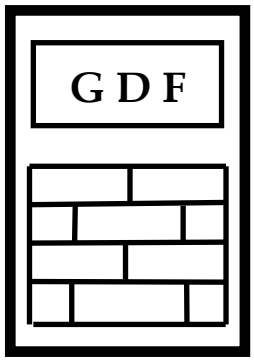
# GDF DATA BANKS BULLETIN

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# Content





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GDF DATABANKS BULLETIN, VOL. 24, NO. 6, 2020
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# Structural aspects of temperature phase transition in PTC-thermistors. I. DC electric measurements

Positive temperature coefficient (PTC) thermistors have a particular electric conductance mechanism strongly connected with a specific temperature driven phase transition. In the present note several commercial items are considered for dc electric measurements as function of temperature [1]. The exact commercial name of this series is PTFL04XX471Q2N34B0 where the blank XX: BH, BG, BF, BE, BC and BB mentioned by increasing so called sensing temperature (TS) [1] which is proportional with the phase transition temperature considered as Curie point specific to magnetic properties [2].
The goal of this note and hopefully of the next ones of the series is to identify in more details structural origin of this phase transition taking into account the previous results obtained with the topoenergetic working principles on a large number of similar cases [3-6].
Figure 1-3 show the experimental details used for dc electric and temperature measurements of the six PTC items in the following ranges and accuracies: Uout: #0.1 mV (for 0-399.9 mV), #1 mV (for 400-3999 mV), #10 mV (for 4.00-39.99 V) and T: #0.01 $^0$C (room temperature - +140 $^0$C). Temperature probe LM35CZ (TO-92) is supplied with 9V battery for best stability of measurements. Calibration of the overall temperature measuring system will be presented in a separate note.
**Results:** Figures 4-9 show Uout(T) graphs for each PTC thermistor and graphic evaluation of T1/2 temperature at which the half of the supplied voltage (Us = 5300 mV) occurs. All variations Uout(T) have pure sigmoidal shape, so two sigmoidal models were successfully applied (regression correlations better than 0.9999), namely Logistic and Logistic Power (Tables 1-3). However, the last one predicts T1/2 very close to the graphically estimated values and also with the TS values reported by the manufacturer (Table 4).
Figure 10 gathers R(T) dependences for all PTC items according to the simple relationship:
R(T) = R*Us/(Us-Uout), where R = 27.39 kOhm (Figure 2). R(T) exponentially growths up to infinity, so the UNIVERSAL law can be applied like in the case of NTC-thermistors [6]. For PTC-thermistors the revealed process occurred in the dc electric conductance by increasing temperature has the same nature for all considered items with negative polarity (P -) as in the case of NTC-thermistors. Important structural information results from the basic topoenergetic parameters whose general significance was established on a large number and variety of transformation processes. It is important to observe the following relationships: associated standard deviation bars of parameters N and M strongly decrease along the series with decreasing process amplitude (LN(Ctr)), with increasing kinetic units (LN(ctr), Figure 12), with increasing coupling strength between transforming and inert components (CS – Figure 13) and with increasing T1/2 and TS (Table 4). Critical points (Tc) values resulted from the UNIVERSAL kinetic equation are practically the same for all series, can not be correlated with T1/2 and TS and have no structural significance.
**Conclusions**: These results open a new vision on structural mechanism of dc electric conductance in PTC thermistors and must be correlated with their composition and processing history. Further experiments both extended on a large variety of PTC thermistors and in new measuring systems (for instance ac, dynamic temperature regime and/or in controlled magnetic field) will reveal new structural details, properties and new applications.

References

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[3] G. Dragan, Structural aspects revealed by topoenergetic view on ac electric conductivity in HCl/(water + organic solvent), GDF Databanks Bull., 20(2), 2016.
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[5] G. Dragan, Topoenergetic aspects of water structuring as revealed by ac electric conductivity. Topoenergetic aspects of water structuring as revealed by ac electric conductivity, GDF Databanks Bull., 15(3), 2011.
[6] G. Dragan, NTC – thermistors -1, GDF Databanks Bull., 10(1), 2006.

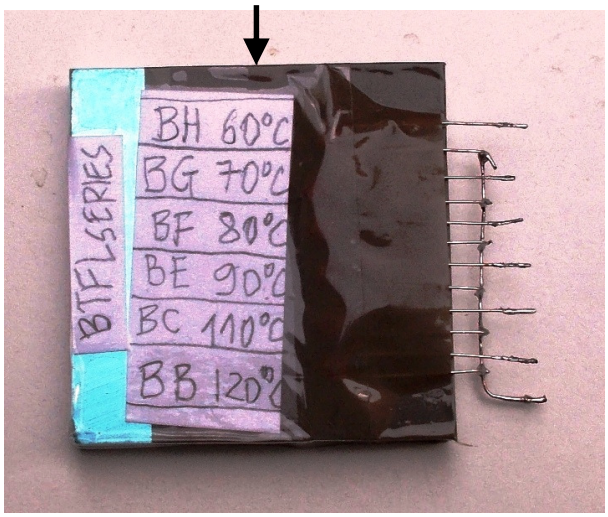


Figure 1. Disposition of PTC thermistors on an aluminum block (60x60x10 mm) as thermal lens. Arrow show the insert of LM35CZ as temperature sensor.

