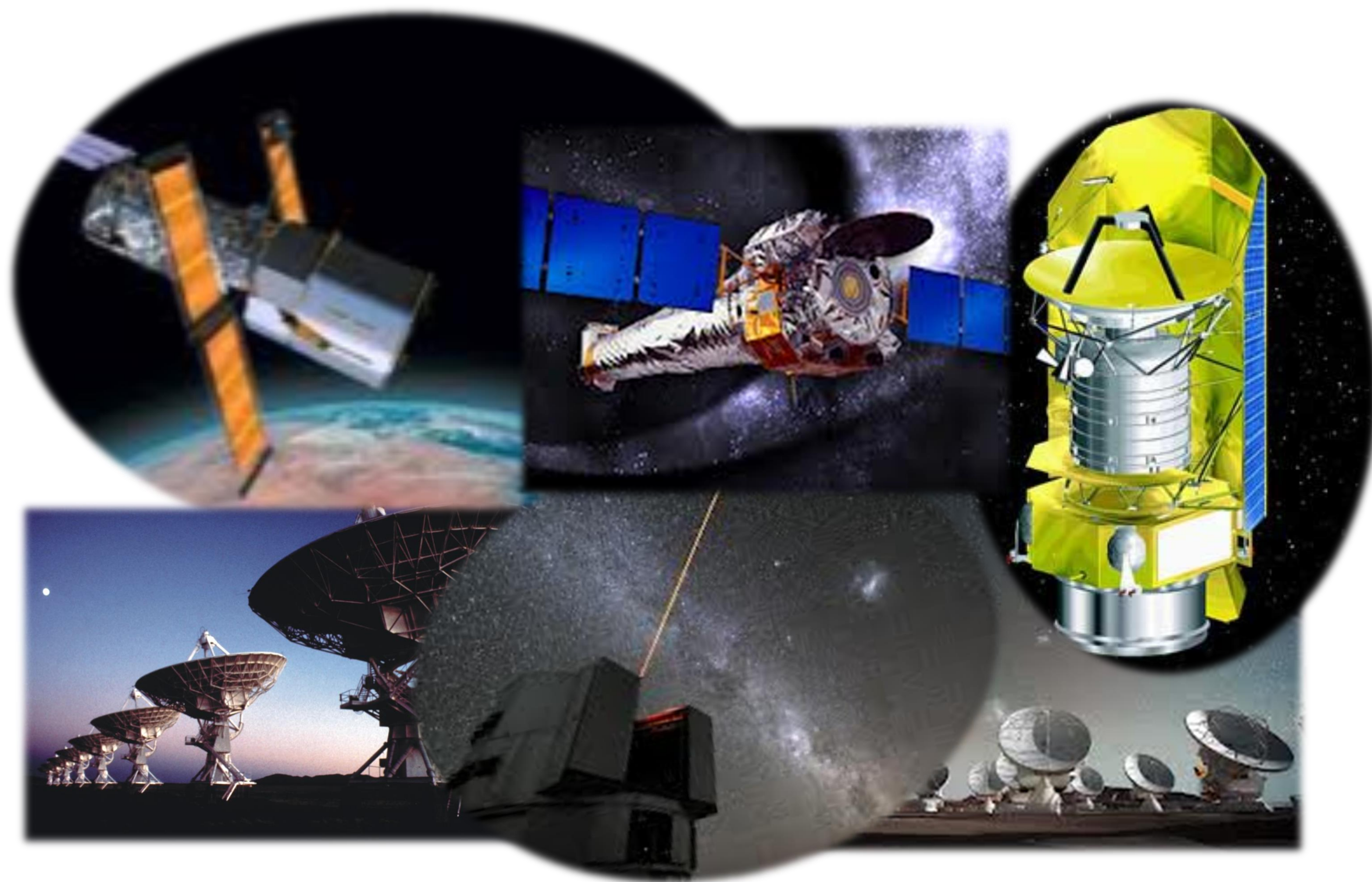
D

Identitet



A

Otvorenost



A

Otvorenost

B

Pristup

$$\frac{SFR}{M_{\odot} \text{ yr}^{-1}} = f_{\text{IMF}} \times 10^{-24} 10^{q_{\text{TIR}}(z)} \frac{L_{1.4 \text{ GHz}}}{\text{W Hz}^{-1}}$$

$$L_{\text{tot}} = 1.2 \times 10^{27} D_{L, [\text{Mpc}]}^2 F_0 \nu_0^{\alpha} (1+z)^{-(1-\alpha)} \times (1-\alpha)^{-1} (\nu_2^{1-\alpha} - \nu_1^{1-\alpha}) \text{ [ergs s}^{-1}\text{]}$$

