Robert Nazaryan and Hayk Nazaryan

Foundation Armenian Theory of General Relativity In One Physical Dimension By Pictures (Kinematics)

Yerevan - 2019

100 Years Inquisition In Science Is Now Over
Armenian Revolution In Science Has Begun!
2007

Crash Course in Armenian Theory of General Relativity

October, 2019 - Yerevan, Armenia

Robert Nazaryan and Hayk Nazaryan

Foundation Armenian Theory of General Relativity In One Physical Dimension by Pictures (Kinematics)

Dedicated to the 28th Anniversary of Independence of Artsakh Republic

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Creation of this book - “Foundation Armenian Theory of General Relativity by Pictures”, became possible by generous donation from my children:

Nazaryan Gor,
Nazaryan Nazan,
Nazaryan Ara and
Nazaryan Hayk.

I am very grateful to all of them.
We consider the publication of this book as Nazaryan family’s contribution to the renaissance of science in Armenia and the whole world.

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Contents

If you have the strong urge to accuse somebody for what you read here, then don't accuse us, read the sentence to mathematics. We are simply its messengers only.

Armenian Theory of General Relativity Is a New and Solid Mathematical Theory, And it Satisfies the Conditions as a New Theory

1) Our created theory is new, because it was created between the years 2007-2016.
2) Our created theory does not contradict former legacy theories of physics.
3) The former legacy theory of relativity is a very special case of the Armenian Theory of Relativity when coefficients are equal $s = 0$ and $g = -1$.
4) All formulas derived by Armenian Theory of Relativity, has a universal character because those are the exact mathematical representation of the Nature (*Philosophiae naturalis principia mathematica, as Newton would say*).

My shelf is full of unpublished articles and books in theoretical physics, which I believe one day it will be revealed to the scientific community worldwide
(17 June 2019, Yerevan, Armenia)

Chapter A

The Most General Transformations Between None Inertial Observing Systems When Time – Space Coordinates are None Homogenous and None Isotropic

The Most General Transformation Forms and Initial State Condition

- *Time-space coordinates transformation general forms between two reference systems*

A_01

Direct transformations and Inverse transformations

$$\begin{cases} t' = t'(t,x,v) \\ x' = x'(t,x,v) \end{cases} \quad \text{and} \quad \begin{cases} t = t(t',x',v') \\ x = x(t',x',v') \end{cases}$$

- *Initial state condition for all coordinate systems*

A_02

When $t = t' = t'' = \cdots = 0$

Then origins of all reference systems coincide to each other on the one origin in 0 point

- *Direct and inverse relative velocities of the observing coordinate systems are not constant (Case **B**)*

A_03

$$\begin{cases} \text{Direct relative velocity} \Rightarrow v \neq \text{constant} \\ \text{Inverse relative velocity} \Rightarrow v' \neq \text{constant} \end{cases}$$

- *Therefore differentials of direct and inverse relative velocities satisfy*

A_04

$$\begin{cases} dv \neq 0 \\ dv' \neq 0 \end{cases}$$

The General Linear Transformation Equations and Definitions of the Transformations Coefficients

- *Direct transformation equations for particle coordinates differentials*

$$\begin{cases} dt' = \dfrac{\partial t'}{\partial t}dt + \dfrac{\partial t'}{\partial x}dx + \dfrac{\partial t'}{\partial v}dv \\ dx' = \dfrac{\partial x'}{\partial t}dt + \dfrac{\partial x'}{\partial x}dx + \dfrac{\partial x'}{\partial v}dv \end{cases}$$

A_05

- *Inverse transformation equations for particle coordinates differentials*

$$\begin{cases} dt = \dfrac{\partial t}{\partial t'}dt' + \dfrac{\partial t}{\partial x'}dx' + \dfrac{\partial t}{\partial v'}dv' \\ dx = \dfrac{\partial x}{\partial t'}dt' + \dfrac{\partial x}{\partial x'}dx' + \dfrac{\partial x}{\partial v'}dv' \end{cases}$$

A_06

- *Defining the Coefficients for General direct Transformation Equations*

Definition of beta coefficients and Definition of gamma coefficients

$$\begin{cases} \dfrac{\partial t'}{\partial t} = \beta_1(t,x,v) \\ \dfrac{\partial t'}{\partial x} = \beta_2(t,x,v) \\ \dfrac{\partial t'}{\partial v} = \beta_3(t,x,v) \end{cases} \quad \text{and} \quad \begin{cases} \dfrac{\partial x'}{\partial t} = \gamma_1(t,x,v) \\ \dfrac{\partial x'}{\partial x} = \gamma_2(t,x,v) \\ \dfrac{\partial x'}{\partial v} = \gamma_3(t,x,v) \end{cases}$$

A_07

- *Defining the Coefficients for General inverse Transformation Equations*

Definition of beta coefficients and Definition of gamma coefficients

$$\begin{cases} \dfrac{\partial t}{\partial t'} = \beta'_1(t',x',v') \\ \dfrac{\partial t}{\partial x'} = \beta'_2(t',x',v') \\ \dfrac{\partial t}{\partial v'} = \beta'_3(t',x',v') \end{cases} \quad \text{and} \quad \begin{cases} \dfrac{\partial x}{\partial t'} = \gamma'_1(t',x',v') \\ \dfrac{\partial x}{\partial x'} = \gamma'_2(t',x',v') \\ \dfrac{\partial x}{\partial v'} = \gamma'_3(t',x',v') \end{cases}$$

A_08

Direct and Inverse General Transformation Equations and Measurements of the Beta and Gamma Coefficients

- *Time-space coordinates differentials general direct transformation equations expressed by new defined coefficients*

A_09

$$\begin{cases} dt' = \beta_1(t,x,v)dt + \beta_2(t,x,v)dx + \beta_3(t,x,v)dv \\ dx' = \gamma_1(t,x,v)dt + \gamma_2(t,x,v)dx + \gamma_3(t,x,v)dv \end{cases}$$

- *Time-space coordinates differentials general inverse transformation equations expressed by new defined coefficients*

A_10

$$\begin{cases} dt = \beta'_1(t',x',v')dt' + \beta'_2(t',x',v')dx' + \beta'_3(t',x',v')dv' \\ dx = \gamma'_1(t',x',v')dt' + \gamma'_2(t',x',v')dx' + \gamma'_3(t',x',v')dv' \end{cases}$$

- *Measurements of the beta coefficients*

A_11

$$\begin{cases} \beta_1 \Rightarrow \text{don't have measurement} \\ \beta_2 \Rightarrow \text{have inverse measurement of velocity } (\frac{1}{c}) \\ \beta_3 \Rightarrow \text{have inverse measurement of acceleration } (\frac{1}{a}) \end{cases}$$

- *Measurements of the gamma coefficients*

A_12

$$\begin{cases} \gamma_1 \Rightarrow \text{have measurement of velocity } (c) \\ \gamma_2 \Rightarrow \text{don't have measurement} \\ \gamma_3 \Rightarrow \text{have measurement of time } (t) \end{cases}$$

Chapter B

Implementation of the Relativity Postulate

Theory of General Relativity Postulates
And Implementation of the First Postulate

- *Theory of General Relativity Postulates*

B_01

1. All fundamental physical laws have the same mathematical functional forms in all systems.
2. There exists a universal constant velocity c, which has the same value in all systems.
3. Armenian quadratic form of infinitesimal intervals of the coordinates are invariant in all systems.

- *Because of the relativity postulate (first postulate), corresponding coefficients of direct and inverse transformation equations must be the same mathematical functions*

B_02

Beta functions identity

$$\begin{cases} \beta'_1(\quad) \equiv \beta_1(\quad) \\ \beta'_2(\quad) \equiv \beta_2(\quad) \\ \beta'_3(\quad) \equiv \beta_3(\quad) \end{cases}$$

and

Gama functions identity

$$\begin{cases} \gamma'_1(\quad) \equiv \gamma_1(\quad) \\ \gamma'_2(\quad) \equiv \gamma_2(\quad) \\ \gamma'_3(\quad) \equiv \gamma_3(\quad) \end{cases}$$

- *Particle coordinates differentials general direct transformation equations*

B_03

$$\begin{cases} dt' = \beta_1(t,x,v)dt + \beta_2(t,x,v)dx + \beta_3(t,x,v)dv \\ dx' = \gamma_1(t,x,v)dt + \gamma_2(t,x,v)dx + \gamma_3(t,x,v)dv \end{cases}$$

- *Particle coordinates differentials general inverse transformation equations*

B_04

$$\begin{cases} dt = \beta_1(t',x',v')dt' + \beta_2(t',x',v')dx' + \beta_3(t',x',v')dv' \\ dx = \gamma_1(t',x',v')dt' + \gamma_2(t',x',v')dx' + \gamma_3(t',x',v')dv' \end{cases}$$

Notations for Accelerations and Transformation Equations New Forms

- *Notations for reciprocal relative accelerations of observing systems*

$$\begin{cases} \dfrac{dv}{dt} = a \\ \dfrac{dv'}{dt'} = a' \end{cases} \Rightarrow \begin{cases} dv = adt \\ dv' = a'dt' \end{cases}$$ B_05