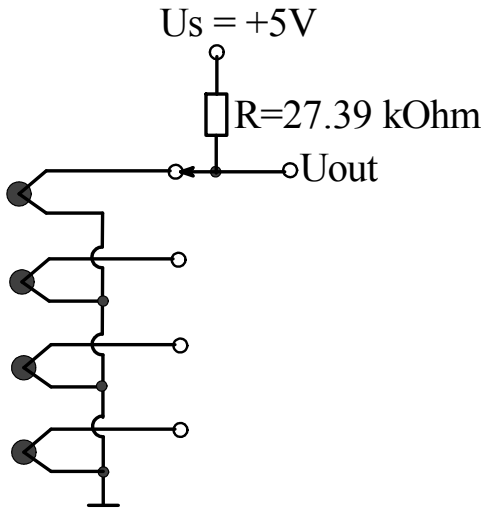


Figure 2.Schematic for measurement of Uout for each PTC-thermistor.

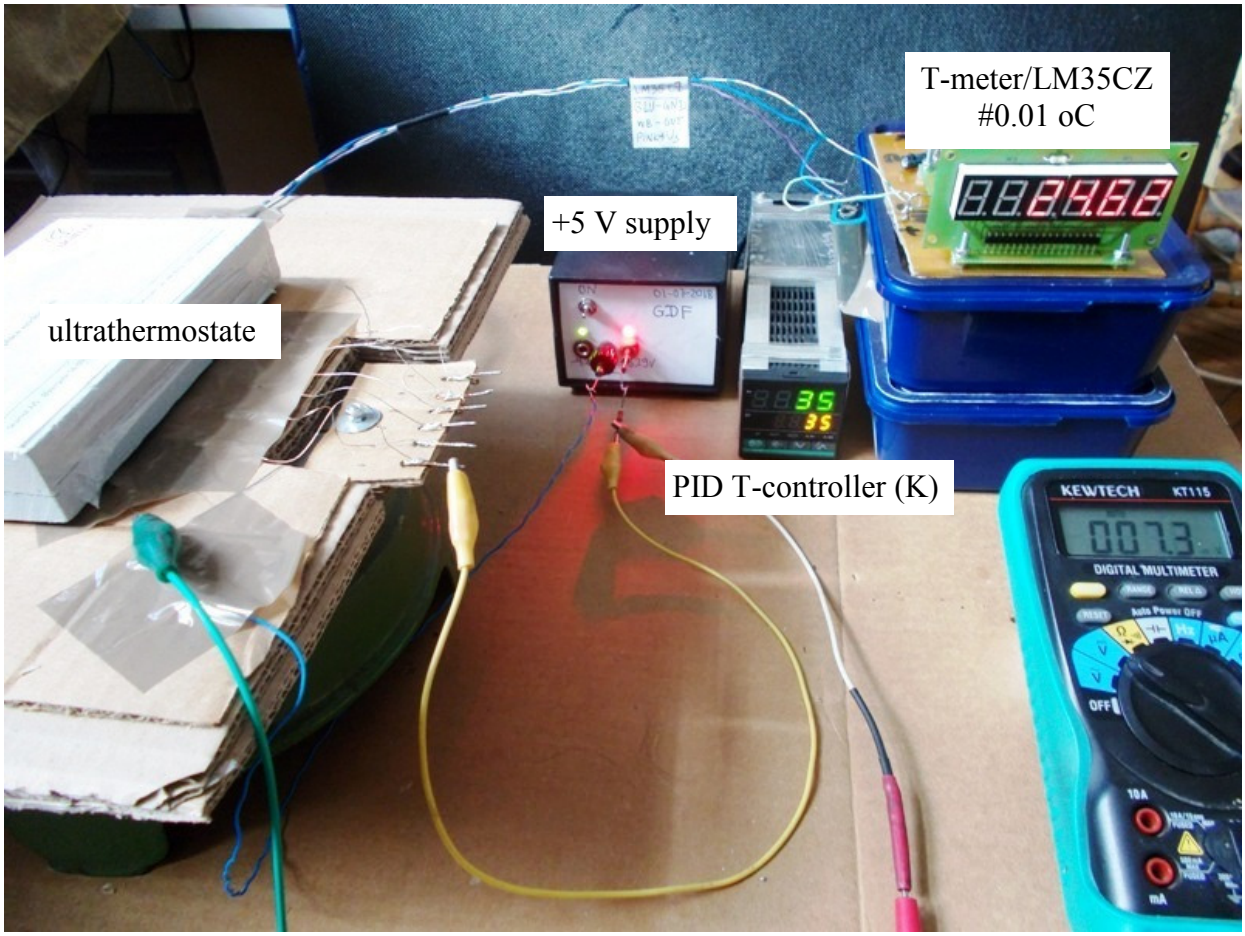


Figure 3. Experimental disposition for measurement of Uout(T) for all PTC-thermistors.

