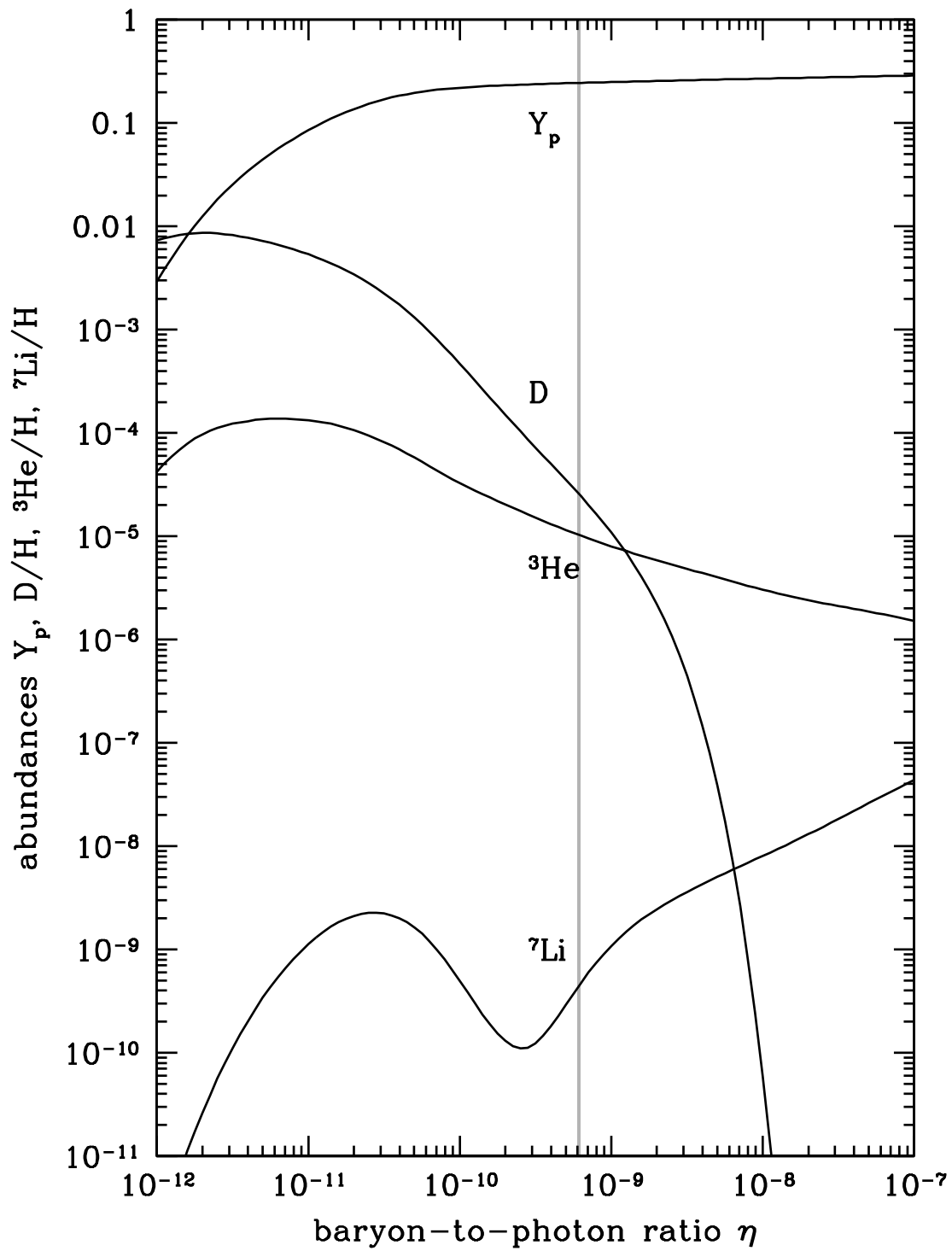
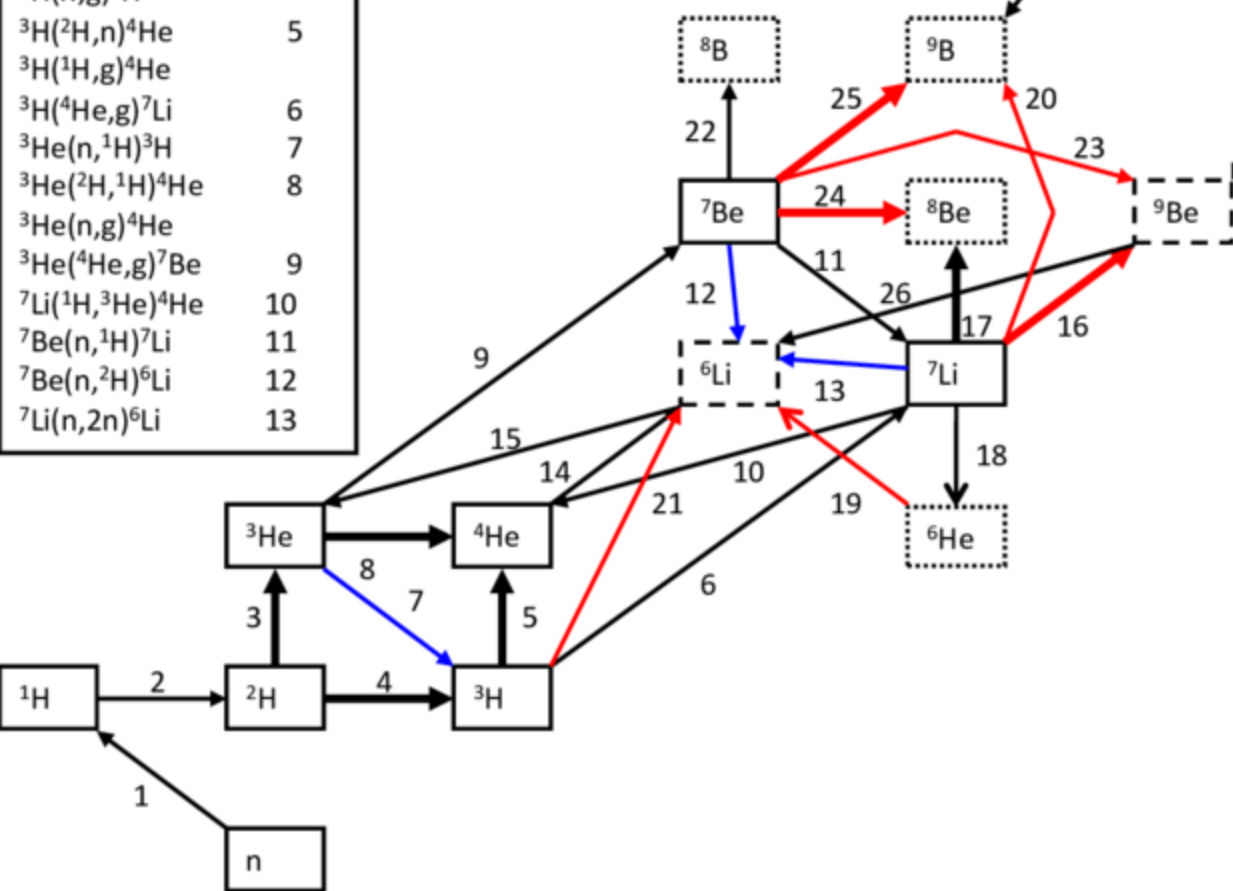