- *Notations for velocities and accelerations of moving particle*

Test particle velocities — Test particle accelerations

$$\begin{cases} \dfrac{dx}{dt} = u \\ \dfrac{dx'}{dt'} = u' \end{cases} \quad \text{and} \quad \begin{cases} \dfrac{d^2x}{dt^2} = \dfrac{du}{dt} = b \\ \dfrac{d^2x'}{dt'^2} = \dfrac{du'}{dt'} = b' \end{cases}$$ B_06

- *Direct transformations equations for observed particle coordinates differentials*

$$\begin{cases} dt' = [\beta_1(t,x,v) + \beta_3(t,x,v)a]dt + \beta_2(t,x,v)dx \\ dx' = [\gamma_1(t,x,v) + \gamma_3(t,x,v)a]dt + \gamma_2(t,x,v)dx \end{cases}$$ B_07

- *Inverse transformations equations for observed particle coordinates differentials*

$$\begin{cases} dt = [\beta_1(t',x',v') + \beta_3(t',x',v')a']dt' + \beta_2(t',x',v')dx' \\ dx = [\gamma_1(t',x',v') + \gamma_3(t',x',v')a']dt' + \gamma_2(t',x',v')dx' \end{cases}$$ B_08

New Abbreviations For Beta and Gamma Coefficients and Transformation Equations Expressed by New Notations

- *New abbreviations for the direct transformation equations coefficients*

B_09

For beta functions and For gamma functions

$$\begin{cases} \beta_1 \equiv \beta_1(t,x,v) \\ \beta_2 \equiv \beta_2(t,x,v) \\ \beta_3 \equiv \beta_3(t,x,v) \end{cases} \quad \text{and} \quad \begin{cases} \gamma_1 \equiv \gamma_1(t,x,v) \\ \gamma_2 \equiv \gamma_2(t,x,v) \\ \gamma_3 \equiv \gamma_3(t,x,v) \end{cases}$$

- *New abbreviations for the inverse transformation equations coefficients*

B_10

For beta functions and For gamma functions

$$\begin{cases} \beta'_1 \equiv \beta_1(t',x',v') \\ \beta'_2 \equiv \beta_2(t',x',v') \\ \beta'_3 \equiv \beta_3(t',x',v') \end{cases} \quad \text{and} \quad \begin{cases} \gamma'_1 \equiv \gamma_1(t',x',v') \\ \gamma'_2 \equiv \gamma_2(t',x',v') \\ \gamma'_3 \equiv \gamma_3(t',x',v') \end{cases}$$

- *Coordinates differentials direct transformation equations expressed by new notations*

B_11

$$\begin{cases} dt' = (\beta_1 + \beta_3 a)dt + \beta_2 dx \\ dx' = (\gamma_1 + \gamma_3 a)dt + \gamma_2 dx \end{cases}$$

- *Coordinates differentials inverse transformation equations expressed by new notations*

B_12

$$\begin{cases} dt = (\beta'_1 + \beta'_3 a')dt' + \beta'_2 dx' \\ dx = (\gamma'_1 + \gamma'_3 a')dt' + \gamma'_2 dx' \end{cases}$$

Chapter C

Reciprocal Solution Methods for the Systems of Transformation Equations

Coordinates Differentials Transformation Equations In the Form Systems of Linear Equations

- *System of direct transformation equations for particle coordinates differentials*

C_01

$$\begin{cases} (\beta_1 + \beta_3 a)dt + \beta_2 dx = dt' \\ (\gamma_1 + \gamma_3 a)dt + \gamma_2 dx = dx' \end{cases}$$

- *System of inverse transformation equations for particle coordinates differentials*

C_02

$$\begin{cases} (\beta'_1 + \beta'_3 a')dt' + \beta'_2 dx' = dt \\ (\gamma'_1 + \gamma'_3 a')dt' + \gamma'_2 dx' = dx \end{cases}$$

- *Notations for determinants of the systems of transformation equations*

C_03

$$\begin{cases} D \equiv D(t,x,v,a) = \begin{vmatrix} (\beta_1 + \beta_3 a) & \beta_2 \\ (\gamma_1 + \gamma_3 a) & \gamma_2 \end{vmatrix} \\ D' \equiv D(t',x',v',a') = \begin{vmatrix} (\beta'_1 + \beta'_3 a') & \beta'_2 \\ (\gamma'_1 + \gamma'_3 a') & \gamma'_2 \end{vmatrix} \end{cases}$$

- *The determinant formulas of the coordinate systems transformation equations*

C_04

$$\begin{cases} D = (\beta_1 + \beta_3 a)\gamma_2 - \beta_2(\gamma_1 + \gamma_3 a) \neq 0 \\ D' = (\beta'_1 + \beta'_3 a')\gamma'_2 - \beta'_2(\gamma'_1 + \gamma'_3 a') \neq 0 \end{cases}$$

Solutions of the Systems of Transformation Equations and Comparison of the New and Original Transformation Equations

- *Solving (C_01) we get coordinates differentials of the particle in the system K*

$$dt = \frac{1}{D}\begin{vmatrix} dt' & \beta_2 \\ dx' & \gamma_2 \end{vmatrix} \quad \text{and} \quad dx = \frac{1}{D}\begin{vmatrix} (\beta_1+\beta_3 a) & dt' \\ (\gamma_1+\gamma_3 a) & dx' \end{vmatrix} \qquad \text{C\_05}$$

- *Solving (C_02) we get coordinates differentials of the particle in the system K prime*

$$dt' = \frac{1}{D'}\begin{vmatrix} dt & \beta'_2 \\ dx & \gamma'_2 \end{vmatrix} \quad \text{and} \quad dx' = \frac{1}{D'}\begin{vmatrix} (\beta'_1+\beta'_3 a') & dt \\ (\gamma'_1+\gamma'_3 a') & dx \end{vmatrix} \qquad \text{C\_06}$$

- *New direct and inverse transformation equations received from (C_05) and (C_06)*

New received direct transformation equations and New received inverse transformation equations

$$\begin{cases} dt' = \dfrac{\gamma'_2}{D'}dt - \dfrac{\beta'_2}{D'}dx \\ dx' = \dfrac{\beta'_1+\beta'_3 a'}{D'}dx - \dfrac{\gamma'_1+\gamma'_3 a'}{D'}dt \end{cases} \quad \text{and} \quad \begin{cases} dt = \dfrac{\gamma_2}{D}dt' - \dfrac{\beta_2}{D}dx' \\ dx = \dfrac{\beta_1+\beta_3 a}{D}dx' - \dfrac{\gamma_1+\gamma_3 a}{D}dt' \end{cases} \qquad \text{C\_07}$$

- *The original direct and inverse transformation equations (see B_11 and B_12)*

Original direct transformation equations and Original inverse transformation equations

$$\begin{cases} dt' = (\beta_1+\beta_3 a)dt + \beta_2 dx \\ dx' = (\gamma_1+\gamma_3 a)dt + \gamma_2 dx \end{cases} \quad \text{and} \quad \begin{cases} dt = (\beta'_1+\beta'_3 a')dt' + \beta'_2 dx' \\ dx = (\gamma'_1+\gamma'_3 a')dt' + \gamma'_2 dx' \end{cases} \qquad \text{C\_08}$$

Comparison New and Original Transformation Equations

- *From (C_07) we obtain new direct transformation equations*

C_09

$$\begin{cases} dt' = \dfrac{\gamma_2'}{D'}dt - \dfrac{\beta_2'}{D'}dx \\ dx' = \dfrac{\beta_1' + \beta_3' a'}{D'}dx - \dfrac{\gamma_1' + \gamma_3' a'}{D'}dt \end{cases}$$

- *Original direct transformation equations (see C_08)*

C_10

$$\begin{cases} dt' = (\beta_1 + \beta_3 a)dt + \beta_2 dx \\ dx' = (\gamma_1 + \gamma_3 a)dt + \gamma_2 dx \end{cases}$$

- *From (C_07) we obtain new inverse transformation equations*

C_11

$$\begin{cases} dt = \dfrac{\gamma_2}{D}dt' - \dfrac{\beta_2}{D}dx' \\ dx = \dfrac{\beta_1 + \beta_3 a}{D}dx' - \dfrac{\gamma_1 + \gamma_3 a}{D}dt' \end{cases}$$

- *Original inverse transformation equations (see C_08)*

C_12

$$\begin{cases} dt = (\beta_1' + \beta_3' a')dt' + \beta_2' dx' \\ dx = (\gamma_1' + \gamma_3' a')dt' + \gamma_2' dx' \end{cases}$$