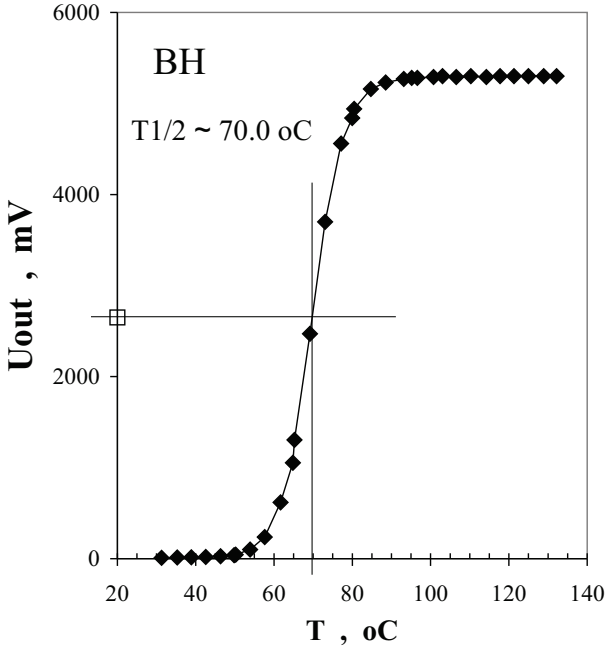

Figure 4.

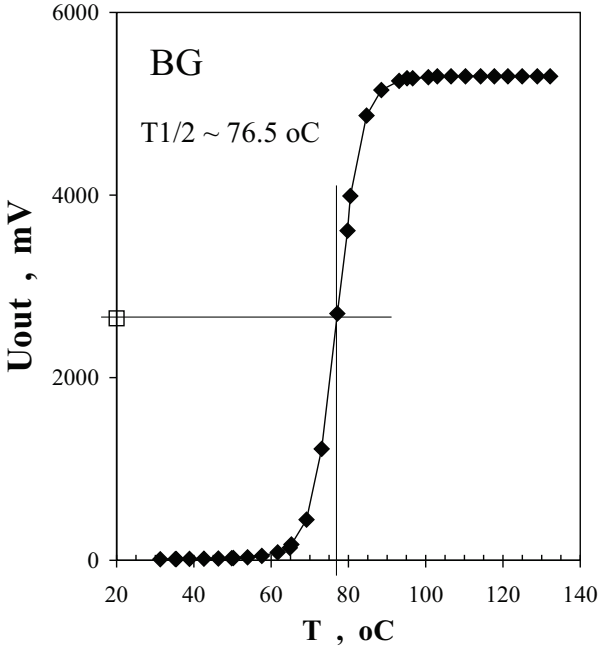

Figure 5.

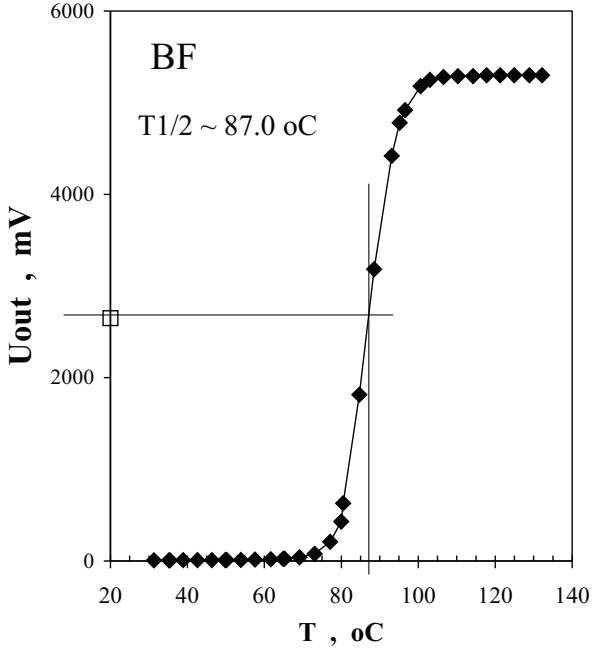

Figure 6.

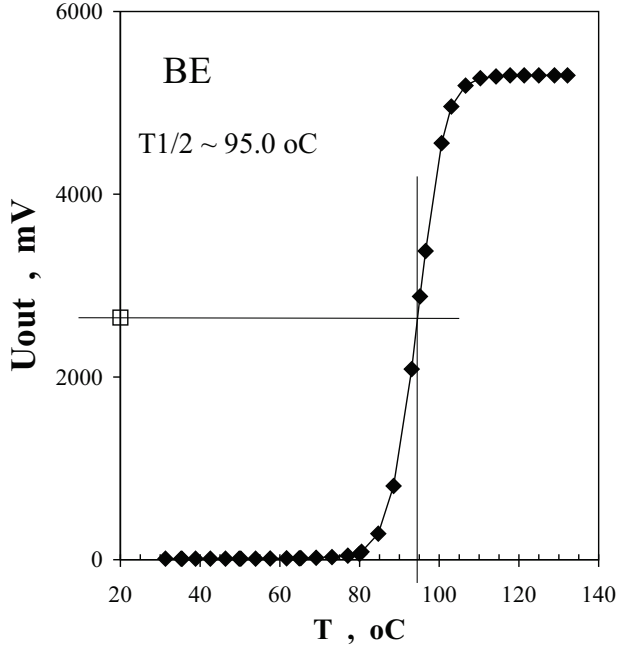

Figure 7.