Chief nuclear reactions responsible for the **relative abundances** of light **atomic nuclei** observed throughout the universe.



# Reaction Key

|                                                          |    |
|----------------------------------------------------------|----|
| $n \rightarrow {}^1\text{H}$                             | 1  |
| ${}^1\text{H}(n,g){}^2\text{H}$                          | 2  |
| ${}^2\text{H}({}^2\text{H},n){}^3\text{He}$              | 3  |
| ${}^2\text{H}({}^1\text{H},g){}^3\text{He}$              | 4  |
| ${}^2\text{H}({}^2\text{H},{}^1\text{H}){}^3\text{H}$    | 5  |
| ${}^2\text{H}(n,g){}^3\text{H}$                          | 6  |
| ${}^3\text{H}({}^2\text{H},n){}^4\text{He}$              | 7  |
| ${}^3\text{H}({}^1\text{H},g){}^4\text{He}$              | 8  |
| ${}^3\text{H}({}^4\text{He},g){}^7\text{Li}$             | 9  |
| ${}^3\text{He}(n,{}^1\text{H}){}^3\text{H}$              | 10 |
| ${}^3\text{He}({}^2\text{H},{}^1\text{H}){}^4\text{He}$  | 11 |
| ${}^3\text{He}(n,g){}^4\text{He}$                        | 12 |
| ${}^3\text{He}({}^4\text{He},g){}^7\text{Be}$            | 13 |
| ${}^7\text{Li}({}^1\text{H},{}^3\text{He}){}^4\text{He}$ | 14 |
| ${}^7\text{Be}(n,{}^1\text{H}){}^7\text{Li}$             | 15 |
| ${}^7\text{Be}(n,{}^2\text{H}){}^6\text{Li}$             | 16 |
| ${}^7\text{Li}(n,2n){}^6\text{Li}$                       | 17 |

