

Keplér Alem Téléskopi we Tashqiy Planétalar

Erkin Sidiq

Uyghur Akadémiyisi 3-Nöwetlik Ilmiy Muhakime Yighinida Sözlén'gen
2012-Yili 5-Ayning 5-6-Künliri, Istanbul, Türkiye



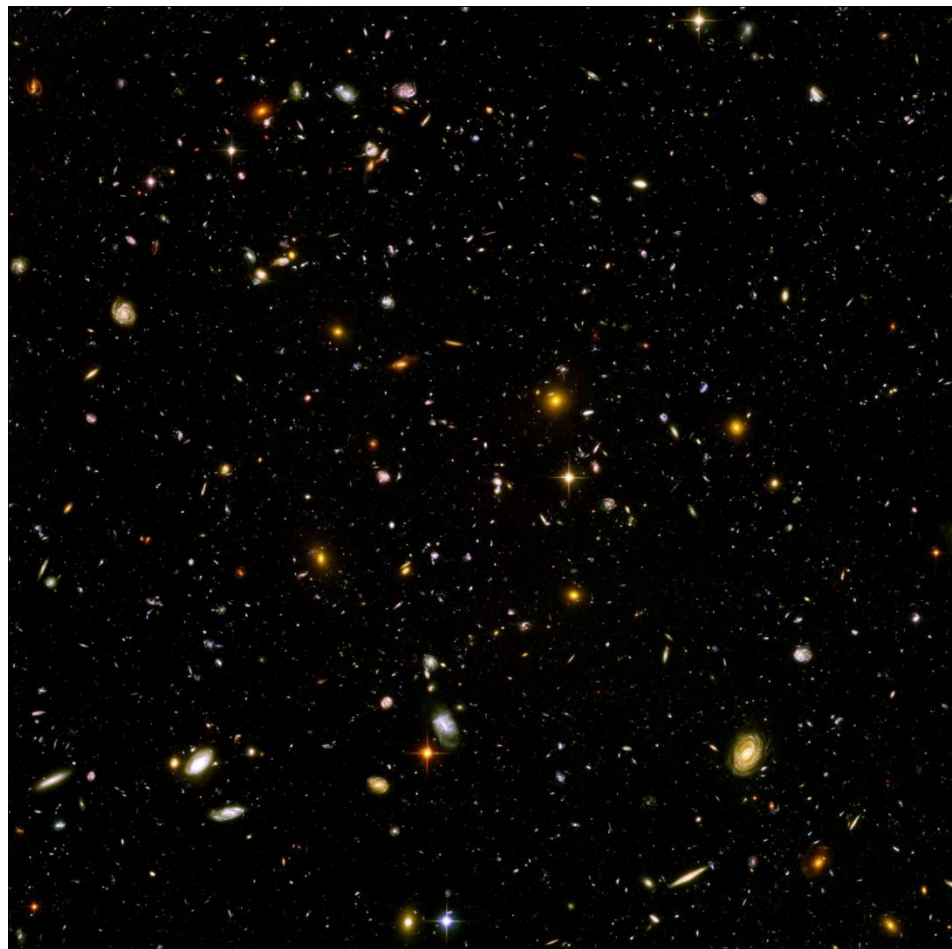
Keplér Alem Téléskopi

- 2009-3-6-küni qoyup bérilgen
- Saman Yoli Galaksi ning bir qismini tekshürüp, yer sharigha oxshap kétidighan planétalarni, yeni üstide su we hayatliq bar bolush éhtimalliqi bar planétalarni izdeydu
- Bu ilmiy qürülushning meqsidi, Saman Yoli Galaksi diki planétalarning ichide Yer Sharigha oxshap kétidighan planétalar texminen qanche pirsentni igileydighanlighini aydinglashtürüp, Yer Sharigha yéqin rayondin uninggha oxshap kétidighan, hayatliq mewjut bolalaydighan planétadin birni tépishning éhtimalliqi qanchilik ikenlikini éniqlap chiqish