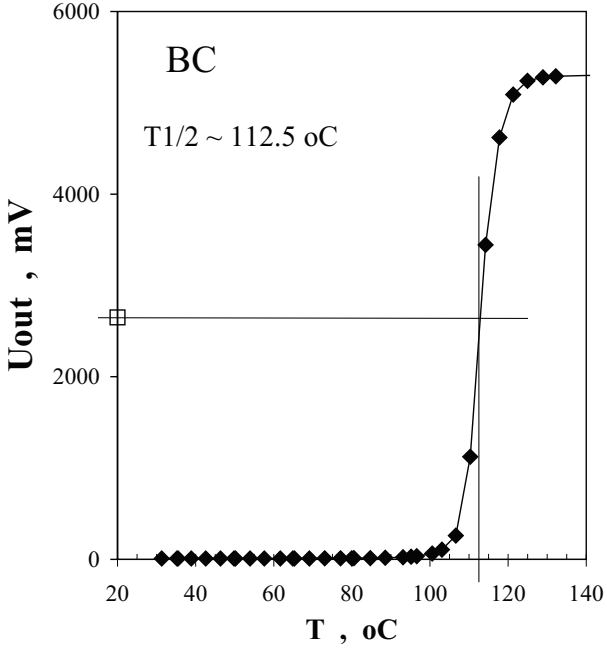

Figure 8.

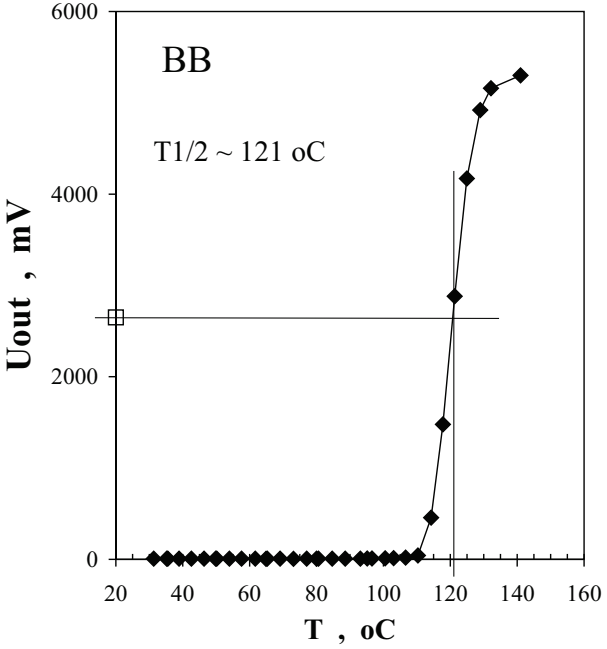

Figure 9.

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Table 1.
sigmoidal – LOGISTIC, Y = a/(1+b*exp(-c*X)); Y = Uoutcorr (mV), X = (T-To)
T1/2=(1/c)*ln(b); T1/2=To1/2+To, all regressions with correl = 0.9999

| XX | To, oC | a | b | c | u(a) | u(b) | u(c) | To1/2,oC | T1/2,oC |
|---|---|---|---|---|---|---|---|---|---|
| BH | 33.26 | 5226 | 1.78E+03 | 0.2569 | 8 | 1.2E+07 | 0.003 | 29.1 | 62.4 |
| BG | 28.63 | 5268 | 3.59E+05 | 0.3043 | 9 | 6.7E+04 | 0.004 | 42.0 | 70.7 |
| BF | 28.63 | 5276 | 4.91E+06 | 0.2932 | 14 | 1.1E+06 | 0.005 | 52.5 | 81.2 |
| BE | 34.63 | 5302 | 4.97E+06 | 0.2955 | 7 | 6.8E+06 | 0.003 | 52.2 | 86.8 |
| BC | 46.87 | 5248 | 1.19E+11 | 0.4585 | 20 | 7.2E+10 | 0.01 | 55.6 | 102.5 |
| BB | 65.65 | 5260 | 7.85E+05 | 0.3358 | 35 | 2.7E+05 | 0.009 | 40.4 | 106.1 |

Table 2.
sigmoidal - LOGISTIC POWER: Y = a/(1+(X/b)^c)); Y = Uoutcorr (mV), X = (T-To)
T1/2 = b, all regressions with correl = 0.9999

| XX | To,oC | a | b | c | u(a) | u(b0 | u(c) | To1/2,oC | T1/2,oC |
|---|---|---|---|---|---|---|---|---|---|
| BH | 33.26 | 5258 | 28.81 | -7.5 | 15 | 0.09 | 0.2 | 28.8 | 62.1 |
| BG | 28.63 | 5285 | 41.91 | -12.7 | 14 | 0.08 | 0.3 | 41.9 | 70.5 |
| BF | 28.63 | 5296 | 52.03 | -15.2 | 9 | 0.05 | 0.2 | 52.0 | 80.7 |
| BE | 34.63 | 5326 | 52.12 | -16.4 | 17 | 0.07 | 0.3 | 52.1 | 86.8 |
| BC | 46.87 | 5263 | 55.58 | -25.3 | 17 | 0.05 | 0.5 | 55.6 | 102.5 |
| BB | 65.65 | 5333 | 40.40 | -13.2 | 21 | 0.05 | 0.2 | 40.4 | 106.1 |

