

25. The unit Ampere is discussed in §22-4. The proton flux is given as 1500 protons per square meter per second, where each proton provides a charge of  $q = +e$ . The current through the spherical area  $4\pi R^2 = 4\pi(6.37 \times 10^6 \text{ m})^2 = 5.1 \times 10^{14} \text{ m}^2$  would be

$$i = (5.1 \times 10^{14} \text{ m}^2) \left( 1500 \frac{\text{protons}}{\text{s} \cdot \text{m}^2} \right) (1.6 \times 10^{-19} \text{ C/proton}) = 0.122 \text{ A} .$$