

قياس الأبعاد في الكون

م. ألكسندر العادلي

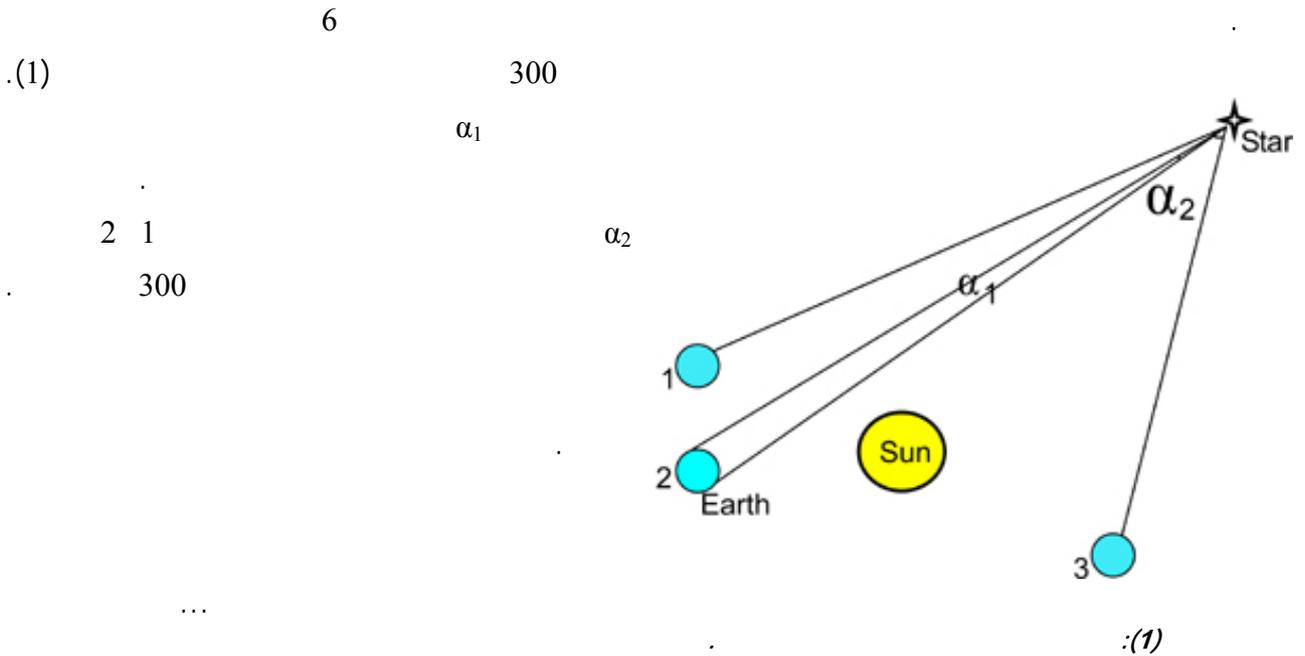


(Hipparchus)

(1742-1656)

(Edmond Halley)

(Parallax)



(Bradley)

(Mutation)

18,6

:

10

()

!

16

30

!

Herschel

1793

.(Double Star)

!

Starve

Henderson

Bessel

1838

43000

Alpha Centaury

270000

Vega

.(Light year)

300

10

4,3

8

(Parsec)

(

)

66667

3.26

« »

(Magnitude)

1856 Pogson Hipparchus

1 2.5

5 "2.5 n 2.5

(Polaris) .100 ≈ ⁵2.5

2 (Vega) (

6.25 (Sirius) .6

1.5- (Vega)

.26.8- (

6

(Apparent magnitude)

(Absolute magnitude)

32.6 10

.0.5 4.9

$$M : m : d_0 : d$$

$$M = m + 5 \log_{10} \frac{d_0}{d}$$

32.6 10 :d₀

:d

8	4.9	-26.8	
1.3	-	-12.6	
2.3	-	-4.4	
8.7	1.4	-1.5	
800	-7.1	0.12	
27	0.5	0	
4.3	4.34	-0.01	
15.7	2.3	0.77	
520	-5.4	0.1	

1826 Olbers

:

-1

-2

-3

Olbers

Olbers

.(Olbers' Paradox)

!

1784 Hershel 100

.(Milky way)

!(Variable stars)

:

Goodrich 1782

Goodrich

11

Delta Cephei

(Cepheids)

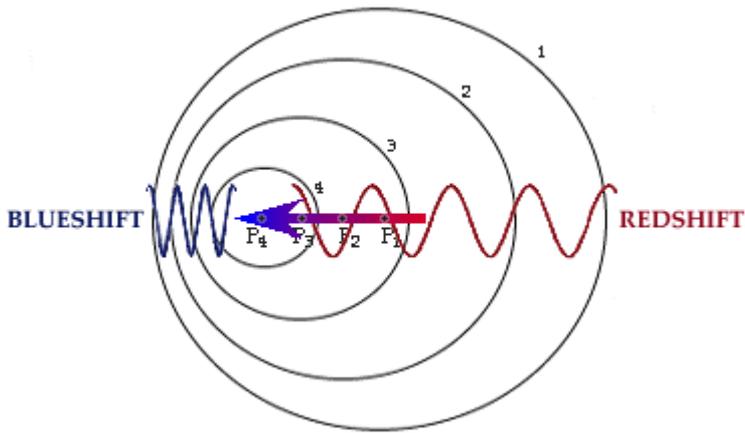
5.3



(1853-1803)

Henrietta Leavitt 1912

1842 (Doppler)



(Frequency)

:(2)

.(2)

.(3) (Spectrum)

()

(Red shift)

(Blue shift)

Hertzsprung 1913

Leavitt

80000

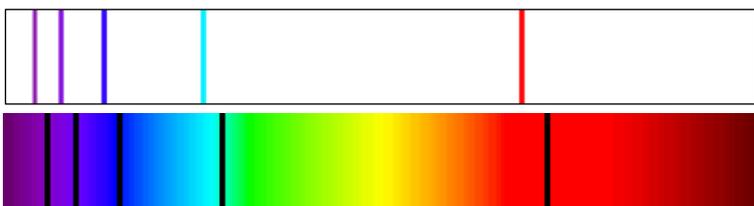
! 27000

(Galaxy)

!

...

160



:(3)