Table 3.
sigmoidal - LOGISTIC POWER: Y = a/(1+(X/b)^c)); Y = Uoutcorr (mV), X = T;
T1/2 = b, all regressions with correl = 0.9999

| XX | a | b | c | u(a) | u(b0 | u(c) | T1/2,oC |
|---|---|---|---|---|---|---|---|
| BH | 5303 | 69.70 | -17.6 | 8 | 0.06 | 0.2 | 69.70 |
| BG | 5310 | 76.95 | -23.2 | 10 | 0.05 | 0.4 | 76.95 |
| BF | 5301 | 87.13 | -25.3 | 10 | 0.05 | 0.3 | 87.13 |
| BE | 5327 | 94.54 | -27.7 | 12 | 0.05 | 0.4 | 94.54 |
| BC | 5267 | 112.97 | -51.3 | 16 | 0.05 | 1 | 112.97 |
| BB | 5292 | 120.79 | -40.0 | 19 | 0.05 | 0.6 | 120.79 |

Table 4.

| XX | TS , oC (1) | T1/2 , oC | |
|---|---|---|---|
| | | Graphic (2) | Logistic Power (3) |
| BH | 60 | 70.0 | 69.70 ± 0.06 |
| BG | 70 | 76.5 | 76.95 ± 0.05 |
| BF | 80 | 87.0 | 87.13 ± 0.05 |
| BE | 90 | 95.0 | 94.54 ± 0.05 |
| BC | 110 | 112.5 | 112.97 ± 0.05 |
| BB | 120 | 121 | 120.79 ± 0.05 |

(1) Sensing temperature (TS) reported by the manufacturer (Murata) [1];
(2) Graphically estimated values from Uout(T)(see Figures);
(3) Data from Table 3.

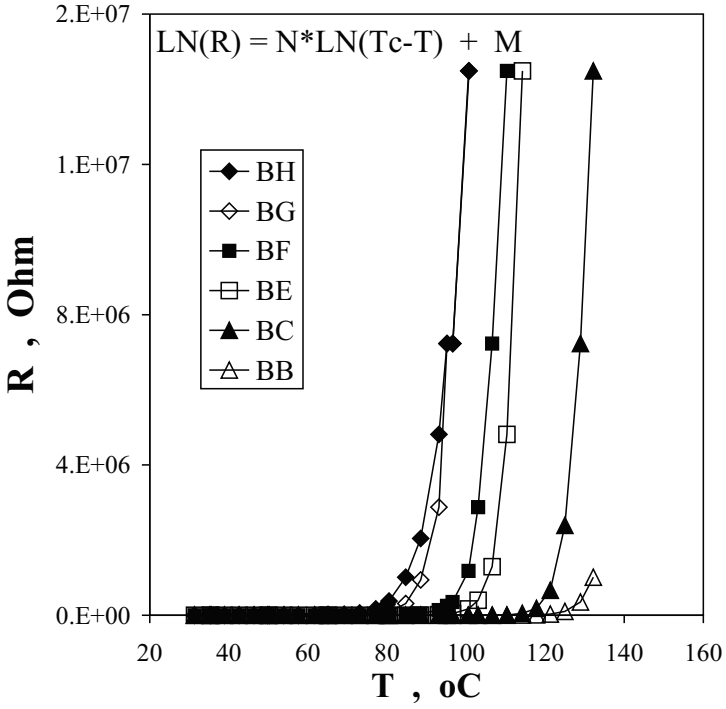


Figure 10.

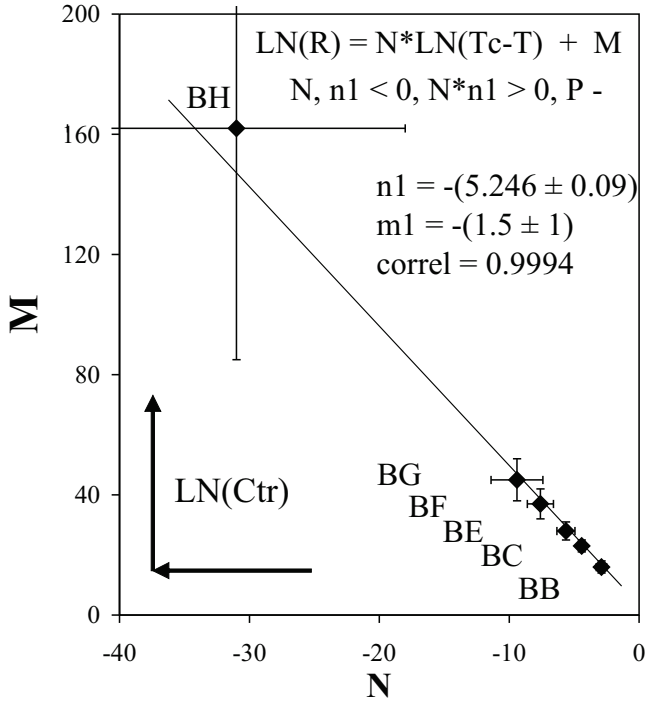


Figure 11.