Kainatta Texminen 200 Milyard Galaksi Bar

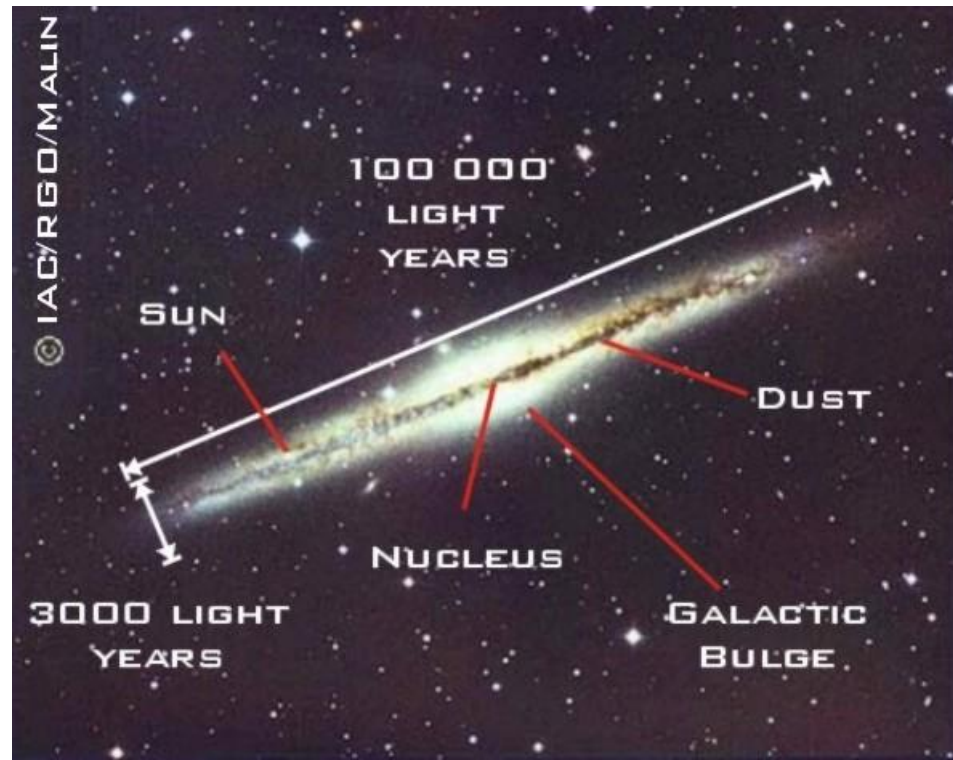
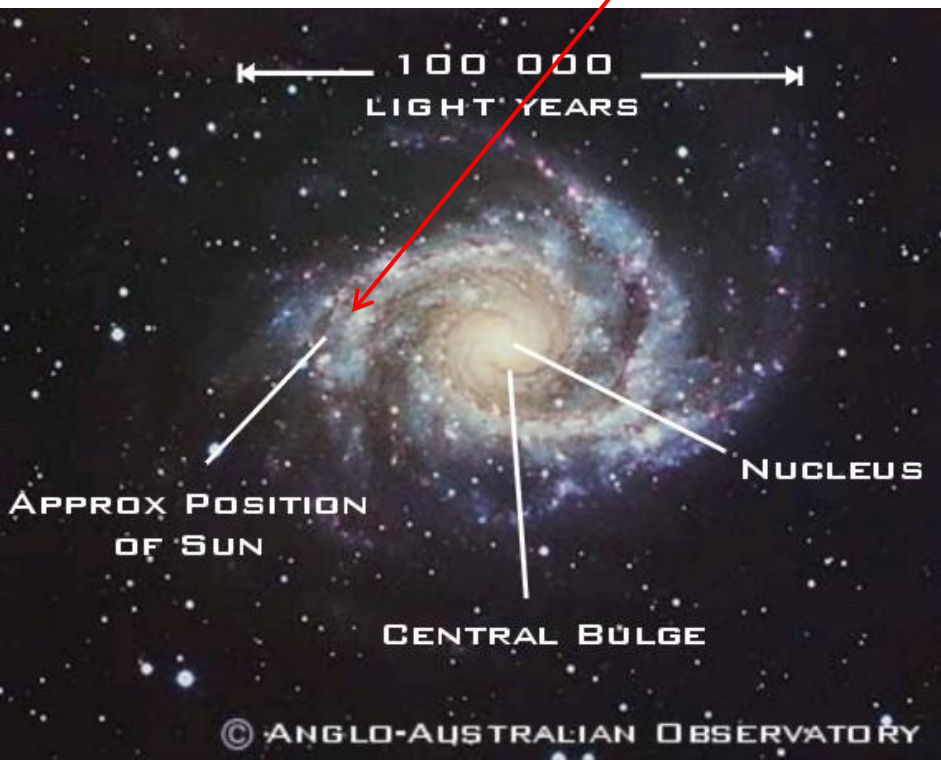
- Kainatta texminen 200 milyart Galaksi bar
- Biz yashawatqan quyash sistémisi
jaylashqan Saman Yoli Galaksi ashu 200
milyard Galaksining biri
- Bu bettikisi Habul (Hubble) alem téléskopi
tartqan resimler



Saman Yoli Galaksi de 200 Milyard Yultuz Bar

- Salam Yoli Galaksi texminen bir texsige oxshaydu—Dairisi chong, emma népiz
- Texsining kengliki 100,000 nur yili kélidu
- Texsining qélinliqi 3000 nur yili kélidu
- Bir nur yili = $(300,000 \text{ Km}) \times (365 \text{ kün}) \times (24 \text{ saet}) \times (60 \text{ minut}) \times (60 \text{ sékont}) = 9,460,800,000,000 \text{ Km}$ (Km = Kilométir)