Relations Between Direct and Inverse Transformation Equations Coefficients

- *From comparison of the direct transformation equations, we get the relations*

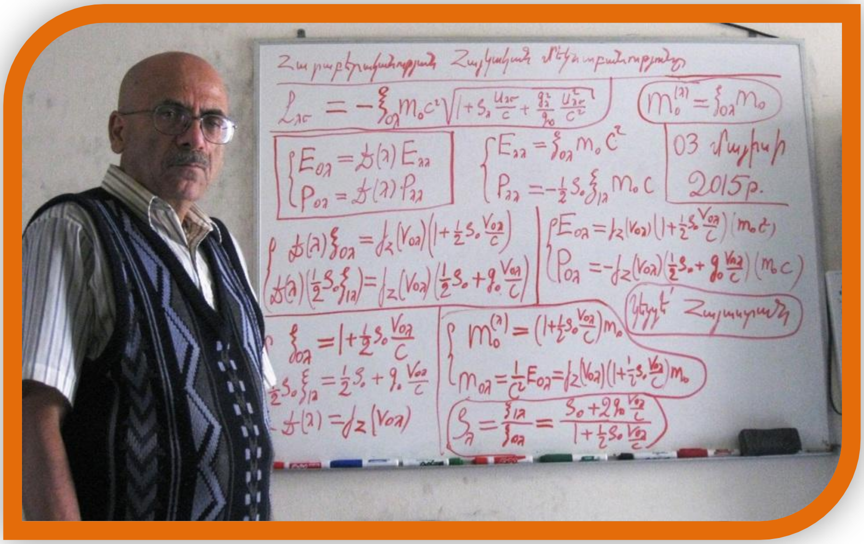
$$\begin{cases} \beta_1 + \beta_3 a = +\dfrac{\gamma_2'}{D'} \\ \beta_2 = -\dfrac{\beta_2'}{D'} \end{cases} \quad \text{and} \quad \begin{cases} \gamma_2 = +\dfrac{\beta_1' + \beta_3' a'}{D'} \\ \gamma_1 + \gamma_3 a = -\dfrac{\gamma_1' + \gamma_3' a'}{D'} \end{cases}$$

C_13

- *From comparison of the inverse transformation equations, we get the relations*

$$\begin{cases} \beta_1' + \beta_3' a' = +\dfrac{\gamma_2}{D} \\ \beta_2' = -\dfrac{\beta_2}{D} \end{cases} \quad \text{and} \quad \begin{cases} \gamma_2' = +\dfrac{\beta_1 + \beta_3 a}{D} \\ \gamma_1' + \gamma_3' a' = -\dfrac{\gamma_1 + \gamma_3 a}{D} \end{cases}$$

C_14



C_15

Armenian interpretation of Newton's laws of mechanics and dynamics
(09 July 2015, Glendale, CA, USA)

Grouping of the Important Relations

- *From (C_13) and (C_14) we obtain two important relations*

C_16

$$\begin{cases} DD' = 1 \\ (\beta_1 + \beta_3 a)(\beta_1' + \beta_3' a') = \gamma_2 \gamma_2' \end{cases}$$

- *From (C_13) and (C_14) we obtain also first Invariant relation, which we denote as* ζ_1

C_17

$$\frac{\beta_2}{\gamma_1 + \gamma_3 a} = \frac{\beta_2'}{\gamma_1' + \gamma_3' a'} = \zeta_1$$

- *From (C_13) and (C_14) we obtain second Invariant relation as well, which we denote as* ζ_2

C_18

$$\frac{\gamma_2 - (\beta_1 + \beta_3 a)}{\gamma_1 + \gamma_3 a} = \frac{\gamma_2' - (\beta_1' + \beta_3' a')}{\gamma_1' + \gamma_3' a'} = \zeta_2$$

C_19

Paying My Respects to the Fallen Heroes at Yerablur
(09 May 2016, Yerevan, Armenia)

Chapter D

Definition of the Constant Coefficient g

Examining the First Invariant Relation and the Most General Solution for Functional Equation

- *Coefficient ζ_1 must have the following functional arguments (see B_09, B_10 and C_17)*

D_01

$$\begin{cases} \dfrac{\beta_2}{\gamma_1+\gamma_3 a} = \dfrac{\beta_2(t,x,v)}{\gamma_1(t,x,v)+\gamma_3(t,x,v)a} = \zeta_1(t,x,v,a) \\ \dfrac{\beta_2'}{\gamma_1'+\gamma_3' a'} = \dfrac{\beta_2(t',x',v')}{\gamma_1(t',x',v')+\gamma_3(t',x',v')a'} = \zeta_1(t',x',v',a') \end{cases}$$

- *Therefore, the coefficient ζ_1 must satisfy the following functional equation (see C_17)*

D_02

$$\zeta_1(t,x,v,a) = \zeta_1(t',x',v',a')$$

- *For most general solution function ζ_1 must be a constant quantity*

D_03

$$\zeta_1(t,x,v,a) = \zeta_1(t',x',v',a') = \zeta_1 = \text{constant}$$

- *Therefore, beta and gamma coefficients relations must be constant (see C_17)*

D_04

$$\frac{\beta_2}{\gamma_1+\gamma_3 a} = \frac{\beta_2'}{\gamma_1'+\gamma_3' a'} = \zeta_1 = \text{constant}$$

Definition of the Constant Coefficient g and Different Formulas for the Determinants

- *From the measurements of the beta and gamma coefficients, we can define* g

$$\zeta_1 = -g\frac{1}{c^2} = \text{constant}$$

D_05

- *Therefore the beta coefficients we can represent by the new constant coefficient* g

$$\begin{cases} \beta_2 = -g\frac{1}{c^2}(\gamma_1 + \gamma_3 a) \\ \beta_2' = -g\frac{1}{c^2}(\gamma_1' + \gamma_3' a') \end{cases}$$

D_06

- *The first form of determinant formulas system of the transformation equations (see C_04)*

$$\begin{cases} D = (\beta_1 + \beta_3 a)\gamma_2 + g\frac{1}{c^2}(\gamma_1 + \gamma_3 a)^2 \neq 0 \\ D' = (\beta_1' + \beta_3' a')\gamma_2' + g\frac{1}{c^2}(\gamma_1' + \gamma_3' a')^2 \neq 0 \end{cases}$$

D_07

- *From above we get the second form of determinant formulas*

$$\begin{cases} D = \beta_1\gamma_2 + g\frac{1}{c^2}\gamma_1^2 + \left(\beta_3\gamma_2 + 2g\frac{1}{c^2}\gamma_1\gamma_3\right)a + g\frac{1}{c^2}\gamma_3^2 a^2 \neq 0 \\ D' = \beta_1'\gamma_2' + g\frac{1}{c^2}\gamma_1'^2 + \left(\beta_3'\gamma_2' + 2g\frac{1}{c^2}\gamma_1'\gamma_3'\right)a + g\frac{1}{c^2}\gamma_3'^2 a'^2 \neq 0 \end{cases}$$

D_08

General Direct and Inverse Transformation Equations For Particle Time – Space Coordinates Differentials

- *General direct transformation equations for observed particle coordinates differentials*

D_09

$$\begin{cases} dt' = (\beta_1 + \beta_3 a)dt - g\frac{1}{c^2}(\gamma_1 + \gamma_3 a)dx \\ dx' = (\gamma_1 + \gamma_3 a)dt + \gamma_2 dx \end{cases}$$

- *General inverse transformation equations for observed particle coordinates differentials*

D_10

$$\begin{cases} dt = (\beta'_1 + \beta'_3 a')dt' - g\frac{1}{c^2}(\gamma'_1 + \gamma'_3 a')dx' \\ dx = (\gamma'_1 + \gamma'_3 a')dt' + \gamma'_2 dx' \end{cases}$$

D_11

25-th Anniversary of the Independence of Armenia
(22 September 2016, Yerevan, Armenia)

Chapter E

Reciprocal Examination of the Particles Movement Located in the Origins of the Observing Systems

Making Two Separate Abstract – Theoretical Experiments When Particle is Located in Origins of the Observing Systems

- *Above mentioned abstract - theoretical experiments mathematical conditions*

E_01

First experiment		Second experiment
$\begin{cases} u' = 0 \\ u = v \end{cases}$	or	$\begin{cases} u = 0 \\ u' = v' \end{cases}$

- *Which is equivalent to the following conditions*

E_02

First experiment		Second experiment
$\begin{cases} dx' = 0 \\ dx = v dt \end{cases}$	or	$\begin{cases} dx = 0 \\ dx' = v' dt' \end{cases}$

E_03

Former President of Armenia Serzh Sargsyan in party (RPA) 16th Congress declared:
«We have no choice but to strive for excellence. The "Armenian" must be synonym of the "best".»
(26 November 2016, Yerevan, Armenia)

Examining the First Abstract – Theoretical Experiment And Important Results of the First Experiment

- *The conditions of the first abstract - theoretical experiment*

$$\begin{cases} dx' = 0 \\ dx = vdt \end{cases} \qquad \text{E\_04}$$

- *Using above conditions into the transformation equations (D_09) and (D_10), we get*

From direct transformation equations

$$\begin{cases} dt' = \left[(\beta_1 + \beta_3 a) - g\frac{v}{c^2}(\gamma_1 + \gamma_3 a)\right]dt \\ 0 = (\gamma_1 + \gamma_2 v + \gamma_3 a)dt \end{cases}$$

and

From inverse transformation equations

$$\begin{cases} dt = (\beta'_1 + \beta'_3 a')dt' \\ vdt = (\gamma'_1 + \gamma'_3 a')dt' \end{cases} \qquad \text{E\_05}$$

- *From (E_05) we obtain the first abstract - theoretical experiment's important relations*

$$\begin{cases} \gamma_1 + \gamma_3 a = -\gamma_2 v \\ v = \dfrac{\gamma'_1 + \gamma'_3 a'}{\beta'_1 + \beta'_3 a'} \end{cases} \qquad \text{E\_06}$$

