

# NINE NEW LAWS OF CONSERVATION: FUTURE SCIENCE HORIZONS

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*“We think it’s a mistake to believe that most Laws of Nature have been already discovered by contemporary science. More likely we are just at the very beginning of a long road to the Unknown World.”*

D. Rabounski, Editor-in-Chief, *Progress in Physics*.

## ABSTRACT

*This article announces the discovery of nine new laws of conservation. The projective theoretical power of these new laws is build on the Bartini/Kuznetsov LT system of presenting the laws of Physics (Bartini, 1965, 1966, 2005; Kuznetsov 2000). It was explained by the author (Aleinikov, 1988-2002) and has already been used for the discovery of the first new law of conservation (Aleinikov, 2007; Aleinikov & Gera 2006). For brevity and simplicity, the new laws are presented in a Table, the logic of their formation, definitions, terms and units are explained below. Understandably, this short presentation is of general character, and all laws introduced here will be described, explained, and shown in their application to reality in the next publications. These new laws will open new horizons for researchers as well as for logistics and strategic management specialists around the world.*

## INTRODUCTION

The majority of the discoveries we know today as fundamental laws of Nature have been done at the tip of the pen rather than at the tip of the sword or at the tip of the scalpel. Yes, Julius Robert Mayer was a doctor, but he discovered the Law of Energy Conservation by theoretical thinking over the blood differences. Yes, Johannes Kepler was certainly an astronomer, but it was his theoretical re-thinking of the Tiho Brahe’s meticulously collected data of Mars movement that led him to the discovery of his conservation laws. Yes, Sir Isaac Newton was a practical physicist and occultist, but it was his theoretical thinking (and huge generalization of existing calculations - certainly not just an apple that fell on his head, as legend says) that led him to the laws and formulas that express the regularities of calculating movement, force, and gravity.

The laws of Nature are not written on the wall for us just to discover them by discovering where the wall is. The laws of Nature are not written by the configuration of the stars on the night sky. They are not written on the surface of the new planet seen through a telescope. The laws of Nature are not written on the bloody surface of the human heart first seen by the surgeon.

The laws of nature, as we know them, are ALL theoretical generalizations done by the high caliber scientists who dare to see the high level abstract regularity behind the millions of separate cases and then formulate the laws in understandable, provable and testable form (like  $F = ma$ ). The

discovery of these laws requires enormous effort, it takes years and years of work, and this makes the scientists who come to these discoveries honored and revered by humanity.













The laws presented in this article are the result of 24 years of work on the interpretation of the Bartini's intellectual heritage in general and his Table of Physical Laws in particular that led us to understanding the mechanism behind the laws of conservation and their relationships. In other words, this drop of information concentrated for this presentation represents and reflects the ocean of information behind it.

### CONSERVATION LAWS: HISTORIC ANALOGS

Conservation laws create the backbone of contemporary science. They helped to demystify the nature and natural phenomena. They gave sense to numerous observations and calculations. They paved the way to numerous new discoveries, too. Neutrino, for example, was discovered because calculations showed a slight but constant deficit in mass.

In the past it took science decades and sometimes centuries to come up with the next law of conservation. As a case in point, just compare the following:

The list of some of the most well-known conservation laws includes:

-   Law of Equal Areas: A line joining the sun and any planet sweeps out equal areas during equal intervals of time. (Kepler, 1609)
-   Harmonic Law: The ratio of the squares of the revolutionary periods for two planets is equal to the ratio of the cubes of their semi-major axes. (Kepler, 1619)
-   Law of Conservation of Impulse (Newton, 1686)
-   Law of Conservation of Moment of Impulse (Laplace, 1800)
-   Law of Conservation of Energy (Mayer, 1842)
-   Law of Conservation of Power (Maxwell, 1855)

### NEW CONSERVATION LAWS

Now, after the Bartini/Kuznetsov system has proven to be the Periodic Table of the conservation laws (exactly like the Mendeleev's Periodic Table of the Elements), and it has already brought the discovery of the new law of conservation (Bartini, by 1973, Bartini, Kuzntsov, Obraztsova, appr.1980; Aleinikov & Gera, 2006; Aleinikov, 2007a, 2007b, Aleinikov & Smarsh, 2007), thus proving its heuristic power, it can accelerate the scientific process of discovery as it was predicted earlier (Aleinikov 1988). It happens because every new method or methodology brings new scientific results.