ID	NAME	RA (J2000, deg)	RA_ERR (arcsec)	DEC (J2000, deg)	DEC_ERR (arcsec)	FLUX (μJy)	FLUX_ERR (μJy)	RMS (μJy beam ⁻¹)	SNR	NPIX	RES	MULTI
78	COSMOSVLA3 J095709.33+020940.7	149.288886	0.01	2.161331	0.01	13400.0	670.0	28.7	385.0	104	1	0
1110	COSMOSVLA3 J095709.83+015457.4	149.290996	0.021	1.915946	0.021	1190.0	64.0	22.1	29.0	102	1	0
5144	COSMOSVLA3 J095710.49+013644.7	149.29372	0.065	1.612418	0.065	145.0	19.0	17.4	8.32	20	0	0
3749	COSMOSVLA3 J095710.53+025132.2	149.29389	0.053	2.858966	0.053	345.0	32.0	26.8	10.4	31	1	0
10099	COSMOSVLA3 J095710.57+022657.0	149.294072	0.1	2.449174	0.1	92.0	18.0	17.4	5.3	11	0	0
4979	COSMOSVLA3 J095710.88+020929.8	149.295339	0.076	2.158297	0.076	2820.0	140.0	21.4	7.13	332	1	0
3366	COSMOSVLA3 J095711.09+023031.3	149.296231	0.048	2.508722	0.048	318.0	27.0	21.5	11.4	35	1	0
8753	COSMOSVLA3 J095711.15+021104.2	149.296459	0.095	2.184514	0.095	121.0	22.0	21.2	5.68	18	0	0
4046	COSMOSVLA3 J095711.64+021236.8	149.298529	0.055	2.210248	0.055	223.0	26.0	22.6	9.83	22	0	0
6546	COSMOSVLA3 J095711.67+021401.3	149.298655	0.077	2.233706	0.077	135.0	21.0	19.3	7.02	18	0	0
...												
10942	COSMOSVLA3 J100034.76+014635.7	150.144846	-99.0	1.776607	-99.0	374.0	-99.0	2.4	-99.0	828	1	1
9229	COSMOSVLA3 J100034.78+025027.4	150.144947	0.1	2.840947	0.1	25.6	2.7	2.4	5.18	25	1	0
8777	COSMOSVLA3 J100034.80+021421.1	150.145009	0.095	2.239195	0.095	13.0	2.4	2.27	5.7	14	0	0
489	COSMOSVLA3 J100034.81+025515.6	150.145042	0.013	2.921023	0.013	229.0	13.0	3.66	62.5	49	0	0
439	COSMOSVLA3 J100034.83+014247.1	150.145157	0.013	1.713091	0.013	162.0	9.0	2.27	71.3	51	0	0
2850	COSMOSVLA3 J100034.94+020234.9	150.145599	0.042	2.043054	0.042	29.9	2.8	2.29	13.1	29	0	0
2439	COSMOSVLA3 J100034.99+024524.5	150.145815	0.038	2.756821	0.038	32.7	2.8	2.22	14.7	29	0	0
2837	COSMOSVLA3 J100035.00+024614.3	150.145836	0.041	2.770643	0.041	39.6	2.9	2.18	13.3	41	1	0
4092	COSMOSVLA3 J100035.05+024154.6	150.146065	0.055	2.69852	0.055	28.3	2.6	2.23	9.93	31	1	0
4148	COSMOSVLA3 J100035.07+020350.5	150.14614	0.057	2.064044	0.057	23.4	2.7	2.43	9.64	23	0	0
...												
5351	COSMOSVLA3 J100345.81+015420.5	150.940886	0.067	1.905719	0.067	117.0	16.0	14.6	8.05	18	0	0
5225	COSMOSVLA3 J100346.48+023458.3	150.943703	0.067	2.582882	0.067	127.0	17.0	15.5	8.14	21	0	0
8447	COSMOSVLA3 J100346.52+022031.2	150.943867	0.11	2.342001	0.11	290.0	20.0	14.4	5.04	48	1	0
10677	COSMOSVLA3 J100346.56+015500.1	150.944027	0.11	1.916707	0.11	75.7	15.0	14.9	5.1	11	0	0
6533	COSMOSVLA3 J100346.63+022415.8	150.944306	0.076	2.404402	0.076	143.0	16.0	14.2	7.09	28	1	0
2195	COSMOSVLA3 J100347.12+022510.6	150.946345	0.036	2.419631	0.036	548.0	31.0	15.3	15.6	83	1	0
10084	COSMOSVLA3 J100347.27+020117.6	150.94699	0.1	2.021575	0.1	73.1	15.0	14.1	5.18	16	0	0
9695	COSMOSVLA3 J100347.51+023539.7	150.947979	0.1	2.594384	0.1	93.2	18.0	17.6	5.3	10	0	0
10652	COSMOSVLA3 J100347.80+024951.9	150.949175	0.11	2.831096	0.11	80.7	17.0	16.1	5.01	14	0	0
10484	COSMOSVLA3 J100348.53+021102.3	150.952242	0.11	2.183987	0.11	82.3	17.0	16.3	5.05	13	0	0

