# The shape of elementary particles

- Fluidity and stability -

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## Table of contents

## 1. The shape and stability of elementary particles

As it was previously shown [7], the elementary particles are granular structures that have a definite and stable shape in a uniform space. Their size and number of component granules are depending on the value of the granular density of space. Figure 1 (the upper part) shows a few sections through generic elementary particles (already described), where no precise scale factor was used. These shapes of the generic discoidal and toroidal structures ensure their perfect stability in time, whether they are free particles or they belong to composite ones (the bottom part of the figure, where a meson and a proton are represented).

All the interactions that may occur between these particles are caused by the granular local flux. This flux generates the known fields, resulting this way the interactions between particles and the forces that will be exerted upon them. It should be noted that all these particles, composite or not, are describing their own precession - and this is due to the internal granular movement and to its special features.

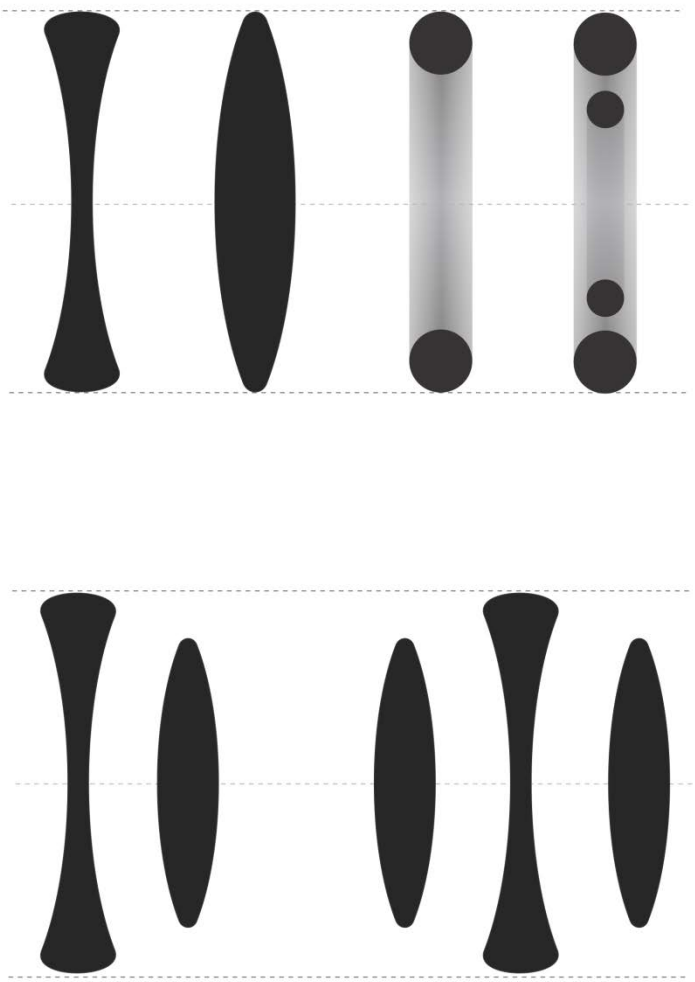

**Figure 1** - *Generic types of elementary and composite particles*

Two elementary particles, the electron (top, blue) and the positron (bottom, red), are represented (in a section and a side view) in Figure 2. The concavity of their side areas determine the type of their electrical charge, as stated in my theory [1], establishing the direction of the electric fields they will emit continuously (Figure 3). Particularities of the shape of elementary particles:

1. As free particles, within a uniform flux, their form will be *symmetrical.*

2. Their form is given by surfaces of revolution, *regular closed* surfaces rotated around an axis.

3. The particle's surfaces will always be *smooth*, their radius of curvature being bigger than a threshold value.

4. Considering their internal structure - granular layers that are practically bond together and that may slip past each other without friction - all particles will act as a *viscous fluid* with a certain surface tension (using some terms of fluid mechanics). This thing will lead to a number of interesting properties, especially in the case of composite particles:

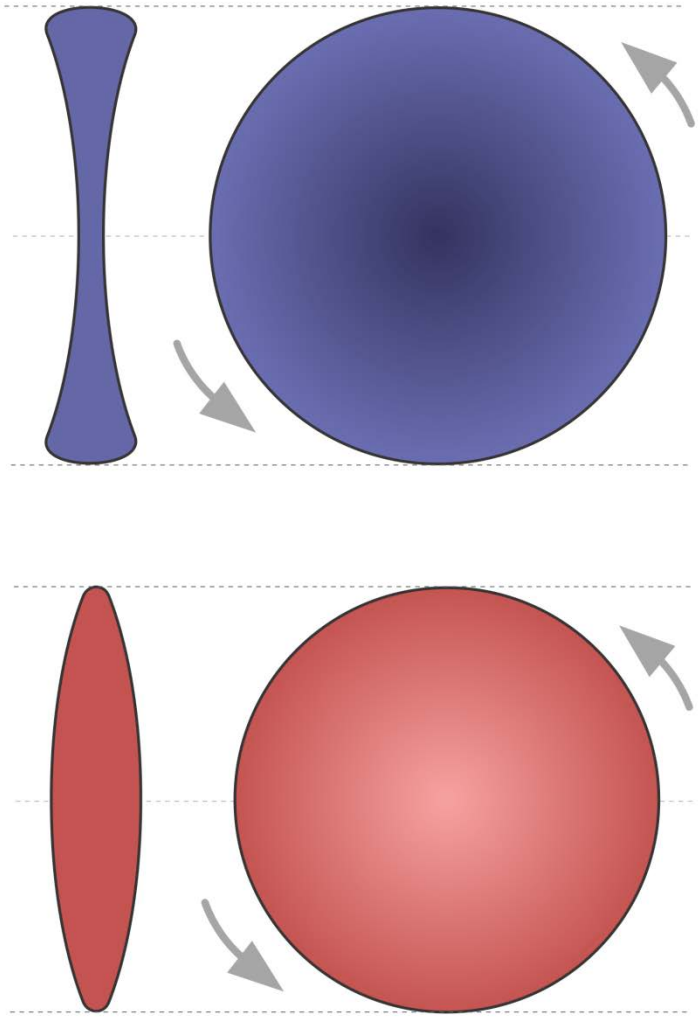

**Figure 2** - *The electron and the positron*

- Distinct granular layers can "store" the directions of their motion, imposing this way different global directions to a particle during the two revolutions of the complete rotation it made in its precession movement.

- The elasticity given by the internal granular structure may allow different temporary deformations to particles, within certain limits, under the action of powerful fluxes. Regarded as speculation, a certain surface flattening may appear (accompanied by an increase in diameter), for example, to charged particles at high, relativistic speeds. This effect could be important during the photon generation process.

- A significant deformation is produced by the gluonic field (of dark gray color) to the side quarks of a neutron (see Figure 4, the particle from the bottom). This deformation, also called "color charge" by the quantum chromodynamics, disrupts, practically cancels the electrical charge of those two quarks. The electrophotons they are continuously emitting will also be deformed, producing no field effects for this reason.