Künning orni

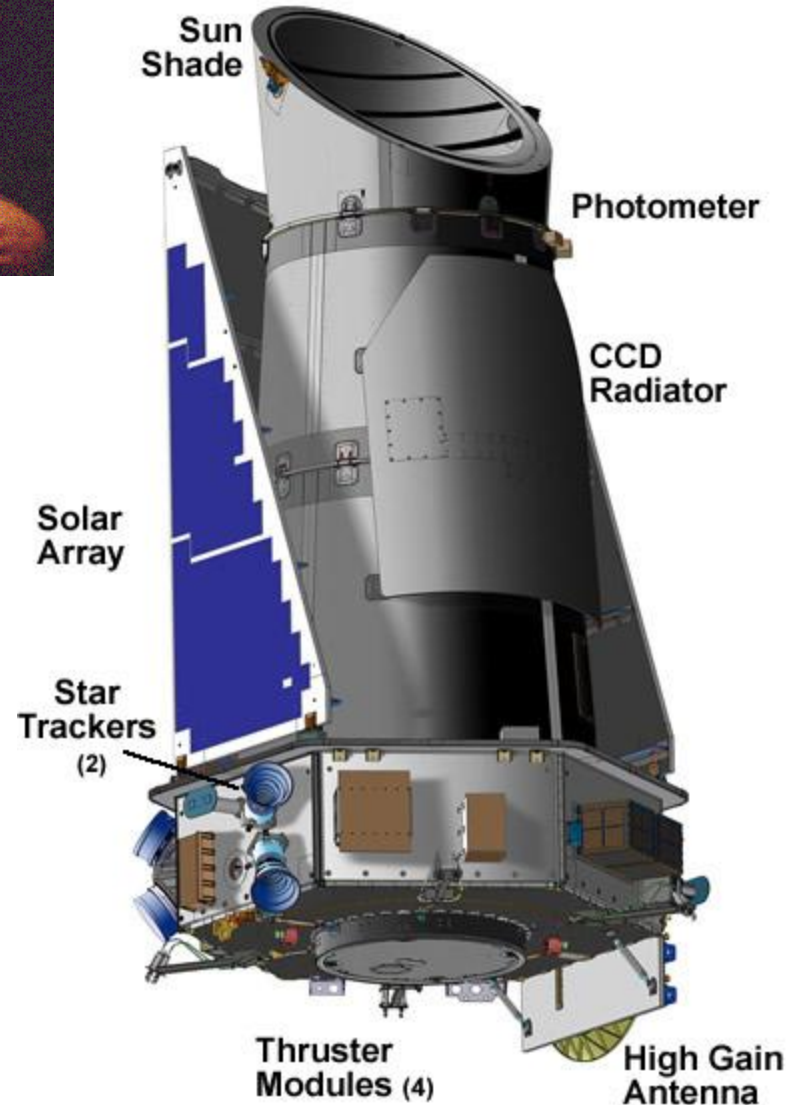


“Kepler” Dégen Isimning Kélip Chiqishi

- Bu isim Germaniye alimi Johannes Kepler (1571—1630) ning namida qoyulghan
- Kepler Mars ning orbitisining shekli bir Éllipis ikenlikini tunji qétim bayqighan
- Astronomiyige uningdin bashqimu nurghun töhpilerni qoshqan
- Kepler téléskopining asasliq eyniking di'amétiri $D=1.4\text{m}$ (Hubble $D = 2.4\text{m}$)
- Kepler téléskopining wezipe ötesh mudditi 3.5 yil bolup, 2012-4-5-küni uning mudditi 2016-yilighiche uzartildi

