Doppler-Voigt-Einstein Selforganization – The Mechanism for Information Transfer

Jiří Stávek
Laboratory of Diffusion Processes
Prague, Czech Republic
Email: stavek@volny.cz

Doppler-Voigt-Einstein self organization transmits information about the relative velocity of the source and the observer. Experimentally, we should observe three steps. In the vicinity of the source, the $c_{1,\ rel\ 1}$ tuning should be observed, where $c_{1,\ rel\ 1}$ is the light speed c relative to the source. This effect was experimentally observed by Mugnai, Ranfagni and Ruggeri in the year 2000. In the second step, the photon moves with $c_{1,\ rel\ 1}$ to the vicinity of the observer. In the vicinity of the observer, the photon tunes $c_{1,\ rel\ 1}$ to the value $c_{2,\ rel\ 2}$, where $c_{2,\ rel\ 2}$ is the light speed c relative to the observer.

Keywords: Information transfer, light speed c_1 tuning at the source, light speed c_2 tuning at the observer

Introduction

There is no information "an sich" or in other words information needs in all cases a material carrier. E.g., the genetic information has been inscribed in the DNA sequences – for coding of information structural units on molecular level are used. Analogically, photons with mass m, wavelength λ, and frequency v reveal many properties that are used for information transfer. An experienced observer can extract from measured photon properties a set of valuable information about the source of those photons.

For the interpretation of the observed photon properties, we will use concepts of "old physics" where the photon with mass m (Lavoisierian caloric mass concept) selforganizes its surroundings with the wavelength λ (Aristotelian space concept) and the frequency v (Galilean time concept). During the Doppler-Voigt-Einstein selforganization the events summarized in the Table I should be observed.

TABLE I Doppler-Voigt-Einstein selforganization

Aristotelian concept of space	Galilean concept of time	Lavoisierian concept of caloric mass
$\frac{v_2}{v_1} = \frac{d_2}{d_1}$	$\frac{v_2}{v_1} = \frac{t_2}{t_1}$	$\frac{v_2}{v_1} = \frac{m_1}{m_2}$
$\frac{c_{2,\,rel\,1}}{c_{1,\,rel\,1}} = \frac{\lambda_2}{\lambda_1}$	$\frac{c_{2,\,rel\,1}}{c_{1,\,rel\,1}} = \frac{\nu_1}{\nu_2}$	$\frac{c_{2,\,rel\,1}}{c_{1,\,rel\,1}} = \frac{m_1}{m_2}$
$\frac{c_{2,\,rel\,1}}{c_{1,\,rel\,1}} = \frac{\lambda_2}{\lambda_1} = \frac{\nu_1}{\nu_2} = \frac{m_1}{m_2} = \sqrt{\frac{1+\frac{v}{c}}{1-\frac{v}{c}}}$		

The symbols in the Table I have the following meaning:
v_1 and v_2 are speeds of a falling object,
d_1 and d_2 are distances,
t_1 and t_2 are times,
$c_{1,\,rel\,1}$ is the light speed c relative to the source
$c_{2,\,rel\,1}$ is the light speed c relative to the source
m_1, λ_1 , ν_1 are the photon properties tuned at the source,
m_2, λ_2 , ν_2 are the photon properties tuned at the observer,
v is the relative speed between the source and the observer.

The concept of the selforganizing photon properties transmitting information enables us to interpret the experimental evidences found for photons as the particles – information messengers. These properties are summarized in the TABLE II.

TABLE II Photons – information messengers

Researchers	Type of information	Experimental evidences
Doppler-Voigt-Einstein (DVE) Selforganization	Relative speed	Voigt transformation $c_{1,\ rel\ 1}$ tuning: Mugnai, Ranfagni and Ruggeri $c_{2,\ rel\ 2}$ tuning: not yet observed photon mass diffusion
Slipher-Wirtz-Hubble (SWH) Selforganization	Distance	Hubble constant Decay of photons Secondary photons Tifft redshift periodicity
Hazard-Schmidt-Arp (HSA) Selforganization	Not yet decoded	Karlsson formula Decay of photons Secondary photons
Bolton-Murdin-Webster (BMW) Selforganization	Not yet decoded	Periodical growth and decay of photons
Mayor-Queloz-Marcy (MQM) Selforganization	Not yet decoded	Periodical growth and decay of photons
Anderson-Nieto-Turyshev (ANT) Selforganization	Pioneer anomaly	Anderson constant Growth of photons

Photon tuning properties

In this concept, the photon particle *m* moves simultaneously with its selforganized surroundings with wavelength λ and frequency ν. Doppler-Voigt-Einstein selforganization transmits information about the relative velocity of the source and the observer.

We should experimentally observe three steps during this kind of selforganization:

1st step: $c_{1,\ rel\ 1}$ tuning: the formed photon in the vicinity of the source should tune the value $c_{1,\ rel\ 1}$ – the light speed velocity c relative to the source. This behaviour of photons was already observed and described by Mugnai, Ranfagni and Ruggeri in the year 2000. They found the $c_{1,\ rel\ 1}$ tuning within the distance of 30 λ_1 from the source.

2nd step: transport of photon with the light speed $c_{1,\ rel\ 1}$ to the vicinity of the observer. The photon with mass m_1, wavelength λ_1 and frequency ν_1 approaches the vicinity of fermions into the so-called diffusion layer around the fermions which is estimated to be around 30 λ_2.