- *Beta coefficients relation from the first abstract - theoretical experiment*

$$\beta'_1 + \beta'_3 a' = \frac{1}{\beta_1 + \beta_3 a - g\frac{v}{c^2}(\gamma_1 + \gamma_3 a)} \qquad \text{E\_07}$$

Examining the Second Abstract – Theoretical Experiment And Important Results of the Second Experiment

- *The conditions of the second abstract - theoretical experiment*

E_08

$$\begin{cases} dx = 0 \\ dx' = v'dt' \end{cases}$$

- *Using above conditions into the transformation equations (D_09) and (D_10), we get*

E_09

From direct transformation equations

$$\begin{cases} dt' = (\beta_1 + \beta_3 a)dt \\ v'dt' = (\gamma_1 + \gamma_3 a)dt \end{cases}$$

and

From inverse transformation equations

$$\begin{cases} dt = \left[(\beta'_1 + \beta'_3 a') - g\frac{v'}{c^2}(\gamma'_1 + \gamma'_3 a')\right]dt' \\ 0 = (\gamma'_1 + \gamma'_2 v' + \gamma'_3 a')dt' \end{cases}$$

- *From (E_09) we obtain the second abstract - theoretical experiment's important relations*

E_10

$$\begin{cases} \gamma'_1 + \gamma'_3 a' = -\gamma'_2 v' \\ v' = \dfrac{\gamma_1 + \gamma_3 a}{\beta_1 + \beta_3 a} \end{cases}$$

- *Beta coefficients relations from the second abstract - theoretical experiment*

E_11

$$\beta_1 + \beta_3 a = \frac{1}{\beta'_1 + \beta'_3 a' - g\frac{v'}{c^2}(\gamma'_1 + \gamma'_3 a')}$$

New Abbreviations For Beta and Gamma Coefficients And Two Experiments Results Written Together

- *Abbreviations for beta coefficients*

$$\begin{cases} \beta_1 + \beta_3 a = \beta_1(t,x,v) + \beta_3(t,x,v)a = \beta(t,x,v,a) \equiv \beta \\ \beta'_1 + \beta'_3 a' = \beta_1(t',x',v') + \beta_3(t',x',v')a' = \beta(t',x',v',a') \equiv \beta' \end{cases}$$

E_12

- *Abbreviations for gamma2 coefficients*

$$\begin{cases} \gamma_2 = \gamma_2(t,x,v) = \gamma(t,x,v) \equiv \gamma \\ \gamma'_2 = \gamma_2(t',x',v') = \gamma(t',x',v') \equiv \gamma' \end{cases}$$

E_13

- *First group of coefficients relations with abbreviations (see D_06, E_06 and E_10)*

$$\begin{cases} \gamma_1 + \gamma_3 a = -\gamma v \\ \gamma'_1 + \gamma'_3 a' = -\gamma' v' \end{cases} \Rightarrow \begin{cases} \beta_2 = g\frac{v}{c^2}\gamma \\ \beta'_2 = g\frac{v'}{c^2}\gamma' \end{cases}$$

E_14

- *Second group of coefficients relations with abbreviations (see E_08, E_12 and E_13)*

$$\begin{cases} \beta = \dfrac{1}{\beta' + g\frac{v'^2}{c^2}\gamma'} \\ \beta' = \dfrac{1}{\beta + g\frac{v^2}{c^2}\gamma} \end{cases}$$

E_15

Relations Between Relative Velocities and Relations Between Beta and Gamma Coefficients

- *Relations between relative velocities (see E_06, E_10, E_12 and E_14)*

E_16

$$\begin{cases} v' = \dfrac{\gamma_1 + \gamma_3 a}{\beta_1 + \beta_3 a} \\ v = \dfrac{\gamma'_1 + \gamma'_3 a'}{\beta'_1 + \beta'_3 a'} \end{cases} \Rightarrow \begin{cases} v' = -\dfrac{\gamma}{\beta} v \\ v = -\dfrac{\gamma'}{\beta'} v' \end{cases}$$

- *Relative velocity transformation formulas satisfy the involution (self-inverse) property*

E_17

$$(v')' = -\frac{\gamma'}{\beta'} v' = v \qquad \Rightarrow \qquad (v')' \equiv v$$

- *Beta coefficients new relations with abbreviations (use E_16)*

E_18

$$\begin{cases} \beta' = \dfrac{1}{\beta + g\frac{v^2}{c^2}\gamma} = \dfrac{1}{\beta\left(1 - g\frac{vv'}{c^2}\right)} \\ \beta = \dfrac{1}{\beta' + g\frac{v'^2}{c^2}\gamma'} = \dfrac{1}{\beta'\left(1 - g\frac{vv'}{c^2}\right)} \end{cases}$$

- *Important relation with abbreviations (use C_16, E_12, E_13 and E_18)*

E_19

$$\gamma\gamma' = \beta\beta' = \frac{\beta}{\beta + g\frac{v^2}{c^2}\gamma} = \frac{\beta'}{\beta' + g\frac{v'^2}{c^2}\gamma'} = \frac{1}{1 - g\frac{vv'}{c^2}}$$

Transformations Determinant Formulas and Particle Coordinates Differentials Transformation Equations

- *First form of determinant formulas with abbreviations (see D_07 and E_12,13,14)*

$$\begin{cases} D = \gamma\left(\beta + g\frac{v^2}{c^2}\gamma\right) \neq 0 \\ D' = \gamma'\left(\beta' + g\frac{v'^2}{c^2}\gamma'\right) \neq 0 \end{cases}$$

E_20

- *Second form of determinant formulas with abbreviations (use E_16 and E-20)*

$$\begin{cases} D = \beta\gamma\left(1 - g\frac{vv'}{c^2}\right) \neq 0 \\ D' = \beta'\gamma'\left(1 - g\frac{vv'}{c^2}\right) \neq 0 \end{cases}$$

E_21

- *General direct transformation equations with abbreviations (see D_09 and E_12,13,14)*

$$\begin{cases} dt' = \beta dt + g\frac{v}{c^2}\gamma dx \\ dx' = \gamma(dx - vdt) \end{cases}$$

E_22

- *General inverse transformation equations with abbreviations (see D_10 and E_12,13,14)*

$$\begin{cases} dt = \beta' dt' + g\frac{v'}{c^2}\gamma' dx' \\ dx = \gamma'(dx' - v'dt') \end{cases}$$

E_23

Particle Time – Space Coordinates Differentials Transformation Equations With Arguments

- *General direct transformation equations written with full functions*

E_24

$$\begin{cases} dt' = \beta(t,x,v,a)dt + g\dfrac{v}{c^2}\gamma(t,x,v)dx \\ dx' = \gamma(t,x,v)(dx - vdt) \end{cases}$$

- *General inverse transformation equations written with full functions*

E_25

$$\begin{cases} dt = \beta(t',x',v',a')dt' + g\dfrac{v'}{c^2}\gamma(t',x',v')dx' \\ dx = \gamma(t',x',v')(dx' - v'dt') \end{cases}$$

E_26

21st century must be period of Armenian scientific revolutions
(14 October 2016, Yerevan)

Chapter F

Definition of the Constant Coefficient s

Examining Second Invariant Relation and The Most General Solution for Functional Equation

- *Second invariant relation (C_18) with abbreviations (use E_12, E_13 and E_14)*

F_01

$$\frac{\beta - \gamma}{\gamma v} = \frac{\beta' - \gamma'}{\gamma' v'} = \zeta_2$$

- *Second invariant relation parts in full functional dependency form*

F_02

$$\begin{cases} \dfrac{\beta - \gamma}{\gamma v} = \dfrac{\beta(t,x,v,a) - \gamma(t,x,v)}{\gamma(t,x,v)v} = \zeta_2(t,x,v,a) \\ \dfrac{\beta' - \gamma'}{\gamma' v'} = \dfrac{\beta(t',x',v',a') - \gamma(t',x',v')}{\gamma(t',x',v')v'} = \zeta_2(t',x',v',a') \end{cases}$$

- *The most general solution of the functional equation is when* ζ_2 *becomes a constant*

F_03

$$\zeta_2(t,x,v,a) = \zeta_2(t',x',v',a') = \zeta_2 = \text{constant}$$

- *From the measurements of beta and gamma we can define a new constant coefficient* s

F_04

$$\zeta_2 = s\frac{1}{c} = \text{constant}$$

Beta Expressed by Constant Coefficient s and Armenian Formulas Between Relative Velocities

- *Invariant relation given (F_01) we can express by the new defined coefficient s*

$$\frac{\beta-\gamma}{\gamma v} = \frac{\beta'-\gamma'}{\gamma' v'} = s\frac{1}{c}$$

F_05

- *From above relation we can obtain formula for beta coefficients and formula for determinants of transformations, expressed by new defined constant coefficients (see E_20 and F_05)*

$$\begin{cases} \beta = \gamma\left(1+s\frac{v}{c}\right) \\ \beta' = \gamma'\left(1+s\frac{v'}{c}\right) \end{cases} \Rightarrow \begin{cases} D = \gamma^2\left(1+s\frac{v}{c}+g\frac{v^2}{c^2}\right) \neq 0 \\ D' = \gamma'^2\left(1+s\frac{v'}{c}+g\frac{v'^2}{c^2}\right) \neq 0 \end{cases}$$

F_06

From this point on, our new derived transformation equations and all other important relativistic formulas, as in previous volume A, we also will name "Armenian". This is the best way to distinguish between the legacy and the new theories of relativity and their corresponding relativistic formulas.
Also, this research is the accumulation of practically 50 years of obsessive thinking about the natural laws of the Universe and recording those activities. This scientific research was done in Armenia by an Armenian and the original manuscripts were written in Armenian. This research is purely from the mind of an Armenian and from the holy land of Armenia, therefore we have full moral rights to call it by its rightful name - Armenian.