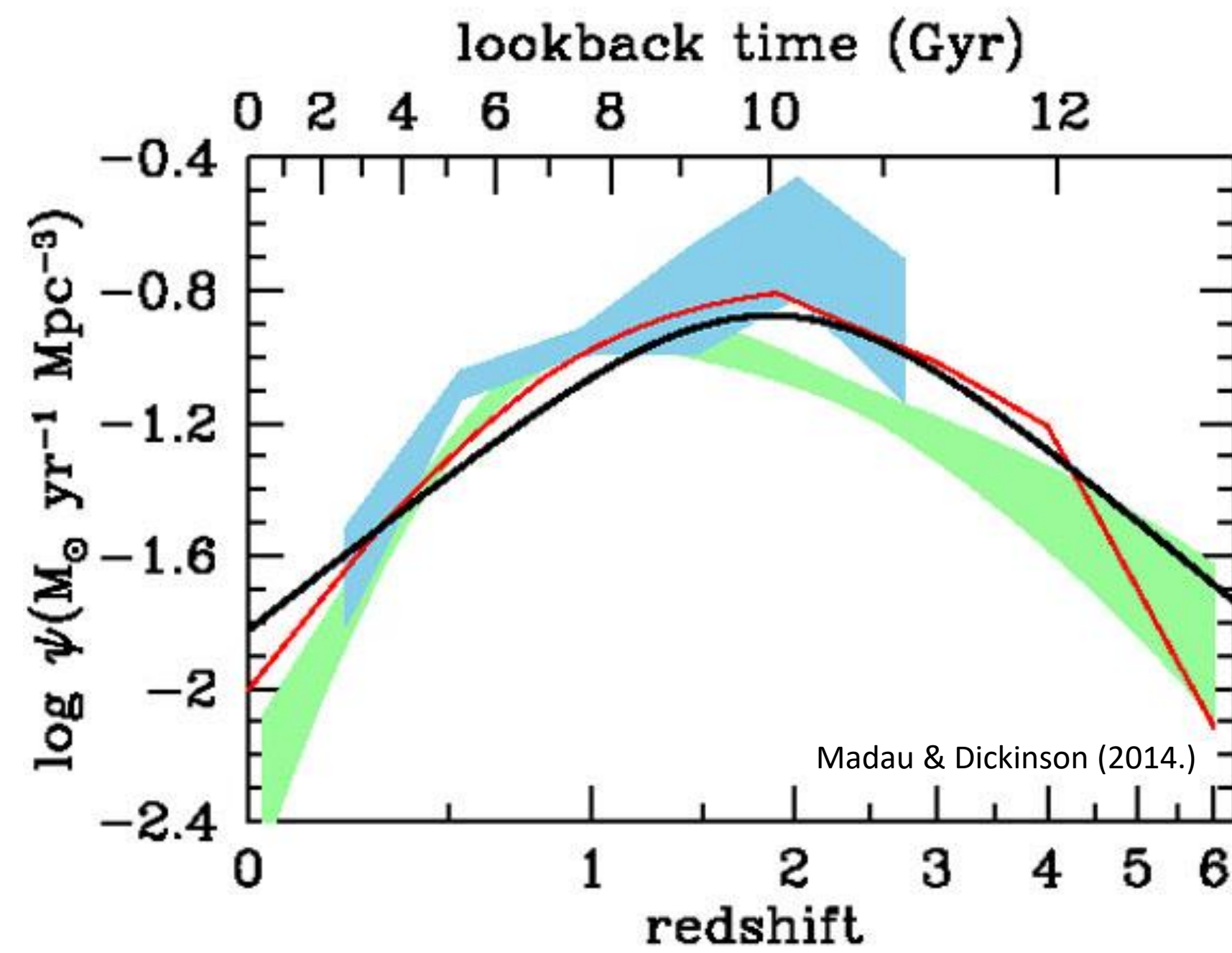