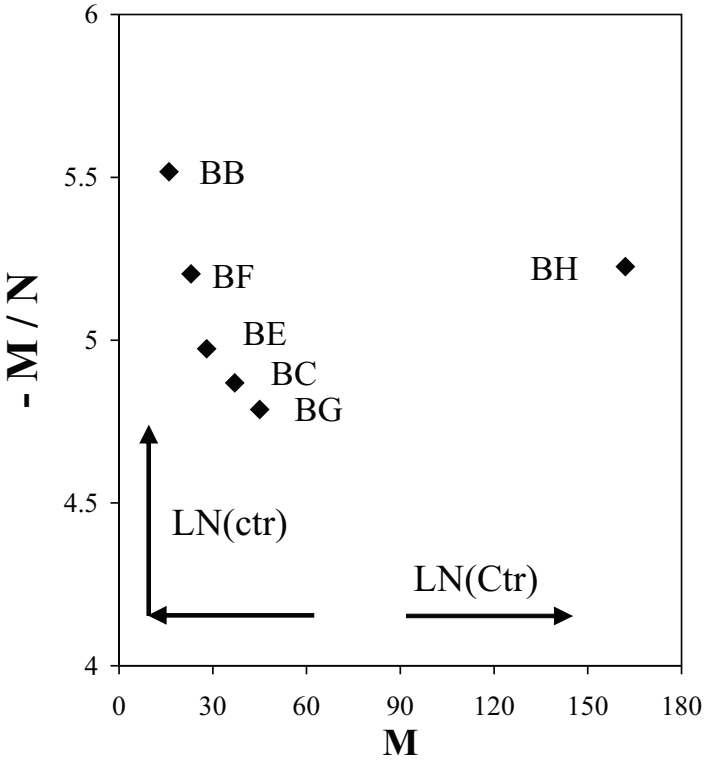


Figure 12.

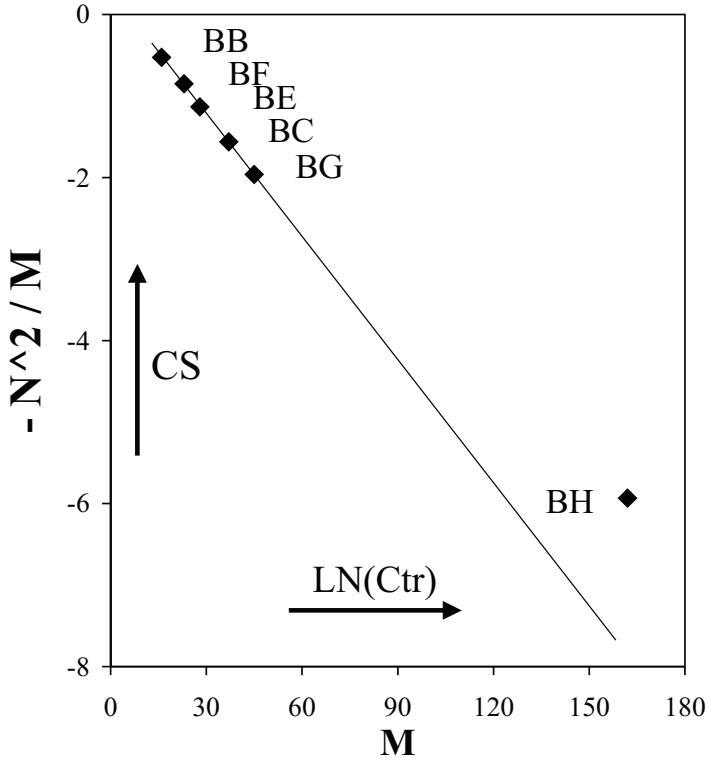


Figure 13.

https://www.lap-publishing.com


https://www.morebooks.de/store/gb/book/composite-structure-of-human-mind/isbn/978-613-9-45072-5

# Table of Contents

# Chapter 1

# Foreword

Miguel de Cervantes Saavedras:
„*Experience is the mother of all sciences”*

My deep concern is that the present book will not affect in any way human society, although I tried to point out arguments about the next imminent nuclear conflict mainly caused by continuous and accelerated degradation of human mind in direct correlation with uncontrolled growth of population. Survivors will be only ones with properly prepared minds. These two facts are striking evidences for any one, no matter education and place on the planet Earth. The solution I propose is to permanently testing and improving our mind. Its name is HuPoTest I experienced and developed continuously for more than 50 years. Human mind is our “crazy horse” which no individual succeed to completely master during entire life. The main problem is not that there are bad guys and good guys, but it is practically impossible to know them. The only solution is to take care of our own mind. After a long and intense experience face-to-face on a large variety of individuals with HuPoTest, I established that there are 4 main categories: (i) dominating; (ii) dominated; (iii) independent and (iv) not able to perform HuPoTest. The results are not available for ever, because they can transform instantly between them (flip-flop character). The first two are dependent each other, permanently involved in conflicts up to crime and suicide. The independent ones avoid any conflict and live in honest conditions. People not able to perform HuPoTest have their minds dominated by destructive emotions. Human mind is in permanent activity, so that conscious activity is perturbed by emotions. This is the main point of the present book: to reveal the composite structure of human mind by the existence of the active component involved in coherent thinking and an inert one perturbing the conscious activity.

I invite any one who will decide to try HuPoTest to contact me for help without any obligation.

