Superconductivity - basics of the phenomenon

To understand what superconductivity is, you need to know the structure of matter well. The fundamental issue in the construction of matter is the stability of its structure. The stability of the structure of matter exists due to the specific structure of its fundamental components. These components accelerate each other and thus give each other certain movement speeds. Gravitational interactions are widely known. But this interaction ensures stable distances between structural components only with simultaneous rotational movement. An example of such a stable structure is the Solar System.

The stability of the structure of the nuclei of various atoms, the structure of molecules and more complex systems is ensured by the existence of interaction (acceleration), which is called structural interaction. This stability is maintained thanks to the existence of potential shells. Structural influence using potential shells is manifested not only during the creation of the mentioned microstructures. It also manifests itself on a megascale, e.g. in the form of interaction through planetary potential shells and stellar potential shells. (You can read more about this in the articles "Evidence of potential shells" on http://pinopa.narod.ru/Dokaz_potent_obolochek.pdf (in Russian), http://pinopa.narod.ru/Dowody_potenc_powlok.pdf (in Polish) and "Invented before Kyu-Hyun Chae" on http://pinopa.narod.ru/Invented_before_Kyu-Hyun_Chae.pdf.)
The gravitational interaction and the structural interaction are two components of the fundamental interaction in matter. It is by means of the fundamental interaction that the four fundamental interactions contained in today's "official" physics can be interpreted and explained: the strong nuclear force, the electromagnetic force, the weak nuclear force and the gravitational force.

The structure of material structures consists of three fundamental components - protons, neutrons and protoelectrons. Conventionally, they can be called particles, although in fact each of these components is a centrally symmetric field with infinite dimensions. Each "selected" (by us) c.s. field differs from physical Euclidean space in that it has a central point and the ability to accelerate other c.s. fields. Every "other" similar c.s. field, depending on the position of its central point relative to the central point of the "selected" c.s. field, can be accelerated in various ways. In areas where only the gravitational component of the field acts, the "other" field (specifically, its central point) is always accelerated towards the central point of the "selected" c.s. field. But when the central point of the "other" c.s. field is located in the area where the structural component of the field acts, then depending on the location (in this area) "other" c.s. field can be accelerated towards or away from a central point of "selected" c.s. field

Proton and neutron are two different c.s. field. For this reason, they must differ from each other in the way they accelerate other particles. Is there a difference between them in terms of gravitational influence? A neutron has a slightly larger mass than a proton, so it gives other particles a slightly greater gravitational acceleration, but the difference is small. But there are phenomena that confirm that there is a greater difference between the proton and the neutron in terms of acceleration. This other method of acceleration takes place on potential shells that have similar radius sizes. The proton and neutron must have potential shells with similar radii, otherwise they could not form a stable bond together. And when these particles combine with each other to form a stable atomic nucleus, due to the different acceleration capabilities of their potential shells, with which they create a stable bond, they must move with a certain net acceleration.

After forming a nuclear bond, the proton and neutron most often vibrate towards each other and simultaneously move in space as a whole. It is the ability of a system of these particles to self-acting accelerate. This is how a new (unknown so far) physical principle manifests itself - the principle of the dynamics of self-acting motion. (You can read more about this in the article on http://pinopa.narod.ru/04_ZakonDSD.pdf (in Russian), http://pinopa.narod.ru/04_ZakonDSD_pl.pdf (in Polish).) There is only one obstacle that can prevent the atom from self-acting accelerating. This may be the inhibition of movement by other atoms. This may happen when, using molecular potential shells, the atom together with other atoms will create a more complex structure and the accelerated motion will be zeroed.

The principle of the dynamics of self-acting motion is manifested during the interaction of protons and neutrons, when together they form nuclear bonds. But protoelectrons also take part in this process. These particles have a much weaker ability to accelerate other particles than protons and neutrons, because they have a much more subtle structure. For this reason, the proton and neutron, interacting gravitationally, strongly concentrate the protoelectrons, gathering them around their central points. Therefore, during the self-acting motion nucleus of the atomic, the surrounding density of protoelectrons moves with it.

The nucleus of an atom concentrates protoelectrons to the greatest extent in the area of bonds formed between nucleons, i.e. in the central part of the atom. As we move away from this center, the protoelectron density decreases. But the decrease in density is not monotonic. Because the existing nuclear and molecular potential shells of nucleons effectively divide the accumulated protoelectrons into areas with different densities. Due to the accelerating ability of the potential slopes of the shells, the protoelectron density in the areas of these shells is higher than in their immediate vicinity. (You can read more about this in the article on http://pinopa.narod.ru/09_C3_Atom_wodoroda.pdf (in Russian), http://pinopa.narod.ru/09_C3_Atom_wodoru.pdf,(in Polish).)

The ability to self-acting accelerate structures consisting of protons and neutrons is associated with a phenomenon that can be called forced motion of protoelectrons. The point is that when atoms are trapped in molecular and more complex structures, the nucleons contained in the nuclei do not stop vibrating against each other. However, they cannot move in accelerated motion, but their distinct acceleration abilities still work. Their operation now consists in accelerating some of the protoelectrons from their surroundings in a specific direction. Due to the huge number of protoelectrons that surround the atomic nucleus, this is a very complex process. Acceleration of protoelectrons occurs in such a way that subsequent protoelectrons transfer kinetic energy to protoelectrons located further away. These transfer energy to the next protoelectrons and this is how these particles and the energetic wave move.
Depending on the nature of the molecular connections, the distances between atoms and the arrangement of atoms in relation to each other, various properties appear outside such an atomic structure. These various structures are known as dielectrics (insulators), conductors, semiconductors, ferromagnetics, diamagnetics, paramagnetics, etc.
The movement of protoelectrons forced by vibrating nucleons is, in a sense, an elementary source of electric current - it is an elementary form of this current. In the structure of matter classified as ferromagnets, in addition to such elementary sources of electric current, there is also an appropriately configured system of molecular bonds between atoms. With sufficiently strong bonds of atoms together, magnetically hard ferromagnets retain a set of protoelectron streams after magnetization. The position of atoms relative to each other and the direction of movement of protoelectron streams were all forced as a result of the interaction of electron streams in the magnetic coil during magnetization.

Here we are interested in superconductivity, i.e. a phenomenon involving the disappearance of electrical resistance. To understand the essence of this phenomenon, it is helpful to understand what electrical conductivity and resistance are. Above, the basics of these processes have been logically (though only approximately) explained. Based on the above arguments, we can guess that the superconductivity process occurs in magnets. Thanks to the existence of superconductivity, magnets can be created. The appropriate directional position of atomic nuclei in the magnet's structure forces the directional movement of protoelectrons both in the magnet itself and in the space around the magnet. (More information can be found in the article "Magnetic field? ...It's very simple!" on http://pinopa.narod.ru/Magnet_pole_uk.pdf.)

The essence of superconductivity was explained above. Currently, it is necessary to invent materials that would exhibit this property at normal temperatures.
Research on superconductivity requires many more physical experiments. Here, it can certainly be useful to analyze the atomic composition of the material in terms of its ability to superconduct. Currently, physicists (experimenters and theoreticians) consider the phenomenon of levitation of a magnet over a superconducting material to be one of the manifestations of superconductivity (video film on https://upload.wikimedia.org/wikipedia/commons/9/97/YBCO_video.webm). Of course, this group of

phenomena also includes the levitation of a graphite plate over a magnet. (You can read about this in the article "Magnetic Levitation" on https://en.wikipedia.org/wiki/Magnetic_levitation.)

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