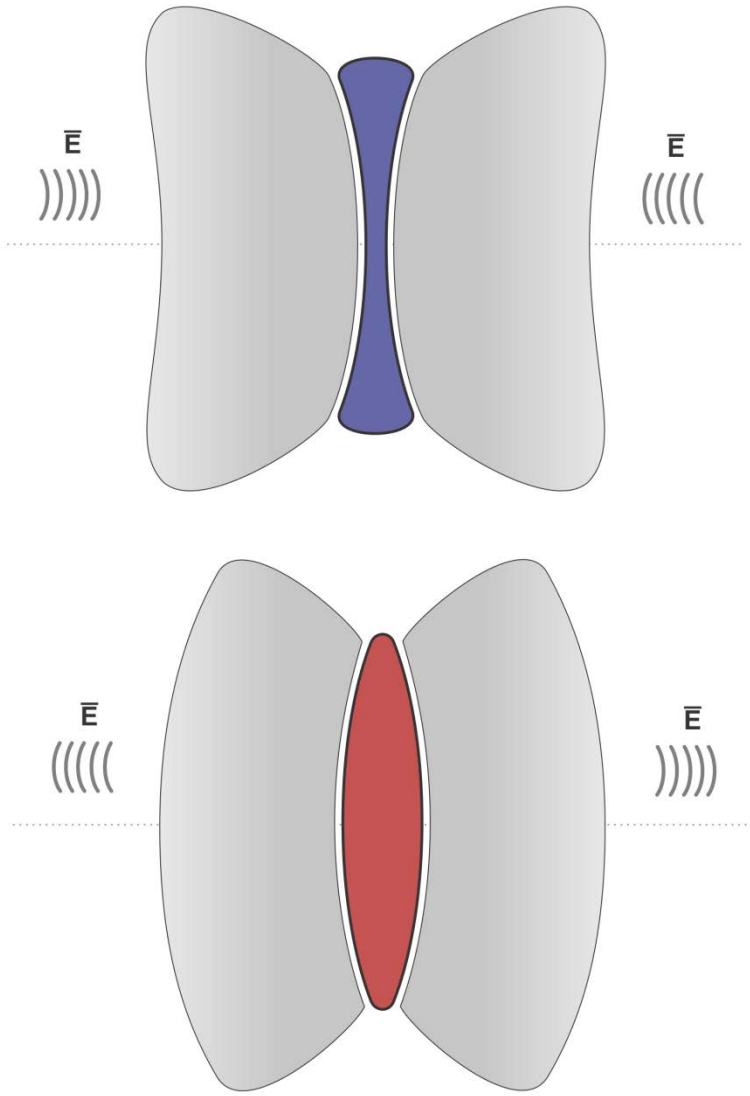


**Figure 3** - *The electric fields of electrons and positrons*

- In certain cases, of intense fluxes or of collisions between particles, a particle may transform into other ones, conserving the momentum, electric charge and granular mass in the process. That elasticity allows a particle to split up into smaller pieces, if the disruptive force is acting symmetrically, in its central zone (the case of the free neutron, where a side quark decays into an electron and an antineutrino).

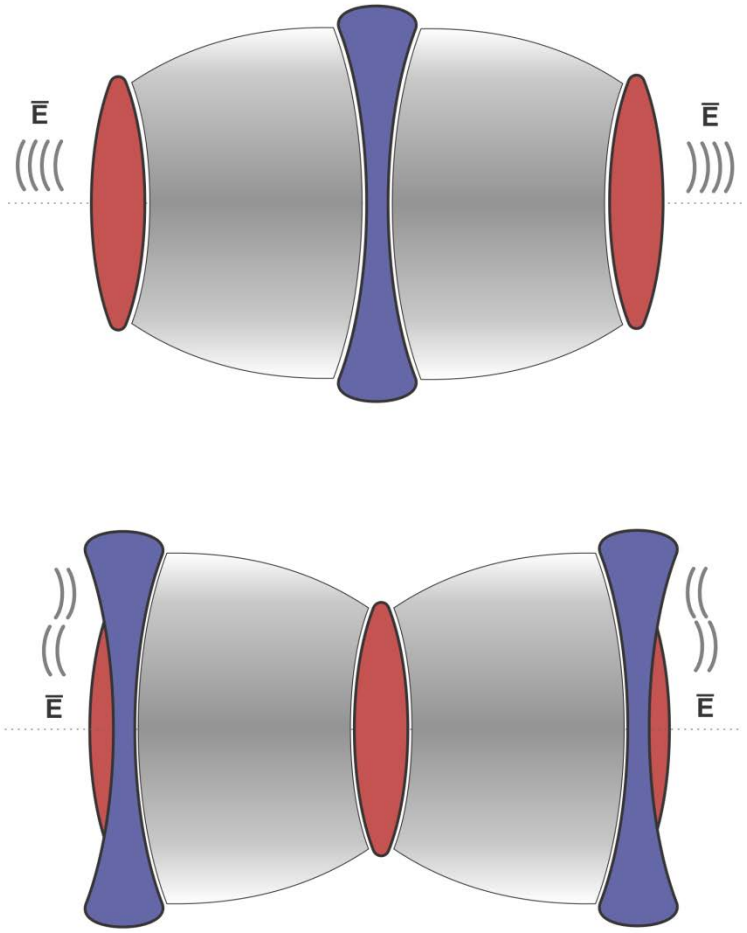


**Figure 4** - *The internal structure of protons and neutrons*

We have to describe now the pushing forces that are generated by the local flux and that are acting on the particles, e.g. on the electron (Figure 5). They all are multiples of the gravitational unitary force and create a dynamic balance with the internal forces generated by the granular impulses, all over the particle's surface. Their scalar expressions are of this form ( $k_1$ and $k_2$ are some constants, and the surfaces are considered plane):

$$F_1 = k_1 * d_1 * F_u$$

$$F_2 = k_2 * (d_2)^2 * F_u$$

The force $F_1$ equilibrates an internal force of centrifugal kind that is generated by the granular impulses trying to maintain their quasi-circular trajectories - from axial level up to the edges. $F_2$ pushes on those granular layers, of larger areas, which have the tendency to move away from each other and to increase the thickness of the particle. A more detailed analysis can be only performed on a complete model, on a three-dimensional simulation of generic particles.