Bucharest, February 2019

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| publications | ● >100 scientific papers<br>● >70 scientific communications<br>● 17 patents<br>● 6 books |
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| 1997 | 1 | 2 | Guide of good practice in metrology (Romanian) | AFI |
| 1998 | 2 | 1 | Editorial: socio-psychological implications in creation and utilization of a databank (Ioan-Bradu Iamandescu);<br>Behavior in vapor-liquid equilibria (VLE): I. Structural aspects;<br>Behavior in vapor-liquid equilibria: II. Several structures in databanks;<br>Symposium on VDC-4 held on 30 October 1997 at Lubrifin-SA, Brasov (Romania). | F |
| 1998 | 2 | 2 | Practical course of metrology (Romanian) | AFI |
| 1998 | 2 | 3 | DIFFUTOR-01: Thermally driven diffusion in pure metals | AFI |
| 1998 | 2 | 4 | VAPORSAT-01: Databanks of thermally driven VLE. The first 100 simple molecules | AFI |
| 1999 | 3 | 1 | Editorial: New trends in material science: nanostructures (Dan Donescu)<br>DIFFUTOR: Databanks of diffusion kinetics.<br>VAPORSAT: Databanks of vapor-liquid separation kinetics. | F |
| 1999 | 3 | 2 | Discussions on Applied Metrology | AFI |
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| 2001 | 5 | 1 | Editorial: Metrology ensures moral and technological progress.<br>Topoenergetic aspects of amorphous-crystalline coupling.<br>I. Composite behavior of water and aqueous solutions (paper presented at nanotubes and Nanostructures 2001, LNF, Frascati, Rome Italy, 17-27 October 2001).<br>Events: Nanotubes and nanostructures 2000.School and workshop, 24 September – 4 October 2000, Cagliari, Italy. | F |
| 2001 | 5 | 2 | Editorial: Viscosity – a symptomatic problem of actual metrology.<br>Visco-Dens Calorimeter: general features on density and viscosity measurements.<br>New vision on the calibration of thermometers: ISOCALT®<br>MOSATOR: Topoenergetic databanks on molten salts properties driven by temperature and composition. | F |
| 2002 | 6 | 1 | MOSATOR-01: Topoenergetic databanks for one component molten salts; thermally driven viscosity and electrical conductance. | AFI |
| 2002 | 6 | 2 | Editorial: HuPoTest - Operator calibration or temporal scale psychic test.<br>MOSATOR: topoenergetic databanks of one component molten salts; thermally driven viscosity and electrical conductance. | F |
| 2002 | 6 | 3 | Editorial: Quo vadis Earth experiment?<br>ISOCALT® : Report on metrological tests | F |
| 2003 | 7 | 1 | Editorial: Time – an instrument of the selfish thinking.<br>1st NOTE: Homoeopathy: upon some efficient physical tests revealing structural modifications of water and aqueous solutions.<br>I. Mixing experiments. | F |
| 2004 | 8 | 1 | Metrological verification and calibration of thermometers using thermostats type ISOCALT® 21/70/2.<br>Metrological verification and calibration of thermometers using thermostats type ISOCALT® 2.2R. | F |
| 2004 | 8 | 2 | Aspects of correct measurements of temperature. I. measurement of a fixed point according to ITS-90.<br>Physics and Homoeopathy: some physical requirements for homoeopathic | F |

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| | | | practice.(Plenary lecture at the 19th SRH National Congress, 21-22 September 2004, Bucharest, Romania) | |
| 2005 | 9 | 1 | AWARD for ISOCALT® at the International Fair TIB-2004, October 2004, Bucharest. ISOCALT® 3/70/21 was awarded in a selection of 20 products by a commission of experts from the Polytechnic University of Bucharest.<br>Upon some aspects of temperature measurements.<br>(12th International Metrology Congress, 20-23 June 2005, Lyon, France) | F |
| 2005 | 9 | 2 | A new technique for temperature measurement and calibration.<br>National Society of Measurements (NSM).<br>Important warning for T-calibrator users: MSA has chose metrology well calibrators from Fluke (Hart Scientific). | F |
| 2005 | 9 | 3 | Universal representation of Cancer Diseases. 1. First sight on NSW-2003 report.<br>Universal representation of Cancer Diseases. 2. UK cancer registrations on 1999-2002.<br>Vital Potential can estimate our predisposition for cancer diseases. | F |
| 2006 | 10 | 1 | NTC – thermistors -1 | AFI |
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| 2007 | 11 | 2 | MT – Introduction to Mental Technology<br>HuPoTest – general procedure, assignments of results, specimen of complete test, order and obtain your complete HuPoTest report | F |
| 2007 | 11 | 3 | TRESISTOR© - data banks of materials with thermally driven electric and magnetic properties<br>TRESISTOR© - NTC -1 - data bank of NTC thermistors | AFI |
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| 2012 | 16 | 3 | DTA study of water freezing.<br>III. New facts on daily mental field. | F |
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| 2014 | 18 | 1 | Adiabatic calorimeter as high accuracy T-calibrator | F |
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| 2014 | 18 | 3 | Eurovision song contest. II. Copenhagen, Denmark 2014<br>and some more features on social mentality. | F |
| 2014 | 18 | 4 | The 38th Congress of American-Romanian Academy (ARA) of Arts and Sciences, 23-27 July 2014, Pasadena, California, USA | F |
| 2015 | 19 | 1 | Gold versus money. 1. An overview on main financial figures of world countries. | F |
| 2015 | 19 | 2 | Gold versus money. 2. Rich, middle and poor countries. | F |
| 2015 | 19 | 3 | High Resolution Mixing Calorimetry (HRMC) redivivus.<br>1. General presentation and heat capacity measurements. | F |
| 2015 | 19 | 4 | High Resolution Mixing Calorimetry (HRMC) redivivus.<br>2. Structure developing of aqueous solutions by mixing experiments. | F |
| 2015 | 19 | 5 | High Resolution Mixing Calorimetry (HRMC) redivivus. 3. Calibration | F |
| 2015 | 19 | 6 | Evidence of human mental field by ac-electric conductivity in electrolyte solutions. 1. Bio-energy. | F |
| 2015 | 19 | 7 | High resolution mixing calorimetry redivivus.IV. Specific heat of crystalline phase of water.<br>WPA2015: International Congress of World Psychiatric Association,Primary care mental health: innovation and transdisciplinarity, Bucharest, 24-27 June 2015, ROMANIA | F |
| 2016 | 20 | 1 | Quo vadis population growth on planet Earth: more details | F |
| 2016 | 20 | 2 | Structural aspects revealed by topoenergetic view on ac electric conductivity in HCl/(water + organic solvent) | F |
| 2016 | 20 | 3 | Stability of amorphous-crystalline coupling in electrolyte aqueous solutions in relation to interaction with bio-fields | F |
| 2016 | 20 | 4 | Efficient, simple and cheap outdoor extension of exhausting system using Bernoulli and thermal convection effects applied for air forced boilers on natural gas | F |
| 2016 | 20 | 5 | Good quality home made soap in high efficient conditions | F |
| 2016 | 20 | 6 | Interaction of quartz crystals with bio-fields.<br>I. Preliminary experiments on commercial quartz oscillators. | F |
| 2016 | 20 | 7 | Interaction of quartz crystals with bio-fields.<br>II. Differential measurements on pairs of commercial quartz oscillators. | F |