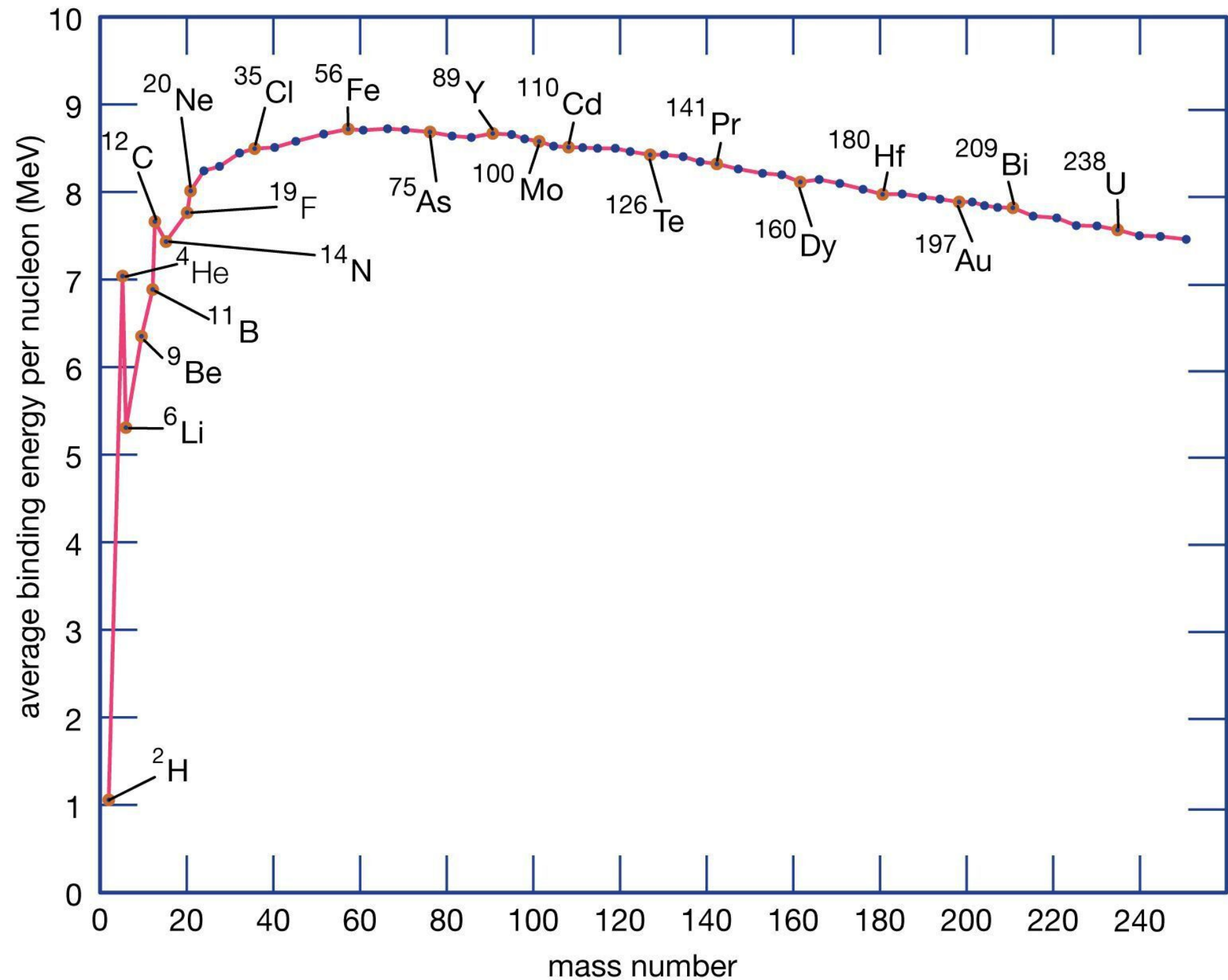


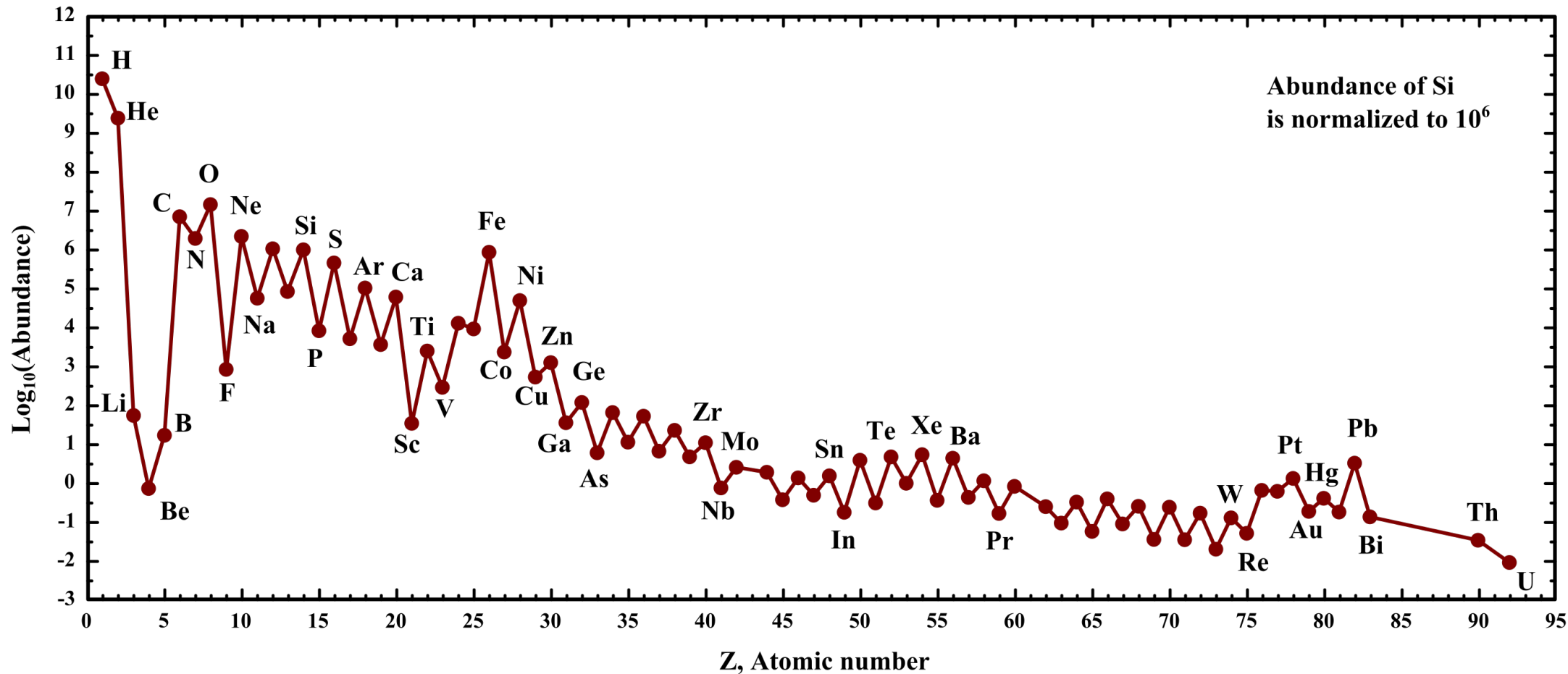
Completely  
unstable

Some stable  
states

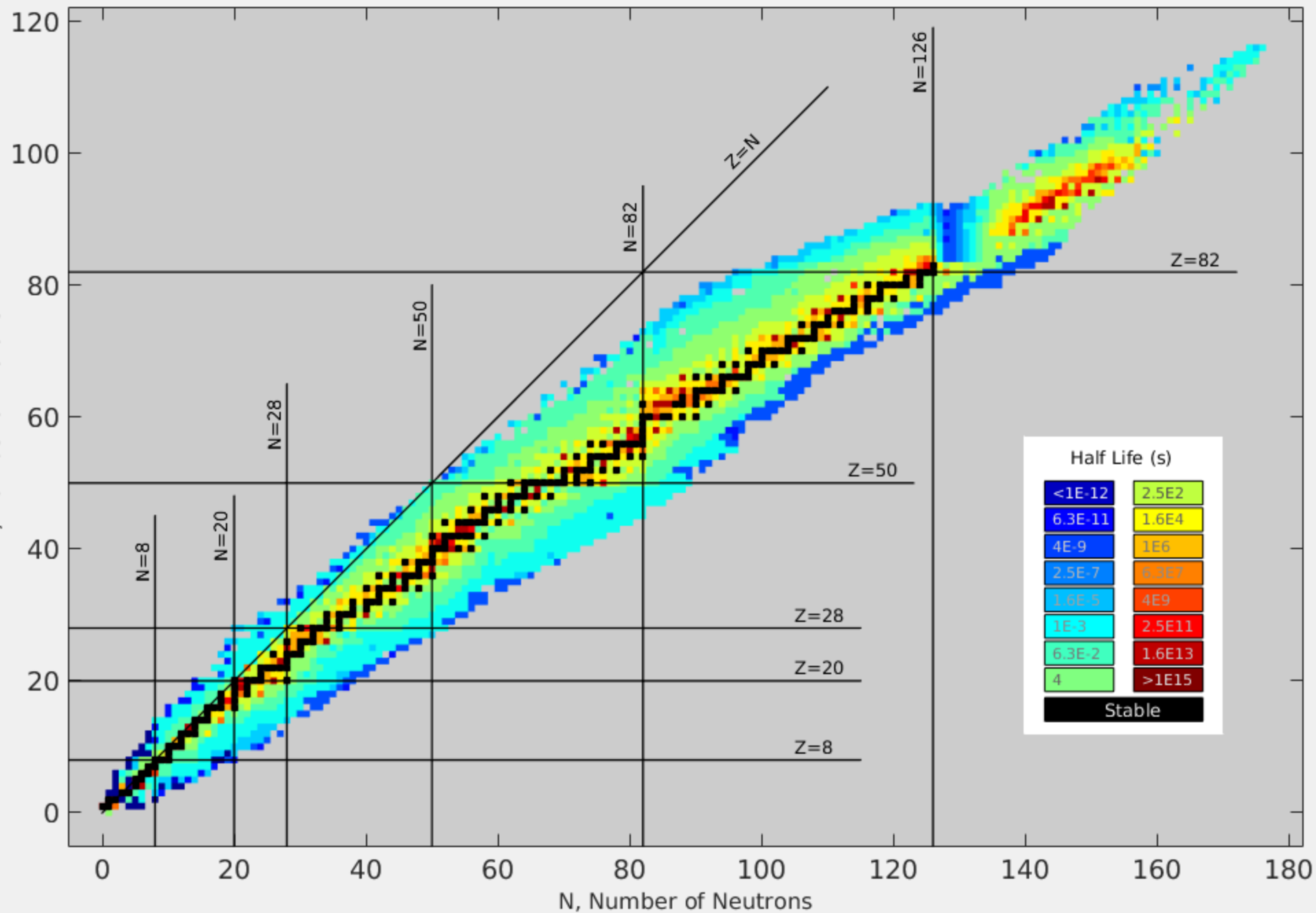
## Reaction Key

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| ${}^4\text{He}({}^2\text{H},g){}^6\text{Li}$                                       | 14 |
| ${}^6\text{Li}({}^1\text{H},{}^4\text{He}){}^3\text{He}$                           | 15 |
| ${}^7\text{Li}({}^3\text{H},n){}^9\text{Be}$                                       | 16 |
| ${}^7\text{Li}({}^3\text{He},{}^1\text{H}){}^9\text{Be}$                           | 17 |
| ${}^7\text{Li}({}^2\text{H},n){}^8\text{Be}$                                       | 17 |
