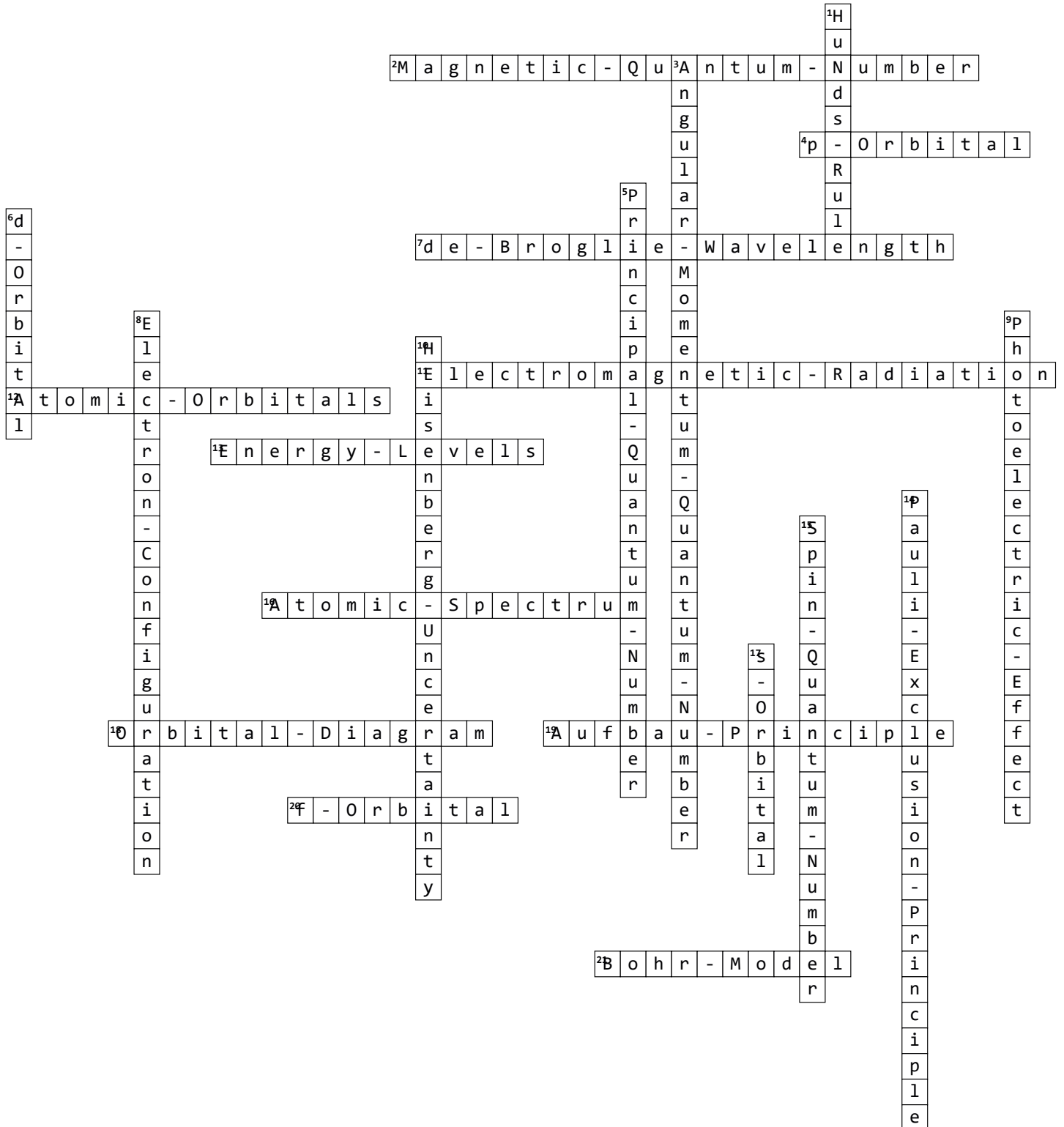


atomic structure



Across

2. (m_l) Indicates the orientation of the orbital in space.
4. Dumbbell shape.
7. The wavelength associated with a moving particle, showing the wave-particle duality.
11. A form of energy that exhibits wave-like behavior as it travels through space. It includes

Down

1. Every orbital in a subshell is singly occupied with one electron before any one orbital is doubly occupied.
3. (l) Indicates the shape of the orbital (s, p, d, f).
5. Indicates the main energy level or shell of an electron.

visible light, radio waves, gamma rays, and X-rays.

12. Mathematical functions that describe the probability distribution of an electron in an atom.

13. (n) Discrete levels of energy that an electron in an atom can occupy.

16. The spectrum of frequencies of electromagnetic radiation emitted or absorbed during transitions of electrons between energy levels within an atom.

18. A pictorial representation of the arrangement of electrons in the orbitals of an atom.

19. Electrons fill atomic orbitals of the lowest available energy levels before occupying higher levels.

20. Even more complex shapes.

21. A model proposing that electrons orbit the nucleus in specific, quantized orbits and that the energy of the electrons is quantized.

6. Complex, cloverleaf shape.

8. The distribution of electrons of an atom or molecule in atomic or molecular orbitals.

9. The phenomenon where electrons are emitted from a material when it absorbs light of sufficient energy.

10. Principle It is impossible to simultaneously determine the exact position and momentum of a particle.

14. No two electrons in an atom can have the same set of four quantum numbers.

15. (m_s) Indicates the spin direction of the electron ($+1/2$ or $-1/2$).

17. Spherical shape.