



# Influence of Stellar Companions on Fomalhaut's Ring

ETHAN WHITE

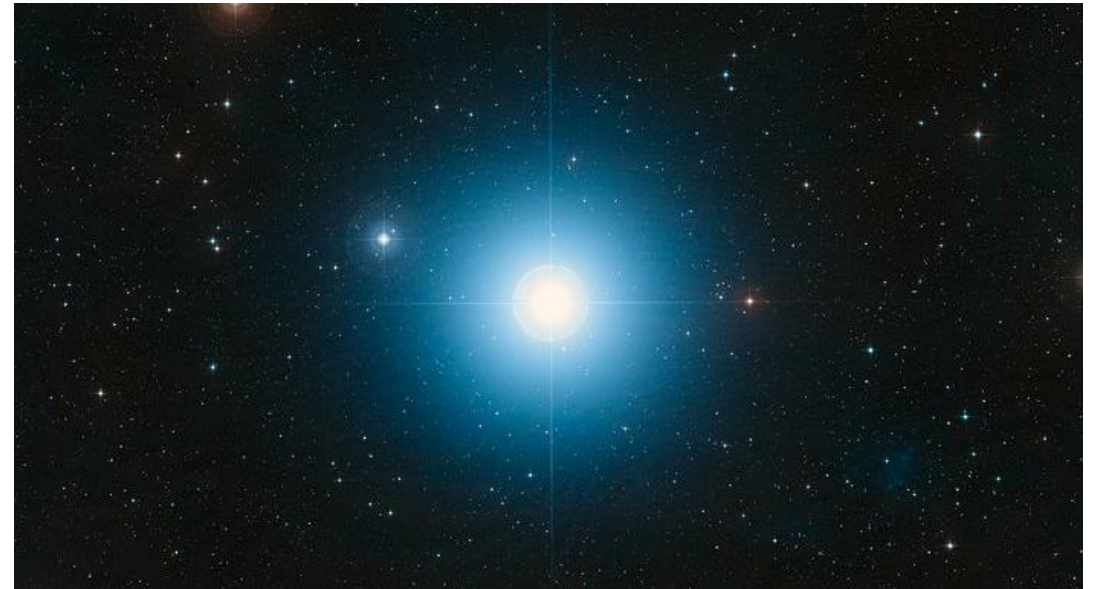
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# Definitions

- ▶ Binary Star
  - ▶ Second Star in a system
  - ▶ Revolves around the center of mass of a system
- ▶ Tertiary Star
  - ▶ Third star in a system
  - ▶ Essentially another binary star
- ▶ Astronomical Unit (AU)
  - ▶ Mean distance between the earth and the sun (149.6 million KM)