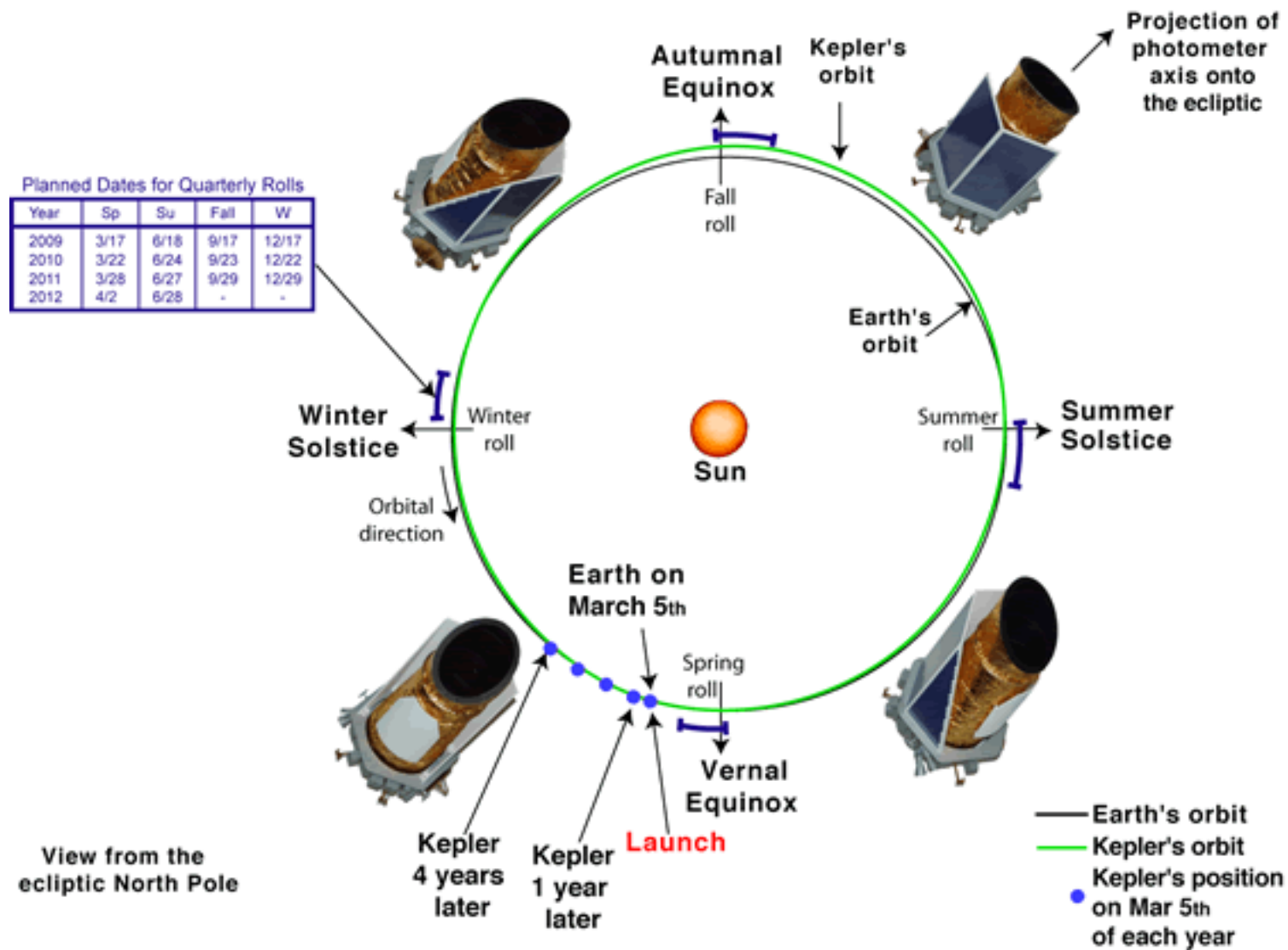


Kepler Téléskopining Asasiy Tüzülishi

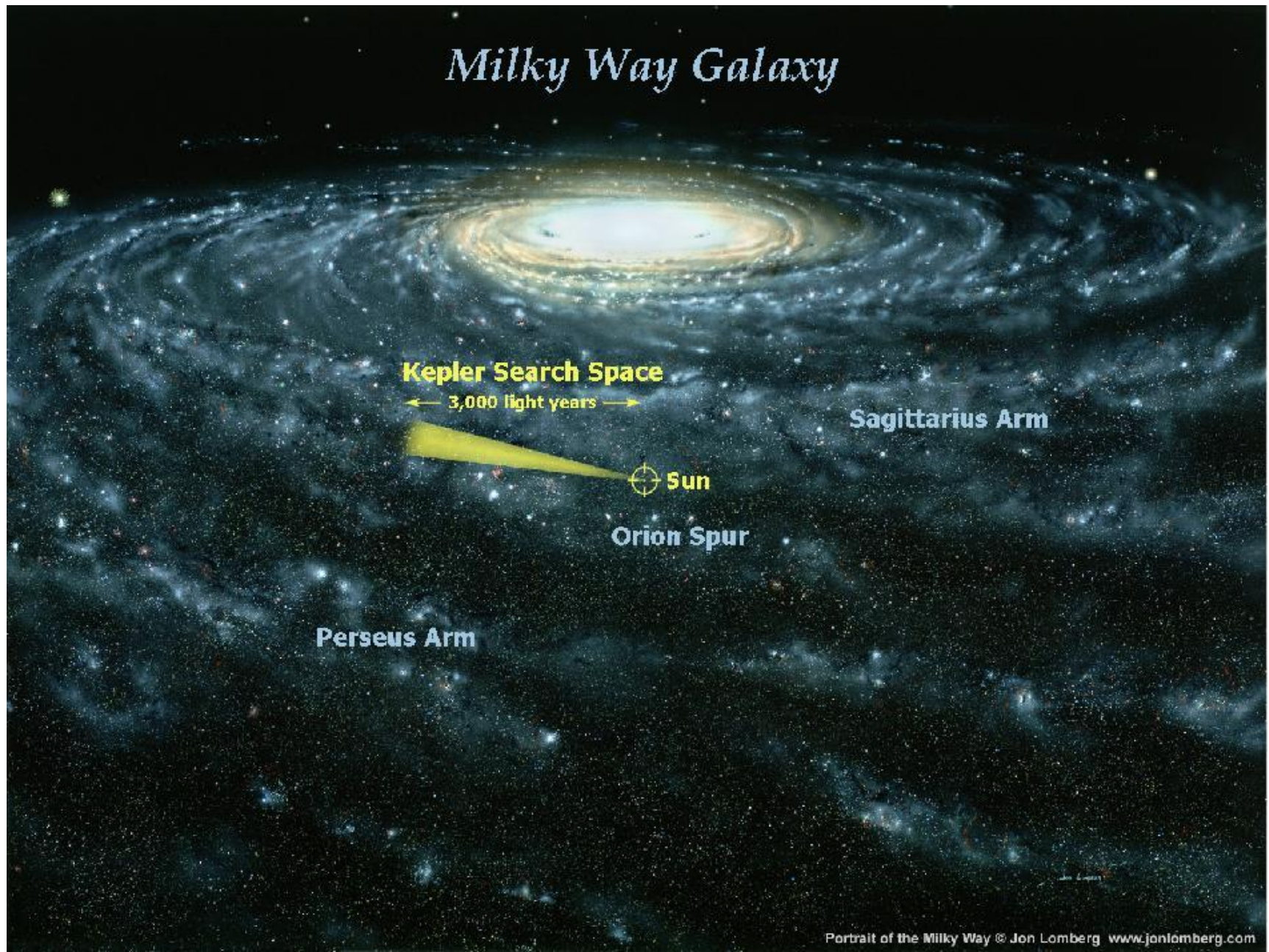


Kepler Téléskopining Orbiti

- Yer Shari bilen oxshash orbitta, yer sharidin sel astiraq aylanidu

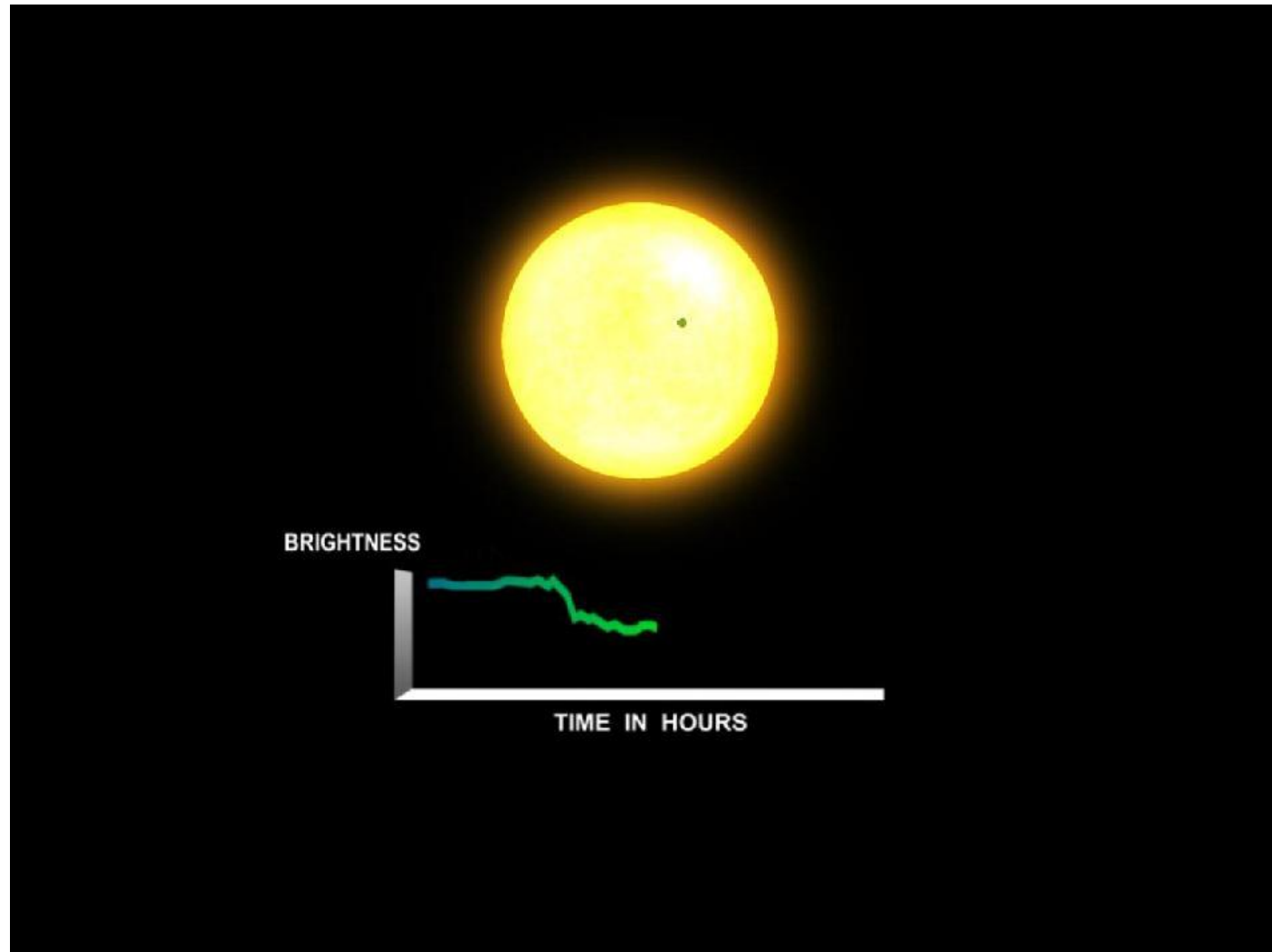


Kepler Télioskopining Tekshürüş Rayoni—3000 Nur Yili



Planéta tépish Usuli—Otkunche Usul (Transit Method)

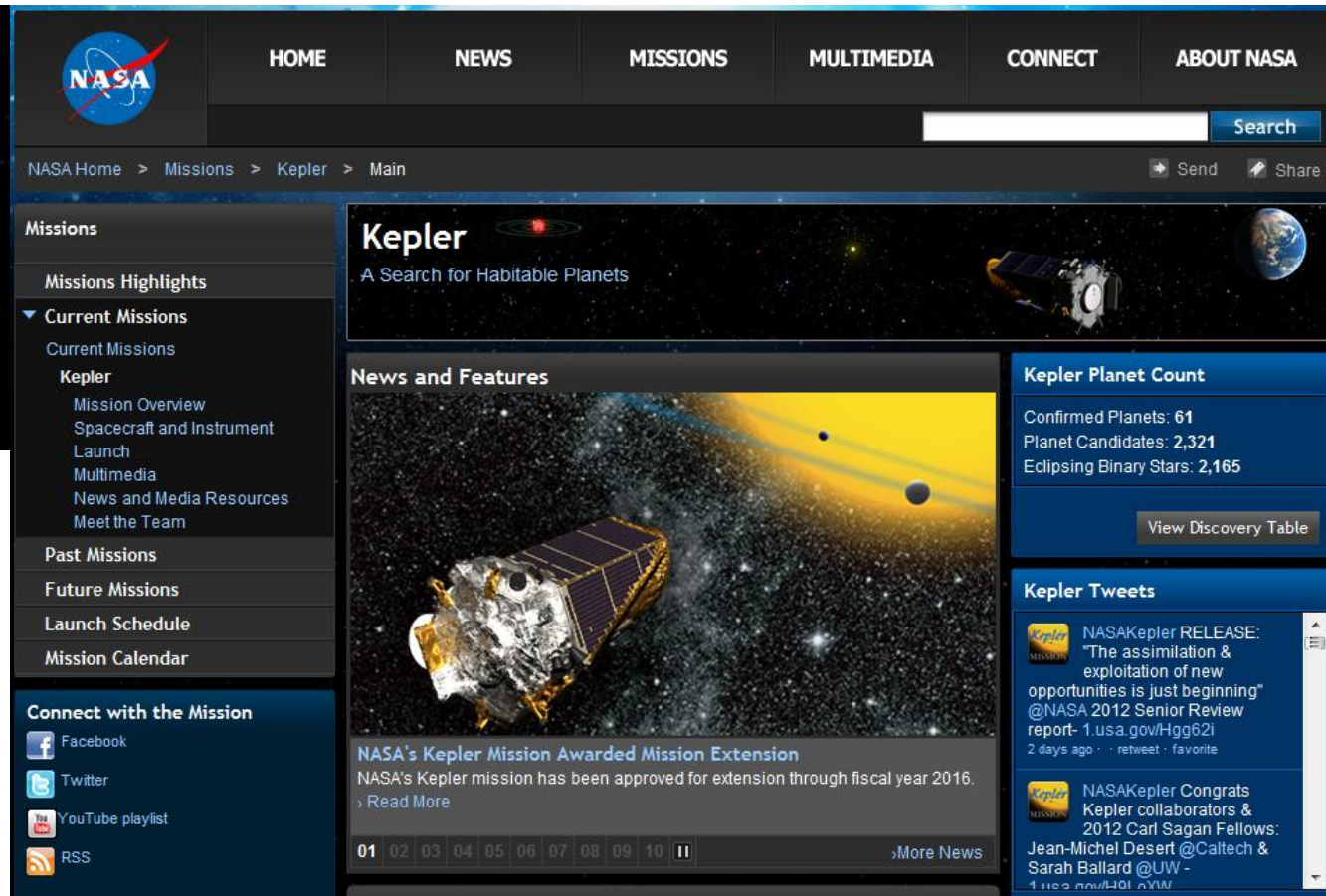
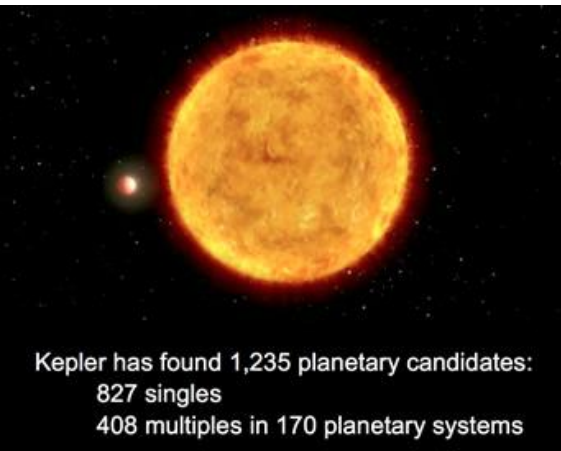
- Yultuzning aldidin bir planéta ötkende, téléskop bilen ölçewatqan ashu yultuzning nuri bir az ajizlaydu
- Bundaq planét yultuzning yüzidiki bir chékittek körinidu
- Mushu chékitning peyda bolush we yoqulush waqti qatarliq uchurlardin planétaning
 - Orbiti
 - Chong-kichiklikli
 - Témperaturisi
- Qatarliqlarni hésablap chiqqili bolidu.
- Bulardin bu planétada hayatliq saqlash mumkinmu-emesmu dégenni bilgili bolidu
- Bu hésablash “Kepler ning 3-planéta heriket qanuniyiti” (Kepler’s 3rd Law of planetary motion) arqiliq élip bérilidu