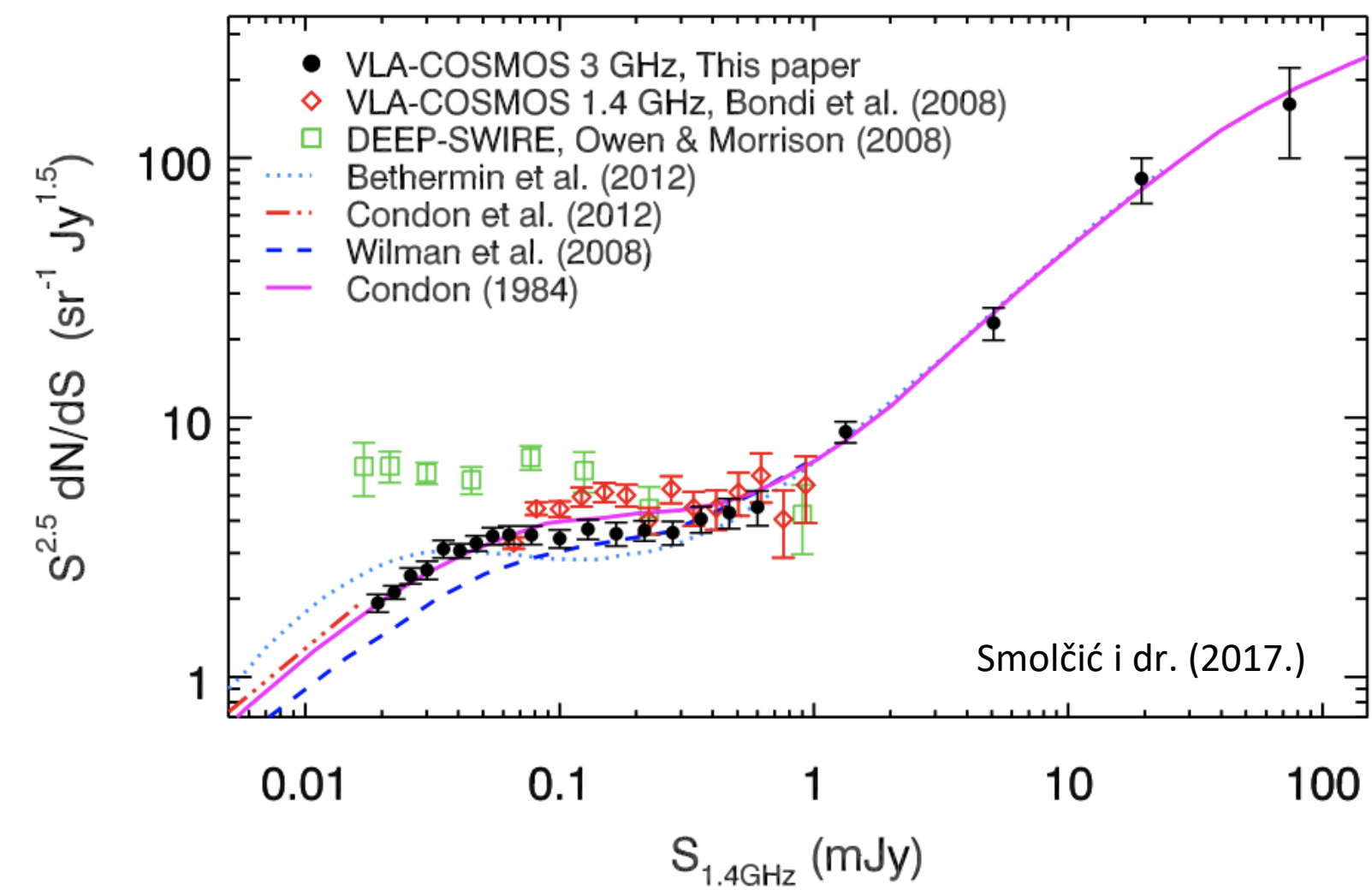
A