F_07

- *Armenian formulas between inverse and direct relative velocities (see E_16 and F_06)*

$$\begin{cases} v' = -\dfrac{v}{1+s\frac{v}{c}} \\ v = -\dfrac{v'}{1+s\frac{v'}{c}} \end{cases} \Rightarrow \left(1+s\frac{v}{c}\right)\left(1+s\frac{v'}{c}\right) = 1$$

F_08

Armenian Direct and Inverse Transformation Equations

- *Armenian direct transformation equations (use E_22 and F_06)*

F_09

$$\begin{cases} dt' = \gamma\left[\left(1 + s\frac{v}{c}\right)dt + g\frac{v}{c^2}dx\right] \\ dx' = \gamma(dx - vdt) \end{cases}$$

- *Armenian inverse transformation equations (use E_23 and F_06)*

F_10

$$\begin{cases} dt = \gamma'\left[\left(1 + s\frac{v'}{c}\right)dt' + g\frac{v'}{c^2}dx'\right] \\ dx = \gamma'(dx' - v'dt') \end{cases}$$

- *Armenian direct transformation equations of the particle coordinates differentials written with full functional dependency*

F_11

$$\begin{cases} dt' = \gamma(t,x,v)\left[\left(1 + s\frac{v}{c}\right)dt + g\frac{v}{c^2}dx\right] \\ dx' = \gamma(t,x,v)(dx - vdt) \end{cases}$$

- *Armenian inverse transformation equations of the particle coordinates differentials written with full functional dependency*

F_12

$$\begin{cases} dt = \gamma(t',x',v')\left[\left(1 + s\frac{v'}{c}\right)dt' + g\frac{v'}{c^2}dx'\right] \\ dx = \gamma(t',x',v')(dx' - v'dt') \end{cases}$$

Chapter G

Derivation of the Armenian Gamma Functions

Armenian Invariant Infinitesimal Interval and Reciprocal Calculations of the Armenian Interval

- *Armenian transformation equations in the same measurement coordinates*

G_01

Armenian direct transformation equations		Armenian inverse transformation equations
$\begin{cases} cdt' = \gamma\left[\left(1+s\frac{v}{c}\right)cdt + g\frac{v}{c}dx\right] \\ dx' = \gamma\left(dx - \frac{v}{c}cdt\right) \end{cases}$	and	$\begin{cases} cdt = \gamma'\left[\left(1+s\frac{v'}{c}\right)cdt' + g\frac{v'}{c}dx'\right] \\ dx = \gamma'\left(dx' - \frac{v'}{c}cdt'\right) \end{cases}$

- *Quadratic form of the Armenian infinitesimal invariant interval (3rd postulate)*

G_02

$$d\text{Ե}^2 = (cdt)^2 + s(cdt)(dx) + g(dx)^2 = (cdt')^2 + s(cdt')(dx') + g(dx')^2$$

- *Reciprocal substitution coordinates differentials into Armenian interval formulas (G_02)*

G_03

$$\begin{cases} d\text{Ե}^2 = \gamma^2\left(1 + s\frac{v}{c} + g\frac{v^2}{c^2}\right)[(cdt)^2 + s(cdt)(dx) + g(dx)^2] \\ d\text{Ե}^2 = \gamma'^2\left(1 + s\frac{v'}{c} + g\frac{v'^2}{c^2}\right)[(cdt')^2 + s(cdt')(dx') + g(dx')^2] \end{cases}$$

- *Above Armenian interval expressions must be equal to the following original intervals*

G_04

$$\begin{cases} d\text{Ե}^2 = (cdt)^2 + s(cdt)(dx) + g(dx)^2 \\ d\text{Ե}^2 = (cdt')^2 + s(cdt')(dx') + g(dx')^2 \end{cases}$$

Direct and Inverse Armenian Gamma Function Formulas and Armenian Direct and Inverse Transformation Equations

- *Equating first equations of two different form interval expressions (G_03) and (G_04), we obtain gamma function for the direct transformation*

$$\gamma = \gamma_{\zeta}(v) = \frac{1}{\sqrt{1 + s\frac{v}{c} + g\frac{v^2}{c^2}}} \qquad \text{G\_05}$$

- *Equating second equations of two different form interval expressions (G_03) and (G_04), we obtain gamma function for the inverse transformation*

$$\gamma' = \gamma_{\zeta}(v') = \frac{1}{\sqrt{1 + s\frac{v'}{c} + g\frac{v'^2}{c^2}}} \qquad \text{G\_06}$$

- *Final form of the Armenian direct transformation equations*

$$\begin{cases} dt' = \gamma_{\zeta}(v)\left[\left(1 + s\frac{v}{c}\right)dt + g\frac{v}{c^2}dx\right] \\ dx' = \gamma_{\zeta}(v)(dx - v\,dt) \end{cases} \qquad \text{G\_07}$$

- *Final form of the Armenian inverse transformation equations*

$$\begin{cases} dt = \gamma_{\zeta}(v')\left[\left(1 + s\frac{v'}{c}\right)dt' + g\frac{v'}{c^2}dx'\right] \\ dx = \gamma_{\zeta}(v')(dx' - v'dt') \end{cases} \qquad \text{G\_08}$$

Armenian Transformation Equations for Quantities (φ,A) and First Group of Important Relations

- *Armenian direct transformation equations for physical (two-vector) quantity*

G_09

$$\begin{cases} d\varphi' = \gamma_{\text{չ}}(v)\left[\left(1+s\frac{v}{c}\right)d\varphi + g\frac{v}{c}dA\right] \\ dA' = \gamma_{\text{չ}}(v)\left(dA - \frac{v}{c}d\varphi\right) \end{cases}$$

- *Armenian inverse transformation equations for physical (two-vector) quantity*

G_10

$$\begin{cases} d\varphi = \gamma_{\text{չ}}(v')\left[\left(1+s\frac{v'}{c}\right)d\varphi' + g\frac{v'}{c}dA'\right] \\ dA = \gamma_{\text{չ}}(v')\left(dA' - \frac{v'}{c}d\varphi'\right) \end{cases}$$

- *Using (G_05) and (G_06) in (F_06) we obtain transformation equations determinant values*

G_11

$$\begin{cases} D(v) = [\gamma_{\text{չ}}(v)]^2\left(1+s\frac{v}{c}+g\frac{v^2}{c^2}\right) = 1 \\ D(v') = [\gamma_{\text{չ}}(v')]^2\left(1+s\frac{v'}{c}+g\frac{v'^2}{c^2}\right) = 1 \end{cases}$$

- *First group of important relations for Armenian gamma functions (using F_08 in G_05,06)*

G_12

$$\begin{cases} \gamma_{\text{չ}}(v') = \gamma_{\text{չ}}(v)\left(1+s\frac{v}{c}\right) \\ \gamma_{\text{չ}}(v) = \gamma_{\text{չ}}(v')\left(1+s\frac{v'}{c}\right) \\ \gamma_{\text{չ}}(v')v' = -\gamma_{\text{չ}}(v)v \end{cases}$$

Second Group of Important Relations

- *This important relation between Armenian gamma functions we will use in the future for the Armenian energy formulas*

$$\gamma_{\zeta}(v')\left(1+\tfrac{1}{2}s\tfrac{v'}{c}\right) \;=\; \gamma_{\zeta}(v)\left(1+\tfrac{1}{2}s\tfrac{v}{c}\right) \tag{G\_13}$$

- *This important relation between Armenian gamma functions we will use in the future for the Armenian momentum formulas*

$$\gamma_{\zeta}(v')\left(\tfrac{1}{2}s+g\tfrac{v'}{c}\right) \;+\; \gamma_{\zeta}(v)\left(\tfrac{1}{2}s+g\tfrac{v}{c}\right) \;=\; s\left[\gamma_{\zeta}(v)\left(1+\tfrac{1}{2}s\tfrac{v}{c}\right)\right] \tag{G\_14}$$

- *This important relation we will use for the Armenian full energy formulas*

$$\begin{cases} \left(\tfrac{1}{2}s+g\tfrac{v}{c}\right)^2 - s\left(\tfrac{1}{2}s+g\tfrac{v}{c}\right)\left(1+\tfrac{1}{2}s\tfrac{v}{c}\right)+g\left(1+\tfrac{1}{2}s\tfrac{v}{c}\right)^2 \;=\; \left(g-\tfrac{1}{4}s^2\right)\left(1+s\tfrac{v}{c}+g\tfrac{v^2}{c^2}\right) \\ \left(\tfrac{1}{2}s+g\tfrac{v'}{c}\right)^2 - s\left(\tfrac{1}{2}s+g\tfrac{v'}{c}\right)\left(1+\tfrac{1}{2}s\tfrac{v'}{c}\right)+g\left(1+\tfrac{1}{2}s\tfrac{v'}{c}\right)^2 \;=\; \left(g-\tfrac{1}{4}s^2\right)\left(1+s\tfrac{v'}{c}+g\tfrac{v'^2}{c^2}\right) \end{cases} \tag{G\_15}$$

