

Our Star, the Sun and The Nature of the Stars

Chapter 18 & 19

Sun\

- Energy source
- Interior structure and helio-seismology
- Surface features
- Atmosphere of the sun
- Nature of the stars
- Distance – parallax
- Motion of the stars – proper and radial motion
- Spectral types
- H-R diagram
- Binary systems

By the way, how is your research going?

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| Distance from the Earth: | Mean: 1 AU = 149,598,000 km |
| | Maximum: 152,000,000 km |
| | Minimum: 147,000,000 km |
| Light travel time to the Earth: | 8.32 min |
| Mean angular diameter: | 32 arcmin |
| Radius: | 696,000 km = 109 Earth radii |
| Mass: | 1.9891×10^{30} kg = 3.33×10^3 Earth masses |
| Composition (by mass): | 74% hydrogen, 25% helium, 1% other elements |
| Composition (by number of atoms): | 92.1% hydrogen, 7.8% helium, 0.1% other elements |
| Mean density: | 1410 kg/m ³ |
| Mean temperatures: | Surface: 5800 K; Center: 1.55×10^7 K |
| Luminosity: | 3.86×10^{26} W |
| Distance from center of Galaxy: | 8000 pc = 26,000 ly |
| Orbital period around center of Galaxy: | 220 million years |
| Orbital speed around center of Galaxy: | 220 km/s |

Solar energy : Hydrogen Fusion (P-P Chain)
 $4H \rightarrow 1 He + \text{mass loss} : E=mc^2$
 Search for neutrino to determine the exact reaction rate.