Otvorenost

B

Pristup

$$q_{\text{TIR}} = \log\left(\frac{L_{\text{TIR}}}{3.75 \times 10^{12} \text{ W}}\right) - \log\left(\frac{L_{1.4 \text{ GHz}}}{\text{W Hz}^{-1}}\right)$$

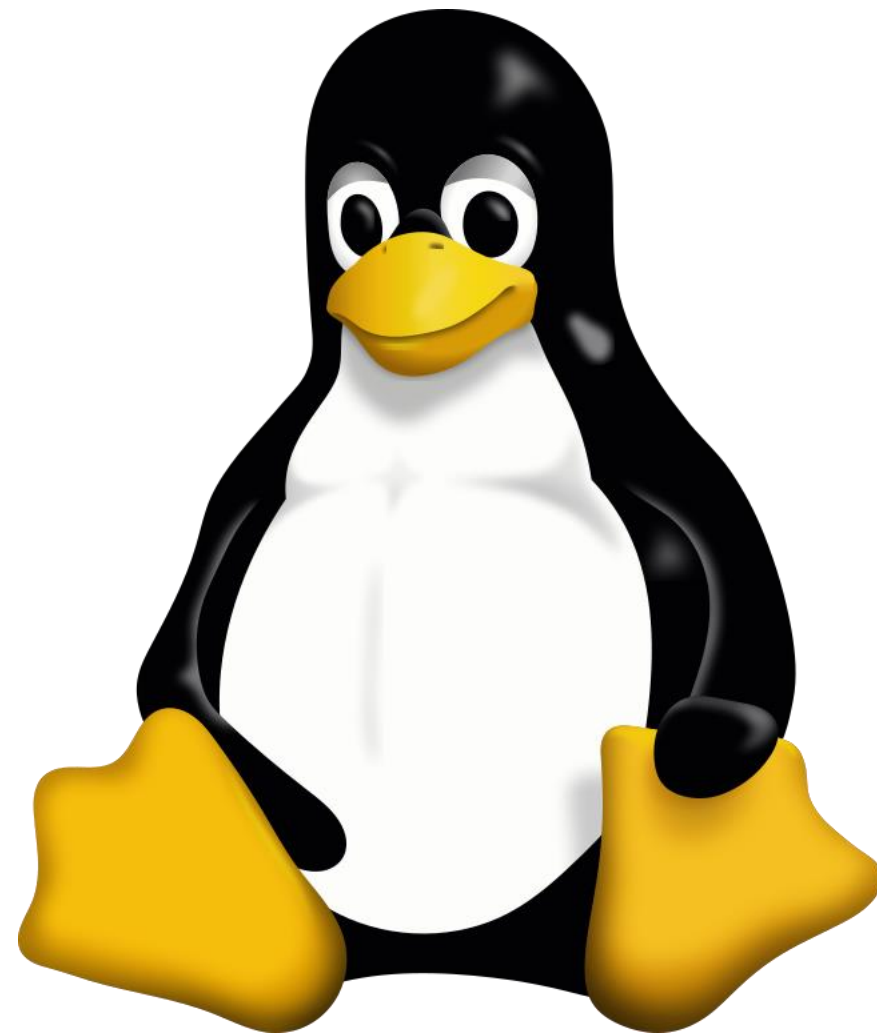