3rd step: $c_{2,\ rel\ 2}$ tuning: in the vicinity of the observer photon starts to tune values m_2, λ_2 and ν_2 in order to achieve the value $c_{2,\ rel\ 2}$ – the light speed c relative to the observer. This is the mechanism for the information transfer about the relative speed of the source and the observer. This tuning effect was not yet described in the literature.

From these $c_{1,\ rel\ 1}$ and $c_{2,\ rel\ 2}$ tuning properties of photons we can derive three tuning mechanisms of photons summarized in the TABLE III.

TABLE III Three tuning mechanisms in the Doppler-Voigt-Einstein selforganization

Tuning of the light speed constancy
$c_{1,rel1} = \lambda_1 \cdot \nu_1 = \lambda_2 \cdot \nu_2 = c_{2,rel2}$
Tuning of the Equation $h = m \cdot \lambda \cdot c$
$\frac{h}{c_{1,rel1}} = m_1 \cdot \lambda_1 = m_2 \cdot \lambda_2 = \frac{h}{c_{2,rel2}}$
Tuning of the Equation $h \cdot \nu = m \cdot c^2$
$\frac{h}{c^2_{1,rel1}} = \frac{m_1}{\nu_1} = \frac{m_2}{\nu_2} = \frac{h}{c^2_{2,rel2}}$

In the redshifted DVE selforganization we should observe the diffusion of caloric mass from the photon mass to the surface of the moving object. In the blueshifted DVE selforganization we should observe the diffusion of the caloric mass from the moving object to the photon mass (the radiation of the moving particle). This caloric mass transfer is described by equations in the TABLE IV. The total energy of moving particles is given the TABLE V. The total energy of a moving particle which is the total sum of energies the redshifted and blueshifted selforganizations gives the identical result as it was found by Einstein.

TABLE IV Diffusion of the caloric mass in the Doppler-Voigt-Einstein Selforganization

Einsteinium mass Relativistic mass	Newtonian mass Rest mass	Lavoisierian mass Caloric mass
M	M_0	ΔM
$M_0 \cdot \frac{\sqrt{1+\frac{v}{c}}}{\sqrt{1-\frac{v}{c}}}$	M_0	$M_0 \cdot \left[\frac{\sqrt{1+\frac{v}{c}}}{\sqrt{1-\frac{v}{c}}} - 1\right]$
Total relativistic energy	Rest energy	Caloric energy
$M_0 \cdot c^2 \cdot \frac{\sqrt{1+\frac{v}{c}}}{\sqrt{1-\frac{v}{c}}}$	$M_0 \cdot c^2$	$M_0 \cdot c^2 \cdot \left[\frac{\sqrt{1+\frac{v}{c}}}{\sqrt{1-\frac{v}{c}}} - 1\right]$
Lavoisierian energy	Newtonian energy	Einsteinian energy
$(M - M_0) \cdot c^2$	$\frac{1}{2} \cdot M_0 \cdot v^2$	$\frac{3}{8} \cdot M_0 \cdot \frac{v^4}{c^2} + \frac{5}{16} \cdot \frac{v^6}{c^4} + \ldots$

TABLE V Total energy in the Doppler-Voigt-Einstein selforganization

Redshifted selforganization
$M_0c^2 + M_0vc + \frac{1}{2}M_0v^2 + \frac{1}{2}M_0\frac{v^3}{c} + \frac{3}{8}M_0\frac{v^4}{c^2} + \frac{3}{8}M_0\frac{v^5}{c^3} + \frac{5}{16}M_0\frac{v^6}{c^4} + \dots$
Blueshifted selforganization
$M_0c^2 - M_0vc + \frac{1}{2}M_0v^2 - \frac{1}{2}M_0\frac{v^3}{c} + \frac{3}{8}M_0\frac{v^4}{c^2} - \frac{3}{8}M_0\frac{v^5}{c^3} + \frac{5}{16}M_0\frac{v^6}{c^4} - \dots$
Redshifted and Blueshifted selforganization
$2\times\left(M_0c^2 + \frac{1}{2}M_0v^2 + \frac{3}{8}M_0\frac{v^4}{c^2} + \frac{5}{16}M_0\frac{v^6}{c^4} + \dots\right)$
Voigt transformation
$\frac{\sqrt{1+\frac{v}{c}}}{\sqrt{1-\frac{v}{c}}} + \frac{\sqrt{1-\frac{v}{c}}}{\sqrt{1+\frac{v}{c}}} = \frac{2}{\sqrt{1-\frac{v^2}{c^2}}}$

Acknowledgement

I am thankful to Pavel Pokorný for the evaluation of the used Taylor series.

Conclusions

Doppler-Voigt-Einstein self organization should be experimentally observed:

1. $c_{1,\ rel\ 1}$ tuning in the vicinity of the source was observed by Mugnai, Ranfagni and Ruggeri in the year 2000.
2. $c_{1,\ rel\ 1} \rightarrow c_{2,\ rel\ 2}$ tuning in the vicinity of the observer should be observed.
3. Caloric mass diffusion described in the Table IV and the Table V should be routinely observed in "relativistic" experiment.
4. Total energy of moving particles described in the Table V should be observed in "relativistic" experiments.

References

[1] D. Mugnai, A. Ranfagni and R. Ruggeri, "Observation of Superluminal Behaviours in Wave Propagation", *Phys. Rev. Lett.* **84** (2000) 4830-33.

[2] J. Stávek, "Evolution of Self-Organized Photon Waves", *Apeiron* **13** (2006) 102-117.

[3] J.J. Mareš et al., "Phenomenological Approach to the Caloric Theory of Heat", *Thermochimica Acta* **474** (2008) 16-24.