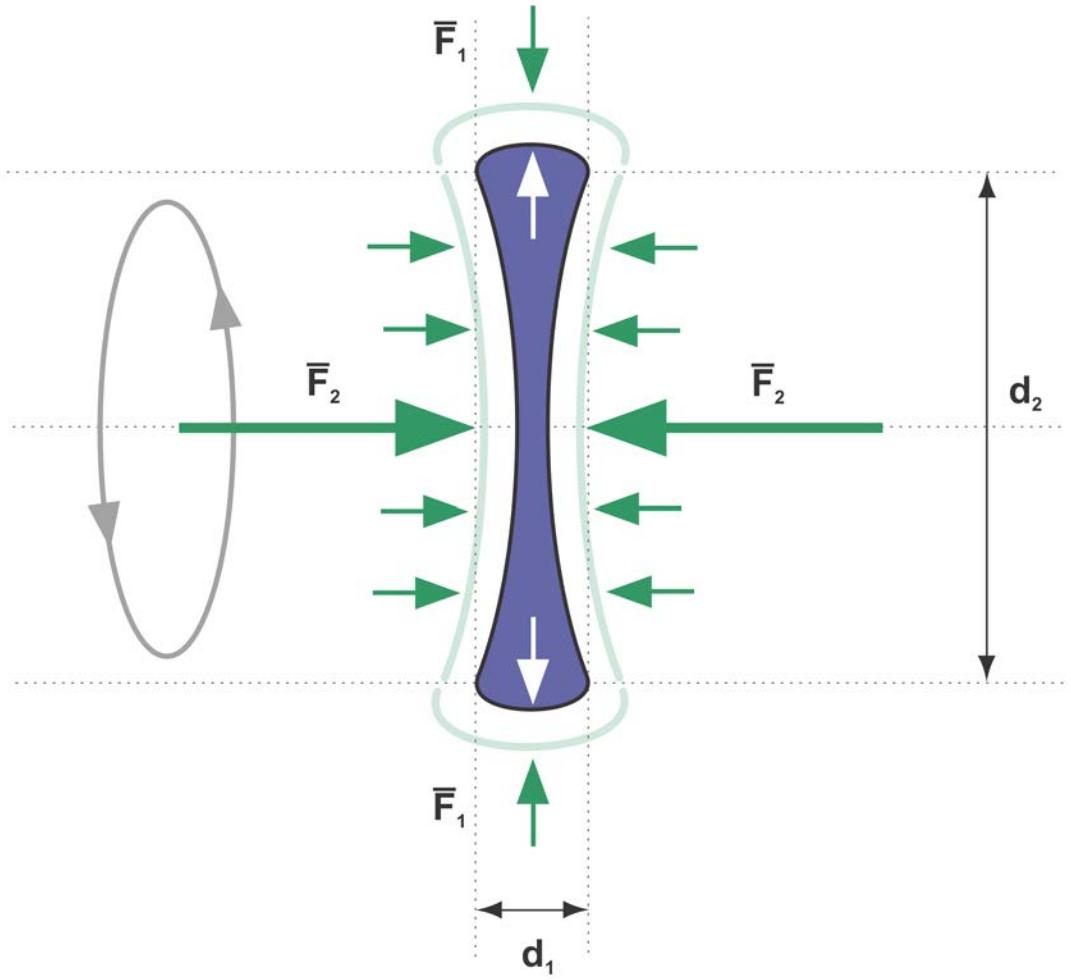


**Figure 5** - *Internal and external granular forces*

## 2. References


**[1]** Laurentiu Mihaescu, 2014. *Prime Theory*, Premius Publishing House

**[2]** Laurentiu Mihaescu, 2016. *The Universe*, Premius Publishing House

**[3]** Laurentiu Mihaescu, 2016. *The theory of granular gravitation*, article

**[4]** "*Particle Simulation*", software, Microsys Com, 2015,

http://www.1theory.com/software.htm

**[5]** Laurentiu Mihaescu, 2016. *The first bangs*, article

**[6]** "*Elementary Particles*", software, Microsys Com, 2017

http://www.1theory.com/software.htm#2

**[7]** Laurentiu Mihaescu, 2017. *The formation of elementary particles*, article