G_16

I am a grandson of surviving victims of the Armenian Genocide
(22 April 2017, Yerevan, Armenia)

Chapter H

Observed Particle Velocities and Formulas Related with Velocities

Notations and Definitions of the Velocities and Time Derivatives of the Armenian Transformations

- *Definition of reciprocal relative velocities origins of the observing coordinate systems*

For relative velocities

$$\begin{cases} v = \dfrac{dx_0}{dt} \\ v' = \dfrac{dx'_0}{dt'} \end{cases}$$

and

For particle velocities

$$\begin{cases} u = \dfrac{dx}{dt} \\ u' = \dfrac{dx'}{dt'} \end{cases}$$

H_01

Where x_0 and x'_0 quantities are reciprocal observed distances between origins of the observing coordinate systems. But x and x' quantities are distances between observed particle and the origins of the observing coordinate systems

H_02

- *Time derivatives of the Armenian direct transformation equations (see G_07 and H_01)*

$$\begin{cases} \dfrac{dt'}{dt} = \gamma_{\text{չ}}(v)\left(1 + s\dfrac{v}{c} + g\dfrac{vu}{c^2}\right) \\ \dfrac{dx'}{dt} = \gamma_{\text{չ}}(v)(u - v) \end{cases}$$

H_03

- *Time derivatives of the Armenian inverse transformation equations (see G_08 and H_01)*

$$\begin{cases} \dfrac{dt}{dt'} = \gamma_{\text{չ}}(v')\left(1 + s\dfrac{v'}{c} + g\dfrac{v'u'}{c^2}\right) \\ \dfrac{dx}{dt'} = \gamma_{\text{չ}}(v')(u' - v') \end{cases}$$

H_04

Relations of the Time Differentials and Moving Particle Velocity Transformation Formulas

- *First form relations of the time differentials (see H_03 and H_04)*

H_05

$$\begin{cases} \dfrac{dt'}{dt} = \gamma_{ȥ}(v)\left(1 + s\dfrac{v}{c} + g\dfrac{vu}{c^2}\right) \\ \dfrac{dt}{dt'} = \gamma_{ȥ}(v')\left(1 + s\dfrac{v'}{c} + g\dfrac{v'u'}{c^2}\right) \end{cases}$$

- *Second form relations of the time differentials (use G_12 in H_05)*

H_06

$$\begin{cases} \dfrac{dt'}{dt} = \gamma_{ȥ}(v')\left(1 - g\dfrac{v'u}{c^2}\right) \\ \dfrac{dt}{dt'} = \gamma_{ȥ}(v)\left(1 - g\dfrac{vu'}{c^2}\right) \end{cases}$$

- *Moving particle velocity with respect to the inertial system K (use H_04)*

H_07

$$\frac{dx}{dt} = u = \frac{u' - v'}{1 + s\dfrac{v'}{c} + g\dfrac{v'u'}{c^2}}$$

- *Moving particle velocity with respect to the inertial system K prime (use H_03)*

H_08

$$\frac{dx'}{dt'} = u' = \frac{u - v}{1 + s\dfrac{v}{c} + g\dfrac{vu}{c^2}}$$

Two Forms of Particle Velocity Transformation Formulas and Relative Velocities Expressed by Particle Velocities

- *First form of particle velocity transformation Armenian formulas (see H_03 and H_04)*

$$\begin{cases} u = \dfrac{u' - v'}{1 + s\dfrac{v'}{c} + g\dfrac{v'u'}{c^2}} \\[2ex] u' = \dfrac{u - v}{1 + s\dfrac{v}{c} + g\dfrac{vu}{c^2}} \end{cases} \qquad \text{H\_09}$$

- *Second form of particle velocity transformation Armenian formulas (use G_12 on H_09)*

$$\begin{cases} u = \dfrac{\left(1 + s\dfrac{v}{c}\right)u' + v}{1 - g\dfrac{vu'}{c^2}} \\[2ex] u' = \dfrac{\left(1 + s\dfrac{v'}{c}\right)u + v'}{1 - g\dfrac{v'u}{c^2}} \end{cases} \qquad \text{H\_10}$$

- *Formula for direct relative velocity expressed by particle velocities (use second equation H_09)*

$$v = \frac{u - u'}{1 + s\dfrac{u'}{c} + g\dfrac{uu'}{c^2}} \qquad \text{H\_11}$$

- *Formula for inverse relative velocity expressed by particle velocities (use first equation H_09)*

$$v' = \frac{u' - u}{1 + s\dfrac{u}{c} + g\dfrac{uu'}{c^2}} \qquad \text{H\_12}$$

Defining Armenian Gamma Function Formulas For the Moving Particle and Relations Between Them

- *Particle Armenian gamma formula with respect to the coordinate system K*

H_13

$$\gamma_{չ}(u) = \frac{1}{\sqrt{1 + s\frac{u}{c} + g\frac{u^2}{c^2}}}$$

- *Particle Armenian gamma formula with respect to the coordinate system K prime*

H_14

$$\gamma_{չ}(u') = \frac{1}{\sqrt{1 + s\frac{u'}{c} + g\frac{u'^2}{c^2}}}$$

- *First form of the gamma functions transformation formulas (use H_09 on H_13,14)*

H_15

$$\begin{cases} \gamma_{չ}(u) = \gamma_{չ}(v')\gamma_{չ}(u')\left(1 + s\frac{v'}{c} + g\frac{v'u'}{c^2}\right) \\ \gamma_{չ}(u') = \gamma_{չ}(v)\gamma_{չ}(u)\left(1 + s\frac{v}{c} + g\frac{vu}{c^2}\right) \end{cases}$$

- *Second form of the gamma functions transformation formulas (use G_12 and H_15)*

H_16

$$\begin{cases} \gamma_{չ}(u) = \gamma_{չ}(v)\gamma_{չ}(u')\left(1 - g\frac{vu'}{c^2}\right) \\ \gamma_{չ}(u') = \gamma_{չ}(v')\gamma_{չ}(u)\left(1 - g\frac{v'u}{c^2}\right) \end{cases}$$

Invariant Relation For Time Differentials

- *Third form of the gamma functions transformation relations (use H_11,12 on G_05,06)*

$$\begin{cases} \gamma_{\text{չ}}(v) = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left(1 + s\frac{u'}{c} + g\frac{uu'}{c^2}\right) \\ \gamma_{\text{չ}}(v') = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left(1 + s\frac{u}{c} + g\frac{uu'}{c^2}\right) \end{cases}$$

H_17

- *Particle Armenian gamma functions relations two forms (see H_15 and H_16)*

$$\begin{cases} \dfrac{\gamma_{\text{չ}}(u)}{\gamma_{\text{չ}}(u')} = \gamma_{\text{չ}}(v')\left(1 + s\frac{v'}{c} + g\frac{v'u'}{c^2}\right) = \gamma_{\text{չ}}(v)\left(1 - g\frac{vu'}{c^2}\right) \\ \dfrac{\gamma_{\text{չ}}(u')}{\gamma_{\text{չ}}(u)} = \gamma_{\text{չ}}(v)\left(1 + s\frac{v}{c} + g\frac{vu}{c^2}\right) = \gamma_{\text{չ}}(v')\left(1 - g\frac{v'u}{c^2}\right) \end{cases}$$

H_18

- *New form of relation for time differentials (use H_05 and H_15)*

$$\begin{cases} \dfrac{dt}{dt'} = \dfrac{\gamma_{\text{չ}}(u)}{\gamma_{\text{չ}}(u')} \\ \dfrac{dt'}{dt} = \dfrac{\gamma_{\text{չ}}(u')}{\gamma_{\text{չ}}(u)} \end{cases}$$

H_19

- *From above relation we can define the invariant proper time (Lorentz invariant)*

$$\frac{dt}{\gamma_{\text{չ}}(u)} = \frac{dt'}{\gamma_{\text{չ}}(u')} = d\tau$$

H_20

Armenian Transformation Equations Expressed by Moving Particle Velocities

- *Armenian direct transformation equations for particle coordinates differentials*

H_21

$$\begin{cases} dt' = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left[\left(1+s\frac{u}{c}+g\frac{uu'}{c^2}\right)dt+g\frac{u-u'}{c^2}dx\right] \\ dx' = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left[\left(1+s\frac{u'}{c}+g\frac{uu'}{c^2}\right)dx-(u-u')dt\right] \end{cases}$$

- *Armenian inverse transformation equations for particle coordinates differentials*

H_22

$$\begin{cases} dt = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left[\left(1+s\frac{u'}{c}+g\frac{uu'}{c^2}\right)dt'+g\frac{u'-u}{c^2}dx'\right] \\ dx = \gamma_{\text{չ}}(u)\gamma_{\text{չ}}(u')\left[\left(1+s\frac{u}{c}+g\frac{uu'}{c^2}\right)dx'-(u'-u)dt'\right] \end{cases}$$

H_23

My scientific workplace
(14 October 2018, Yerevan, Armenia)