Kepler Hazirghiche 61 Planéta Tapti

- Yer Sharigha oxshap kétédighan planéta din 61 si tépildi
- Tapmaqchi bolghan planétalarning jemi kandidat sani 2,321
- Hazirghiche tépilghan kandidatlarining sani 1,235
- Ularning ichide 827 danisi yalghuz planétalar, qalghan 408 danisi köp-planéta sistémisida bolup, ular jemi 170 yultuz sistémisigha tarqalghan

2012-4-7 elan qilin'ghan



The screenshot shows the NASA website's Kepler mission page. The top navigation bar includes links for HOME, NEWS, MISSIONS, MULTIMEDIA, CONNECT, and ABOUT NASA. Below the navigation bar is a search bar and a breadcrumb trail: NASA Home > Missions > Kepler > Main. The main content area features a large header image of the Kepler spacecraft orbiting a star, with the text "Kepler A Search for Habitable Planets". Below this is a "News and Features" section with a large image of the Kepler spacecraft and a headline: "NASA's Kepler Mission Awarded Mission Extension". To the right of the main content is a "Kepler Planet Count" box showing: Confirmed Planets: 61, Planet Candidates: 2,321, and Eclipsing Binary Stars: 2,165. Below this is a "Kepler Tweets" section with two tweets from NASA. The left sidebar contains a "Missions" section with links for "Current Missions" (Kepler, Mission Overview, Spacecraft and Instrument, Launch, Multimedia, News and Media Resources, Meet the Team) and "Past Missions" (Future Missions, Launch Schedule, Mission Calendar). At the bottom of the sidebar is a "Connect with the Mission" section with links for Facebook, Twitter, YouTube playlist, and RSS.

Kepler
A Search for Habitable Planets

News and Features

NASA's Kepler Mission Awarded Mission Extension
NASA's Kepler mission has been approved for extension through fiscal year 2016.
Read More

Kepler Planet Count
Confirmed Planets: 61
Planet Candidates: 2,321
Eclipsing Binary Stars: 2,165
View Discovery Table

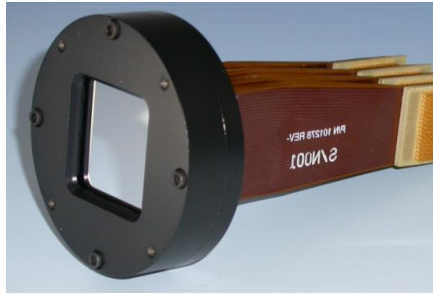
Kepler Tweets

NASAKepler RELEASE:
"The assimilation & exploitation of new opportunities is just beginning"
@NASA 2012 Senior Review report- 1.usa.gov/Hgg62i
2 days ago · retweet · favorite

NASAKepler Congrats
Kepler collaborators & 2012 Carl Sagan Fellows:
Jean-Michel Desert @Caltech & Sarah Ballard @UW - 1.usa.gov/Hgg62i

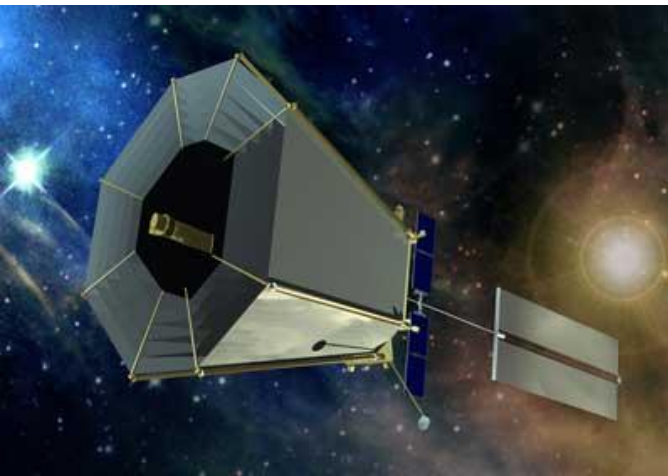
01 02 03 04 05 06 07 08 09 10 11 More News

Tashqiy Planétalarni Biwaste Körüdighan Téléskop: In'glizche “Terrestrial Planet Finder (TPF)”