The new conservation laws are presented here in the Table (Table 1) for simplicity and shortness. The logic of their formation, definitions, terms and units are explained below.

Table 1. New Conservation Laws

#	Laws of Conservation	Formula	Unit and Relationship
1	Extencia	$Ext = P \cdot L = L^6 T^{-5} = const$	1Alger = 1W · 1m = 1J · 1m : 1s = 1N · 1m <sup>2</sup> : 1s
2	Expancia	$Exp = Ext \cdot L = L^7 T^{-5} = const$	1Elen = 1Alger · 1m = 1W · 1m <sup>2</sup> = 1J · 1m <sup>2</sup> : 1s
3	Volupower	$Vlp = Exp \cdot L = L^8 T^{-5} = const$	1Smar = 1Elen · 1m = 1Alger · 1m <sup>2</sup> = 1W · 1m <sup>3</sup>
4	Arergation	$Arg = Trn \cdot L = L^7 T^{-4} = const$	1Sergal = 1Tran · 1m = 1J · 1m <sup>2</sup> = 1N · 1m <sup>3</sup>
5	Volergation	$Vrg = Arg \cdot L = L^8 T^{-4} = const$	1Natal = 1Sergal · 1m = 1Tran · 1m <sup>2</sup> = 1J · 1m <sup>3</sup>
6	Maneuverability	$Mnv = Mob \cdot L = L^7 T^{-6} = const$	1Grig = 1Bart · 1m = 1Elen : 1s
7	Operability	$Opr = Mnv \cdot L = L^8 T^{-6} = const$	1Nin = 1Grig · 1m = 1Bart · 1m <sup>2</sup> = 1Smar : 1s
8	Intensivity	$Int = Mnv \cdot T = L^7 T^{-7} = const$	1Andral = 1Grig : 1s = 1Bart · 1m : 1s
9	Flexivity	$Flx = Int \cdot L = L^8 T^{-7} = const$	1Nikken = 1Andral · 1m = 1Nin : 1s

As is true for all previously discovered as well as new laws of conservation, these laws work only under the so-called ideal conditions (i.e., when isolated, in isolated environment, in absolute vacuum, under absolute zero temperature, etc). Therefore, each law states that under unchanging/ideal conditions, the quantity of X (phenomenon) remains constant. Terms for the new phenomena are introduced through definitions and relations shown to basic units of SI units of Joule, Newton, Watt, meter, second. Phenomena, in their turn are defined via their relationship to the other, well-known phenomena, like energy, power, etc.:

Extencia = linear displacement, or one-dimension extension of Power (Aleinikov, 2006, 2007)

Expancia = area spread, or two-dimension expansion of Power (Aleinikov, 2007)

Volupower = volume spread of Power (Aleinikov & Smarsh, 2007)

Arergation = (from **area** + **ergon**) area spread of Energy (from the previously defined Transfer = linear propagation of Energy, Bartini, Kuznetsov, Obraztsova, appr. 1980; Aleinikov, 2007a)

Volergation = (from **volume** + **ergon**) volume, or three-dimension spread of Energy

Maneuverability = displacement of Mobility (Mobility = rate of Extencia, or the speed of displacement of Power, as Bartini introduced it - Bartini, by 1973)

Operability = area spread of Mobility

Intensivity (not intensity) = rate of Maneuverability

Flexivity = linear displacement of Intensivity, or the rate of Operability

Measurements for the new phenomena are derived from the previously known measurements. Units are named after people who participated in their discovery (as is common in the history of science).

The date of discovery for laws 1-3 is mentioned in the previous works (Aleinikov, 2006, 2007a, 2007b; Aleinikov & Smarsh, 2007). The date of discovery for all laws from 4 to 9 is August 26, 2007 - the time when after 24 years of work some final touches were put onto the general picture.

The place of discovery for all laws: Monterey, California, USA.

## CONCLUSION

This article announces the discovery of nine new laws of conservation built on the Bartini/Kuznetsov *LT* system of presenting the laws of Physics. All new conservation laws are applicable to technical, military, transportation, communication, economic and other complex systems requiring scientific foundations for global and strategic management solutions. Understandably, this short presentation is of general character, and all laws introduced here will be described, explained, and shown in their application to reality in the next publications. It is absolutely obvious, however, that these new laws will open new horizons for researchers as well as for logistics and strategic management specialists around the world.

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