Chapter I

Observed Particle Accelerations and Formulas Related with Accelerations

Notations and Definitions of the Accelerations and Calculation of Moving Particle Acceleration Formulas

- *Notations of reciprocal relative accelerations and moving particle accelerations*

I_01

For relative accelerations and For particle accelerations

$$\begin{cases} a = \dfrac{dv}{dt} \\[2ex] a' = \dfrac{dv'}{dt'} \end{cases} \quad \text{and} \quad \begin{cases} b = \dfrac{du}{dt} \\[2ex] b' = \dfrac{du'}{dt'} \end{cases}$$

- *After differentiations particle velocity transformation Armenian formulas (H_09), we get*

I_02

$$\begin{cases} \left(\dfrac{dt'}{dt}\right)\dfrac{du'}{dt'} = \dfrac{1}{\gamma_{\zeta}^{2}(v)\left(1+s\dfrac{v}{c}+g\dfrac{vu}{c^{2}}\right)^{2}}\left[\dfrac{du}{dt}-\dfrac{\gamma_{\zeta}^{2}(v)}{\gamma_{\zeta}^{2}(u)}\dfrac{dv}{dt}\right] \\[3ex] \left(\dfrac{dt}{dt'}\right)\dfrac{du}{dt} = \dfrac{1}{\gamma_{\zeta}^{2}(v')\left(1+s\dfrac{v'}{c}+g\dfrac{v'u'}{c^{2}}\right)^{2}}\left[\dfrac{du'}{dt'}-\dfrac{\gamma_{\zeta}^{2}(v')}{\gamma_{\zeta}^{2}(u')}\dfrac{dv'}{dt'}\right] \end{cases}$$

- *First form of the particle accelerations transformation formulas (use I_01 on I_02)*

I_03

$$\begin{cases} \left(\dfrac{dt'}{dt}\right)b' = \dfrac{1}{\gamma_{\zeta}^{2}(v)\left(1+s\dfrac{v}{c}+g\dfrac{vu}{c^{2}}\right)^{2}}\left[b-\dfrac{\gamma_{\zeta}^{2}(v)}{\gamma_{\zeta}^{2}(u)}a\right] \\[3ex] \left(\dfrac{dt}{dt'}\right)b = \dfrac{1}{\gamma_{\zeta}^{2}(v')\left(1+s\dfrac{v'}{c}+g\dfrac{v'u'}{c^{2}}\right)^{2}}\left[b'-\dfrac{\gamma_{\zeta}^{2}(v')}{\gamma_{\zeta}^{2}(u')}a'\right] \end{cases}$$

Relative Accelerations Transformation Formulas

- *Second form of the particle accelerations transformation formulas (use H_05 on I_03)*

$$\begin{cases} \left(\dfrac{dt'}{dt}\right)^3 b' = b - \dfrac{\gamma_{\varsigma}^2(v)}{\gamma_{\varsigma}^2(u)} a \\ \left(\dfrac{dt}{dt'}\right)^3 b = b' - \dfrac{\gamma_{\varsigma}^2(v')}{\gamma_{\varsigma}^2(u')} a' \end{cases}$$

I_04

- *The particle accelerations transformation formulas (use H_19 on I_04)*

$$\begin{cases} \gamma_{\varsigma}^3(u')b' = \gamma_{\varsigma}^3(u)b - \gamma_{\varsigma}^2(v)\gamma_{\varsigma}(u)a \\ \gamma_{\varsigma}^3(u)b = \gamma_{\varsigma}^3(u')b' - \gamma_{\varsigma}^2(v')\gamma_{\varsigma}(u')a' \end{cases}$$

I_05

- *From the above particle accelerations transformation formulas we get the relation between reciprocal relative accelerations*

$$\gamma_{\varsigma}^2(v')\gamma_{\varsigma}(u')a' + \gamma_{\varsigma}^2(v)\gamma_{\varsigma}(u)a = 0$$

I_06

- *Using (G_12) and (H_15) we get the relative accelerations transformation formulas, which contains contradiction, because reciprocal relative accelerations can not depend, arbitrary observed particle's velocities u or u prime respectively (use $s = 0$ and $g = -1$ for legacy)*

In Armenian Theory of Relativity

$$\begin{cases} a' = -\dfrac{a}{\gamma_{\varsigma}(v)\left(1 + s\frac{v}{c}\right)^2\left(1 + s\frac{v}{c} + g\frac{vu}{c^2}\right)} \\ a = -\dfrac{a'}{\gamma_{\varsigma}(v')\left(1 + s\frac{v'}{c}\right)^2\left(1 + s\frac{v'}{c} + g\frac{v'u'}{c^2}\right)} \end{cases} \Rightarrow$$

In Legacy Theory of Relativity

$$\begin{cases} a' = -\dfrac{a}{\gamma_{\varsigma}(v)\left(1 - \frac{vu}{c^2}\right)} \\ a = -\dfrac{a'}{\gamma_{\varsigma}(v')\left(1 - \frac{v'u'}{c^2}\right)} \end{cases}$$

I_07

Facing With Contradictions

I_08

Contradiction illustrated by (I_07) are not just specific for Armenian Theory of Relativity, discussed in this volume B, but this contradiction are already build in legacy theory of relativity as well. Unfortunately the experts in that field deliberately or unconsciously ignoring the contradiction in the legacy theory of relativity and patching all the holes.

This contradiction arise when we start discussing the case of general relativity where the observing coordinate systems are moving respect to each other with accelerations. In this case we derived reciprocal relative acceleration formulas from which follows, for example, that the inverse relative acceleration depends not just on direct relative velocity and direct relative acceleration, but it also depends at arbitrary observed particle's velocity, which for different observed particles can have different arbitrary values. We can say the same thing about the direct relative acceleration formula, which depends not just on inverse relative velocity and inverse relative acceleration, but it also depends on arbitrary observed particle velocity.

This exposed contradiction, which was existed in the legacy theory of relativity and just now was introduced in this volume B, we can perhaps compare to the beginning of 20-th century ultraviolet catastrophe for the black body radiation problem. But in those days, theoretical physicists faced problems head on, instead of hiding from them.

It is quite logical that the reciprocal relative accelerations of the mutual observing coordinate systems cannot be dependent on the arbitrary observed particle's velocities, but that reciprocal accelerations must depend only observing origins of coordinate systems corresponding relative velocities and relative accelerations. Therefore to solve this contradiction, we need to completely revise all concepts and interpretations about how we describe relative motions in time-space and how we define observed particle time-coordinates. Therefore we need rewrite whole theory of relativity at large, which we already accomplish in our new volume C (in Armenian).

In that new volume C we become victorious from this deep crisis in theoretical physics and we succeeded to build powerful "Armenian Theory of Time-Space" in one physical dimension and we will create it in three physical dimensions as well.

Working on our main research (3rd volume - “Armenian Theory of Time-Space ”)
(17 January 2019, Yerevan, Armenia)

- *Instead of (I_05) we need to have this type of particle accelerations formulas*

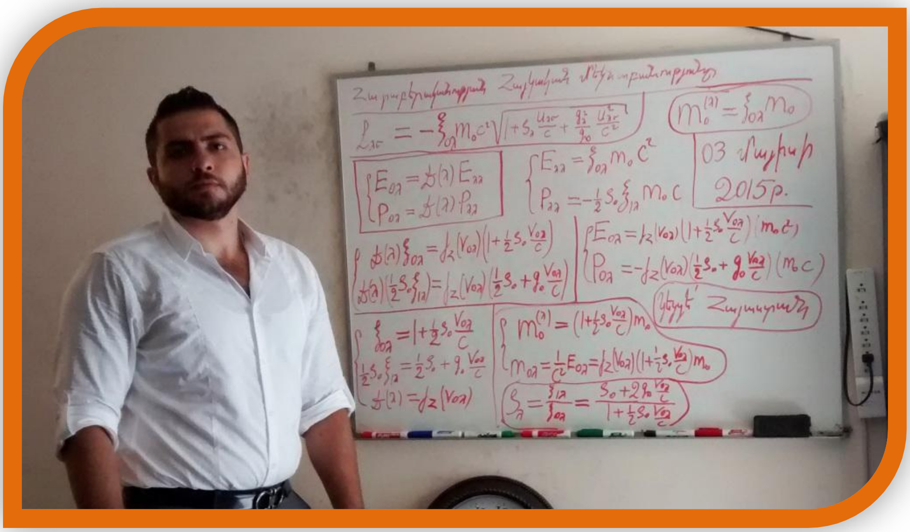
$$\begin{cases} \gamma_{\zeta}^{3}(u')b' = \gamma_{\zeta}^{3}(u)b - \gamma_{\zeta}^{3}(v)a \\ \gamma_{\zeta}^{3}(u)b = \gamma_{\zeta}^{3}(u')b' - \gamma_{\zeta}^{3}(v')a' \end{cases}$$

I_09

- *Therefore from above we can get relative accelerations transformations correct formulas without (I_07) contradiction (add above equations and then use G_12)*

$$\gamma_{\zeta}^{3}(v)a + \gamma_{\zeta}^{3}(v')a' = 0 \Rightarrow \begin{cases} a' = -\dfrac{a}{\left(1+s\frac{v}{c}\right)^{3}} \\ a = -\dfrac{a'}{\left(1+s\frac{v'}{c}\right)^{3}} \end{cases}$$

I_10



I_11

Coauthor Hayk Nazaryan in front of our whiteboard
(01 September 2015, Glendale, CA, USA

Conclusions

In this new - second volume of the visual crash course of "Armenian Theory of Relativity", which is organic sequel of the first volume, we discuss the case (Case B), where observing coordinate systems moving against each other with arbitrary acceleration. We use the most general considerations and a pure mathematical approach, and in so doing, we build a theory of general relativity (kinematics) and received Armenian direct and inverse transformation equations for observed particle coordinates differentials.