| ${}^7\text{Li}({}^1\text{H},g){}^8\text{Be}$                                       | 17 |
| ${}^7\text{Li}({}^3\text{He},{}^2\text{H}){}^8\text{Be}$                           | 17 |
| ${}^8\text{Be} \rightarrow {}^4\text{He} + {}^4\text{He}$                          | 18 |
| ${}^7\text{Li}({}^3\text{H},{}^4\text{He}){}^6\text{He}$                           | 18 |
| ${}^6\text{He} \rightarrow {}^6\text{Li} \text{ or } {}^4\text{He} + {}^2\text{H}$ | 19 |
| ${}^7\text{Li}({}^3\text{He},n){}^9\text{B}$                                       | 20 |
| ${}^3\text{He}({}^3\text{H},g){}^6\text{Li}$                                       | 21 |
| ${}^7\text{Be}({}^1\text{H},g){}^8\text{B}$                                        | 22 |
| ${}^7\text{Be}({}^3\text{H},{}^1\text{H}){}^9\text{Be}$                            | 23 |
| ${}^7\text{Be}({}^2\text{H},{}^1\text{H}){}^8\text{Be}$                            | 24 |
| ${}^7\text{Be}({}^3\text{H},{}^2\text{H}){}^8\text{Be}$                            | 24 |
| ${}^7\text{Be}({}^3\text{He},{}^1\text{H}){}^9\text{B}$                            | 25 |
| ${}^7\text{Be}({}^3\text{H},n){}^9\text{B}$                                        | 25 |
| ${}^9\text{Be}({}^1\text{H},{}^4\text{He}){}^6\text{Li}$                           | 26 |





Z, Number of Protons



N, Number of Neutrons