A

Otvorenost

B

Pristup



LINUX



Python

A

Otvorenost

B

Pristup

Magphys

Galfit

BRATS

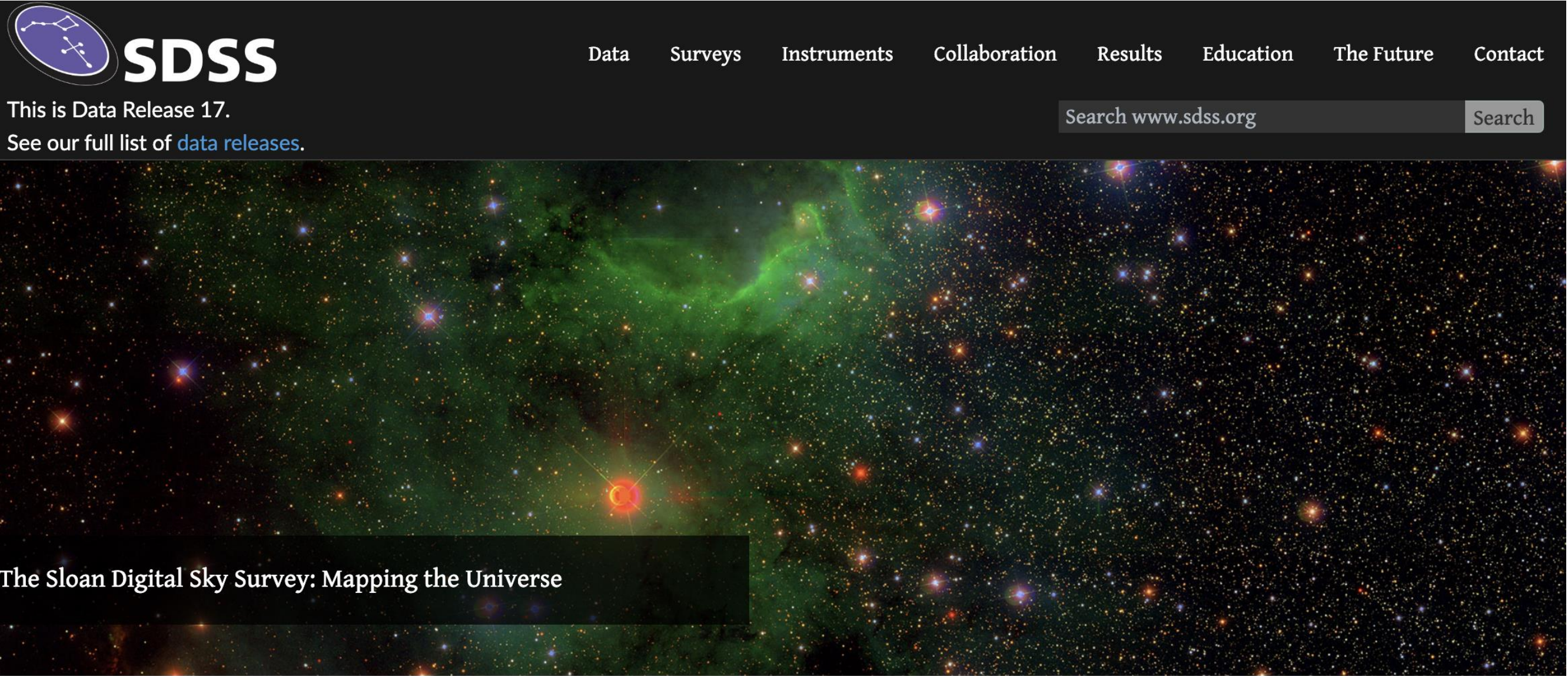
@Github

A

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