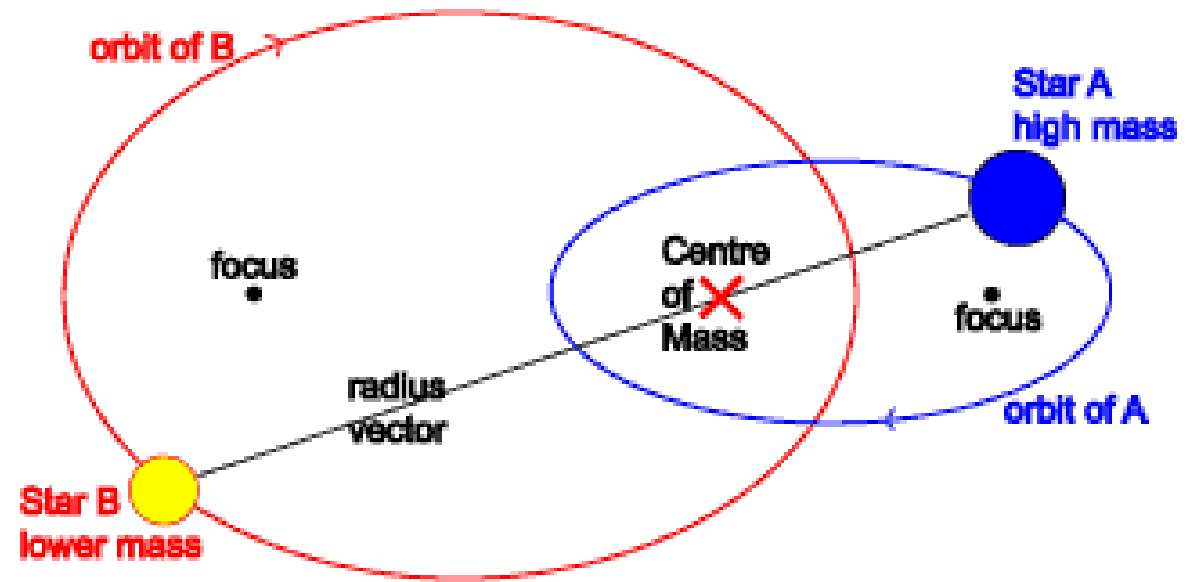
# Fomalhaut

- ▶ One of the brightest stars as seen from Earth
- ▶ Compared with the Sun
  - ▶ About twice the radius
  - ▶ About twice as massive
- ▶ Surrounded by a ring of dust
- ▶ Two companion stars



# Why you should care

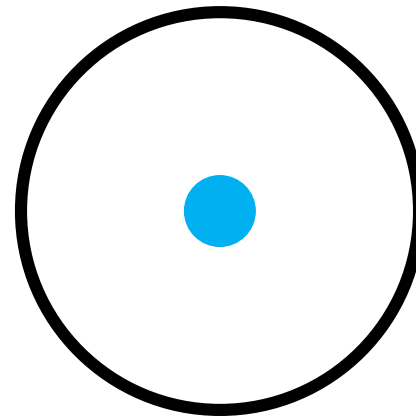
- ▶ 50 percent of stars in binary system
- ▶ Stellar Interactions
  - ▶ Evolution of Solar system



Orbits of Stars In a Binary System

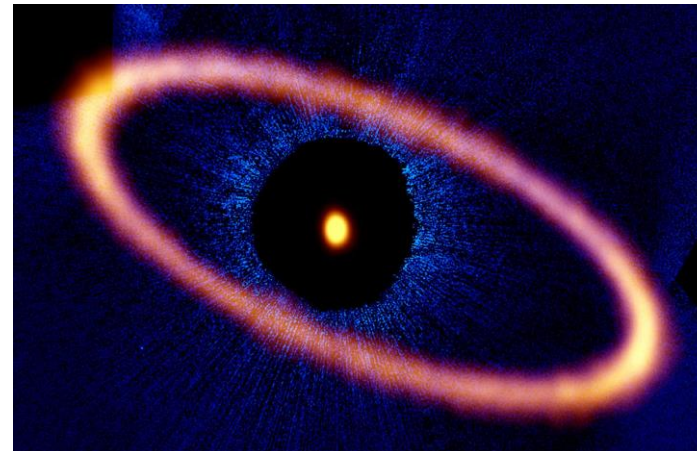
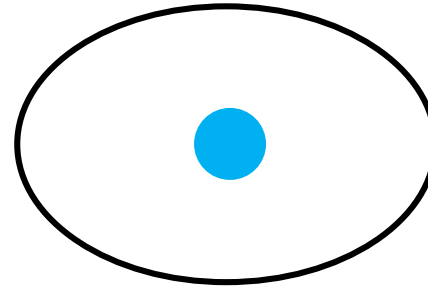
# Fomalhaut's Ring

- ▶ Star and Ring System
  - ▶ Zero Eccentricity



# Fomalhaut's Ring

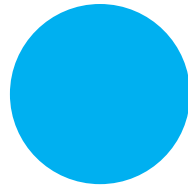
- ▶ Star and Ring System
  - ▶ Zero Eccentricity
- ▶ Ring of (Material)
  - ▶ Eccentricity of 0.1



# Tertiary System

- ▶ Fomalhaut
  - ▶ Ring of dust
    - ▶ 130 AU
- ▶ Binary
  - ▶ 50000 AU
- ▶ Tertiary
  - ▶ 150000 AU

**Fomalhaut**



**Binary**



**Tertiary**