Our visual book, which is made for broad audiences of physicists, does not only generalize legacy theory of general relativity formulas, but also using almost the same axioms, we succeeded to build more logical and correct theory of general relativity in one physical dimension (for now kinematics only), which has two additional new constants (s and g).

Our received Armenian direct and inverse transformation equations we can also obtain in a very easy way from the Armenian Theory of Special Relativity (volume A) transformation equations, by just taking particle's infinitesimal coordinates, where reciprocal relative velocities between observing systems are instantaneous variable velocities.

But we prefer to go hard way to show the fact that Armenian Theory of Relativity is a solid mathematical theory. In this volume B we also faced contradiction and our next volume we will solve this "contradiction".

We also advice readers to be very cautious when comparing legacy theory of relativity with the Armenian Theory of Relativity, especially when instead of trying understand the new theory concepts, they use their whole energy trying to find "*mistakes*" or "*paradoxes*" in Armenian Theory of Relativity. Please just remember that legacy theories of relativity are *symmetric theories*, but Armenian Theory of Relativity is asymmetric theory of relativity.

Proofs in this volume are also very brief and therefore readers need to put sufficient effort to prove all providing formulas.

Armenians in USA saying "we will not compromise our future"
(27 September 2009, Glendale, CA, USA)

Chapter J

Different Scientific Letters

We Can Have Successful Scientific Francophonie Days in Armenia

***Dear Michaëlle Jean**,*
Secretary General of La Francophonie
01 July 2018

"Natural sciences are an important part of any national culture"

First, I would like to apologize for writing to you in English…

Second, as we know, two sessions and 17-th summit of Francophonie countries will take place in Yerevan (Armenia) between 7-12 of October 2018.

Third, I am theoretical physicist from Armenia and I have many published articles and books in that field.

I have an idea that one of our popular and visual published new scientific book – "Theoretical Foundation of Infinite Free Energy" - can serve as an Armenian calling card during Francophonie days in Armenia and as an important part for the celebration of the 100-th anniversary rebirth of Armenian State.

In that book we theoretically prove and derive many new formulas, which the world has never seen before, and those derived new formulas can show scientists the path of how to harness unlimited free energy from time-space vacuum and usher in a new scientific golden age for the human species.

But unfortunately, the above mentioned book is originally written in Armenian and translated only in English, which you can get from the following link:
https://www.academia.edu/28248080/Foundation_ATR_ENG .

My proposal is that francophone organization with collaboration of the Armenian government, to translate the mentioned book in French and publish it in Armenia. That book can be distributed to all francophone summit members and visitors in Armenia as a special and memorable gift.

I hope my proposal is doable within two months and we can have successful scientific Francophonie days in Armenia.

If you have any questions about my proposal please don't hesitate to communicate with me by email: info@atr.am .

Sincerely,

***Robert Nazaryan**,*
Physics Department, Yerevan State University, Armenia

***Dear Olivia Le Boulch**,*

Attachée de coopération scientifique et universitaire

11 July 2018

Thank you for your respond.

The translation of our scientific research book(s) from Armenian to English or French can be done here from the help of different organizations within the Armenian government, but our problem is to include our scientific proposal during the Francophonie Days in Armenia.

That's why I am begging you and others with professional help, who can put our Francophonie Days proposal in agenda during the upcoming meeting between President of France Emmanuel Macron and Prime Minister of Armenia Nikol Pashinyan. . (Unfortunately that meeting already happened today in Brussels in the scope of the NATO Summit).

Also, with your help, maybe the same proposal can be put in the agenda of the coming session of Francophonie countries, as part of organization effort to have a successful Francophonie days in Armenia.

Our proposed scientific research books in theoretical physics are the following.

1. "Foundation of Armenian Theory of Special Relativity", Sep 5, 2016, which you can get from here: https://www.academia.edu/28248080/Foundation_ATR_ENG

2. "Armenian Theory of Relativity Articles", March, 2016. This is an accumulation of various research published articles, written only in English, between the years 2007 – 2014, which you can get from here: https://www.academia.edu/21455605/Armenian_Theory_of_Relativity_Articles

Our theoretical research are very unique and where many new formulas are derived, which the world has never seen before and has the potential to change the world and bring forth a new scientific golden age for the human species

Thank you again for your help.

Sincerely,

***Robert Nazaryan**,*

Physics Department, Yerevan State University, Armenia

100 Years of Inquisition in Physics is Now Over and Ether Energy Age has Begun!

Dear Olivia Le Boulch,

Attachée de coopération scientifique et universitaire

30 July 2018

Thank you for your reply.

Sorry that I am answering late, it is because I transferred our book to a new presentation format and it took a long time. It is now ready and attached to this letter. If for some reason your mail server not accepting 3.6MB size file, then you can get it from here

https://www.academia.edu/37142519/Foundation_ATSR_ENG-FR.ppsx

I think scientific attaché has more responsibility than just scientific cooperation between two countries.

Please think about this: what would you do when you get the information, that another country somehow obtained advanced "alien" technology. You refuse to accept because this is not part of your cooperation, or you immediately report to your government about existence of new theoretical-technological breakthrough in that country…

After Heisenberg's quantum theory (1925) and Dirac's relativistic quantum theory (1928) – theoretical physics came to a halt. Ninety years have passed from those days and no progress has been made in fundamental theoretical physics at all. During that long lasting vacuum in theoretical physics, opportunist "physicists" have been promoting artificial and false theories like "string theory", "super string theory", "K theory", "big bang theory", "black hole theory" and so on… which is leading Europe and the whole world into another dark age.

Well not anymore because we have created "Asymmetric Theory of Relativity", which can change everything in theoretical physics and giving hope for human species, that we can harness infinite free energy from vacuum. In the meantime all legacy theory of relativity formulas and equations can be obtained from our new theory as a very special case: putting $s = 0$ and $g = -1$.

Timeline of nuclear energy in general is the following:

1905 – theoretical physics give the formula that mass can changed into pure energy,

1935 – discovered medium (uranium 235 fission) where that energy can be unleashed,

1940 – USA finance the Manhattan Project,

1945 – USA get the nuclear power and atomic bomb.

What can be timeline for use infinite free energy?

2012 – derived theoretical formula for momentum-energy for rest mass,

The rest is unknown and that depend scientific attachés like you, who can understand the importance of moment and advice the governments to do something…

Thank you again for your time in communicating with me.

100 years of inquisition in physics is now over and Ether Energy Age has begun!

Best Regards,

Robert Nazaryan,

Physics Department, Yerevan State University, Armenia

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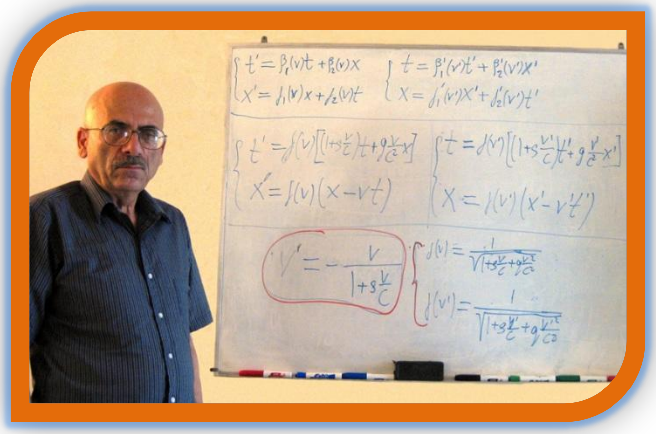
Authors Short Biographies



Robert Nazaryan, a grandson of surviving victims of the Armenian Genocide (1915 - 1921), was born on August 7, 1948 in Yerevan, the capital of Armenia. As a senior in high school he won first prize in the national mathematics Olympiad of Armenia in 1966. Then he attended the Physics department at Yerevan State University from 1966 - 1971 and received his MS in Theoretical Physics. 1971 - 1973 he attended Theological Seminary at Etchmiadzin, Armenia and received Bachelor of Theology degree. For seven years (1978 - 1984) he was imprisoned as a political prisoner in the USSR for fighting for the self-determination of Armenia. He has many ideas and unpublished articles in theoretical physics that are waiting his time to be revealed. Right now he is working to finish "Armenian Theory of Relativity in 3 Physical Dimensions". He has three sons, one daughter and six grandchildren.

Hayk Nazaryan was born on May 12, 1989 in Los Angeles, California. He attended Glendale community College from 2009 - 2011, then he transferred to California State University Northridge and got his Master of Science degree in physics 2015. He is now teaching as an adjunct instructor at Glendale Community College. In 2016 he moved to Armenia and is now currently living as a permanent resident.