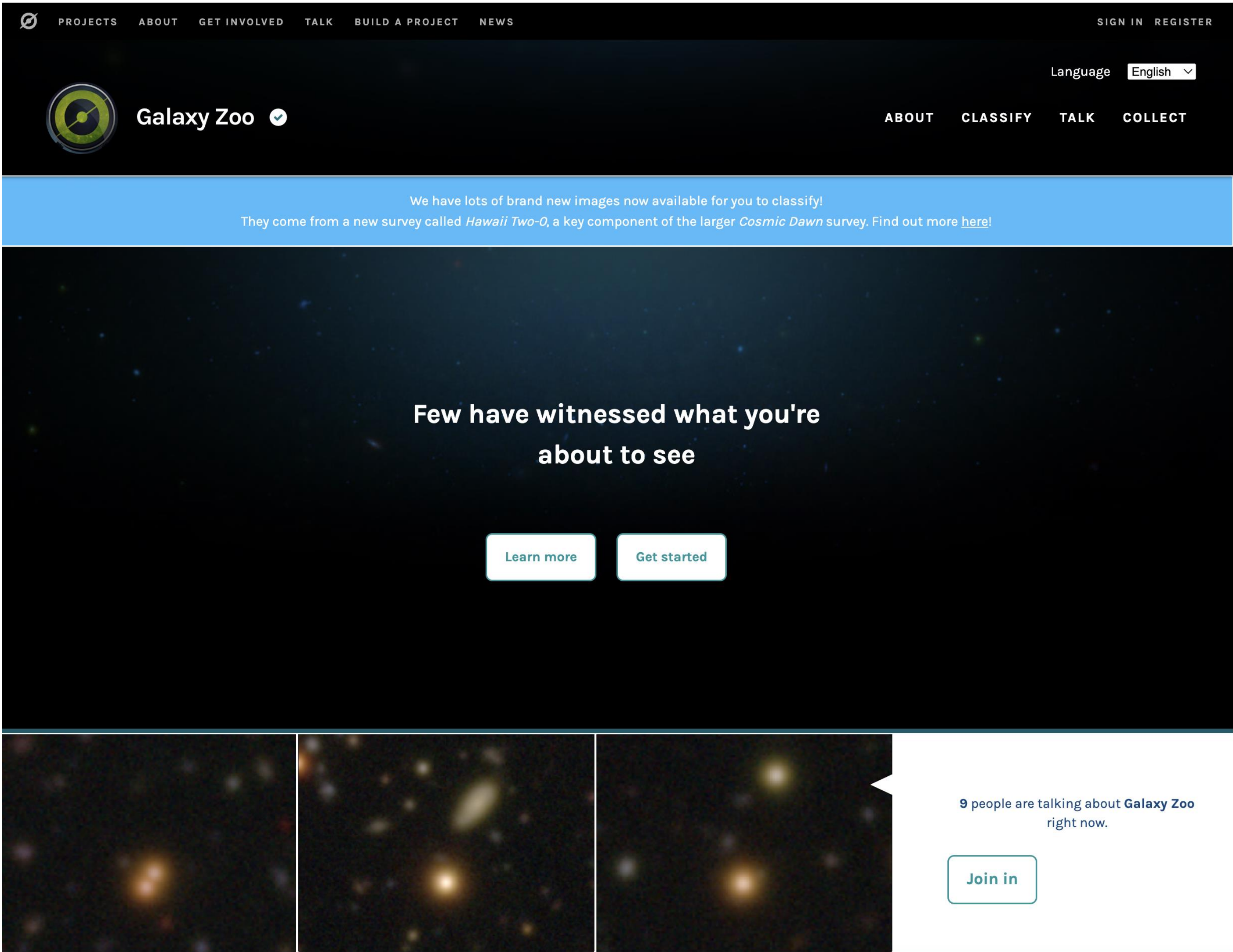


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A
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B
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Galaxy Zoo