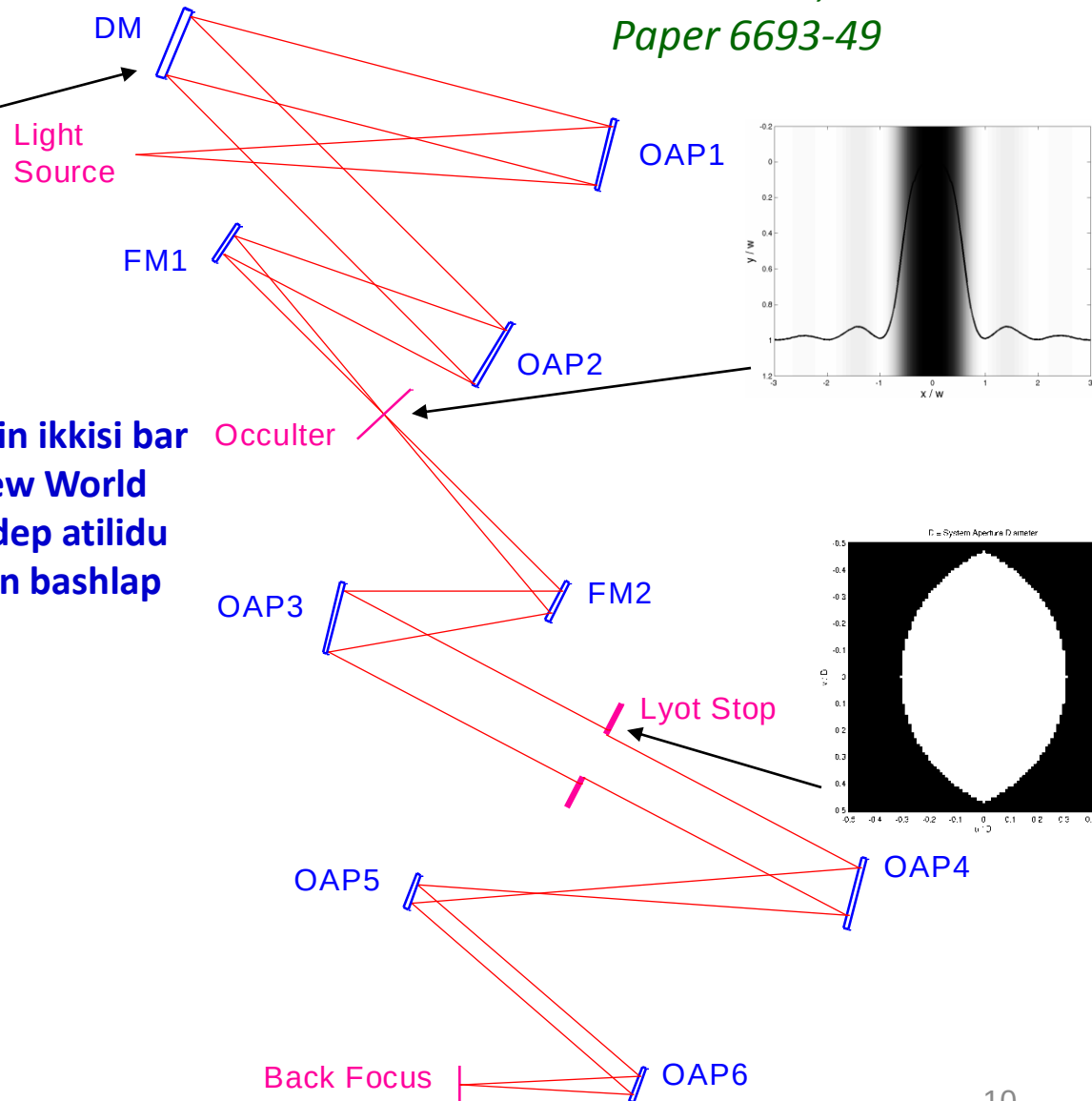


Deformable-Mirror (DM)
with 32x32 actuators

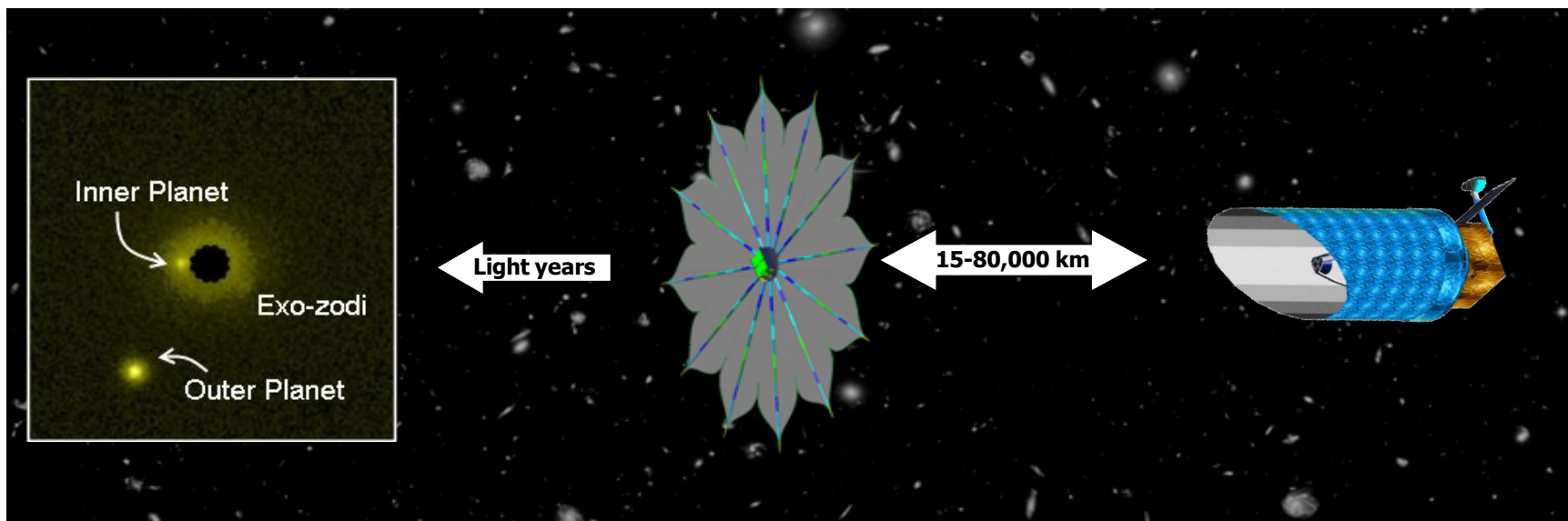
- Hazir tetqiqat élip beriwatqan lahiyidin ikkisi bar
- Biri “TPF-Coronagraph”, yene biri “New World Observer” (Yéngi Dunya Küzetküchi) dep atilidu
- Bu bettikisi TPF-C, menmu 2005-yilidin bashlap mushu qurulushqa qatnishiwatimen



*Sidick et al., SPIE 07
Paper 6693-49*



“Yéngi Dunyani Küzetküchi” ning Bir Körünishi



- Bir alahide lahiylen'gen, alem téléskopi bilen tashqiy yultuz ariliqida turidighan maska yultuzning nurini tosup qélip, tapmaqchi bolghan planétaning nurini tosmaydu

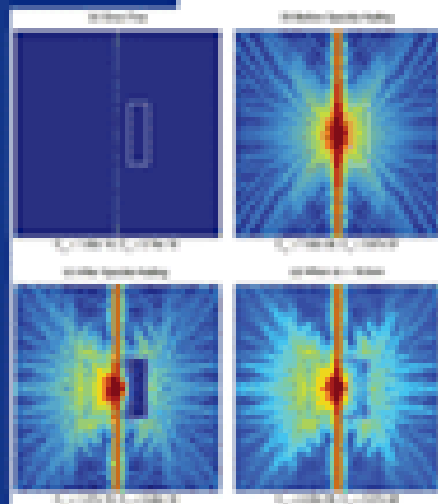
Méning Ilmiy Maqalilirimdin Bir Misal

Requirements on optical-density and phase dispersion of imperfect band-limited occulting masks in a broadband coronagraph

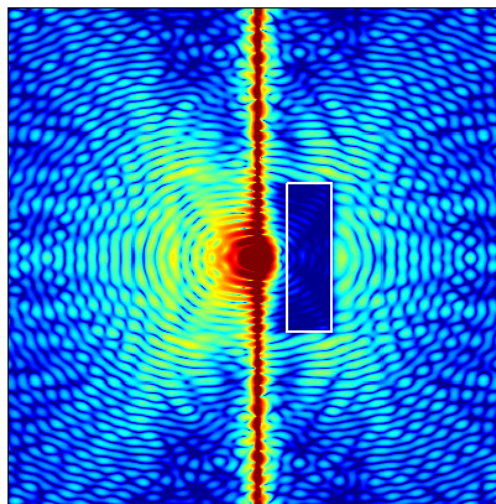
Erkin Sidick

Applied Optics, Vol. 46, No. 30, October 20, 2007

Contrast Map (Log-Scale)

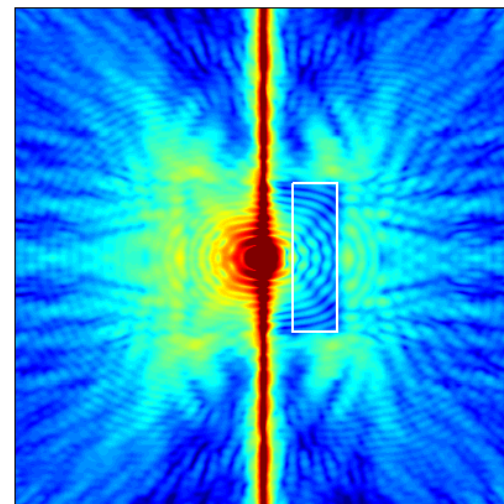


(c) After Speckle-Nulling



$C_m = 1.27\text{e-}10$, $C_4 = 3.46\text{e-}10$

(d) When $\Delta\lambda = 78.5\text{nm}$

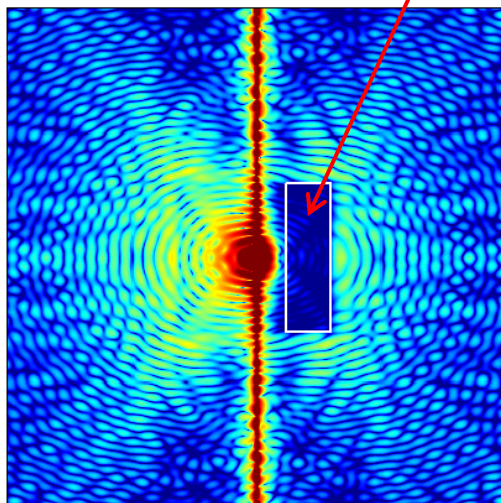


$C_m = 4.26\text{e-}09$, $C_4 = 3.27\text{e-}08$

Eng Yéngi Netijilerdin Bir Misal

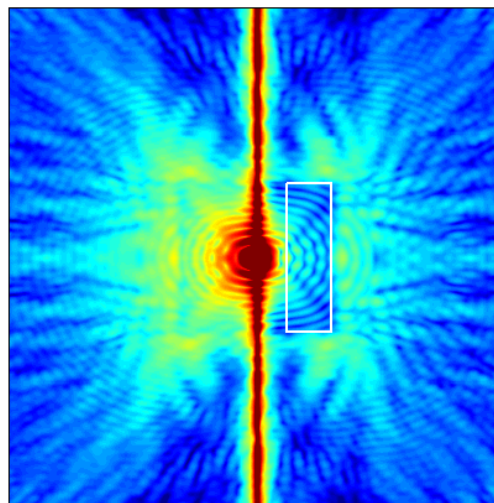
Hésablighan “qarangghu töshük”—Erkin Sidiq

(c) After Speckle-Nulling



$$C_m = 1.27e-10, C_4 = 3.46e-10$$

(d) When $\Delta\lambda = 78.5\text{nm}$



$$C_m = 4.26e-09, C_4 = 3.27e-08$$



2012-2-17



Paydilinish Matériyalliri

- <http://kepler.nasa.gov/Mission/QuickGuide/>
- <http://www.slashgear.com/nasa-extends-kepler-earth-a-like-search-until-2016-05221697/>
- http://www.nasa.gov/mission_pages/kepler/multimedia/images/kepler-target-in-the-milkyway.html
- Erkin Sidiqning “Space Télésopes for Direct Detection of Exo-Planéts” dégen dokladi