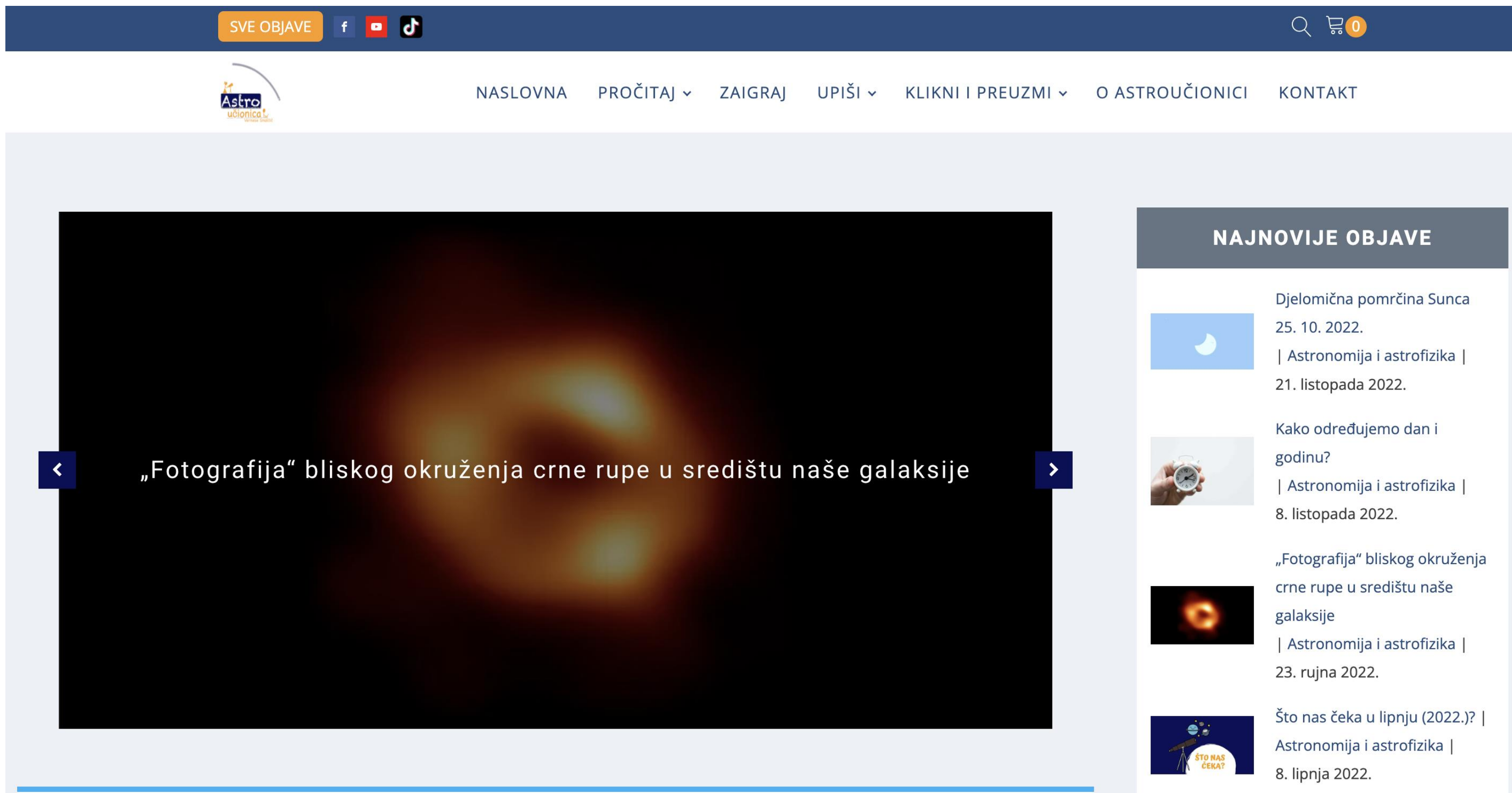
<https://www.zooniverse.org/projects/zookeeper/galaxy-zoo/>

A

Otvorenost

B

Pristup



Astroučionica

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A **Otvorenost**

B **Pristup**



C

Povezanost



D

Identitet



D

Identitet



A

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C

Povezanost

D

Identitet