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| 2016 | 20 | 8 | Interaction of quartz crystals with bio-fields.<br>III. Quartz selection and their significances. | F |
| 2016 | 20 | 9 | HuPoTest – new attempt for self-evaluation and improvement of mental state | F |
| 2017 | 21 | 1 | Interaction of quartz crystals with bio-fields.<br>IV. Rough estimation of reproducibility | F |
| 2017 | 21 | 2 | Interaction of quartz crystals with bio-fields.<br>V. Closer look on quantitative estimations | F |
| 2017 | 21 | 3 | Interaction of quartz crystals with bio-fields.<br>VI. Influence of Moon phases | F |
| 2017 | 21 | 4 | HuPoTest – 50 years of continuous research and attempts to make it as efficient self-evaluation and improving procedure for mental state<br>HuPoTest – read this first<br>Message to the organizers of the snn2016 Conference (http://snn2016.snn.ro/) and to all whom it may concern<br>HuPoTest – an efficient test and training procedure for mental and health state (Abstract for World Congress of Mental Health, New Dehli, INDIA, November 2-5, 2017)<br>Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>VII. Dielectrics with high oriented crystalline structure. | F |
| 2017 | 21 | 5 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>VIII. Dielectrics with high oriented crystalline structure.<br>HuPoTest – data base correlations revealing mental pattern. | F |
| 2017 | 21 | 6 | Upon some features of global economic structure<br>Eurovision song contest 2017 | F |
| 2017 | 21 | 7 | HuPoTest – proper training and creation of simple database in view to evaluate mental improvement<br>HuPoTest – project for the complete software available for any individual user | F |
| 2017 | 21 | 8 | Global warming facts<br>Topoenergetic structure of trees ramification | F |
| 2017 | 21 | 9 | HuPoTest – simple Matlab software for time measurements<br>HuPoTest – preliminary tests on PUT response reaction | F |
| 2018 | 22 | 1 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>IX. Measurements on 1st June 2017- 9th January 2018. | F |
| 2018 | 22 | 2 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>X. Further estimations on 1st June 2017- 9th January 2018.<br>HuPoTest – new tests on PUT response reaction<br>HuPoTest – read this first before use it (updated)<br>HuPoTest – an efficient test and training procedure for mental and health state (abstract sent to the International Congress of Royal College of Psychiatrics - 2018) | F |
| 2018 | 22 | 3 | Estimation of global warming by differential calorimetric procedure.<br>I. Experimental principles, preliminary results and their significances. | F |
| 2018 | 22 | 4 | Definition and assignment of some global uncertainties of measurements, 9th International Metrology Congress, Bordeaux, France, 18-21 October 1999, pp. 353-356.<br>HuPoTest - errors originating from software<br>HuPoTest – seven week mental training during Ortodox Easter Fasting.<br>I. New rules for more realistic and efficient measurements. | F |
| 2018 | 22 | 5 | HuPoTest – seven week mental training during Ortodox Easter Fasting.<br>II. Statistic features of particular data and their significance | F |
| 2018 | 22 | 6 | HuPoTest – seven week mental training during Ortodox Easter Fasting.<br>III. Personal mind structure and pattern during training | F |
| 2019 | 23 | 1 | HuPoTest – up to date history<br>HuPoTest – operating instructions<br>HuPoTest – significance of calculated parameters<br>HuPoTest – composite structure of mind | F |
| 2019 | 23 | 2 | Estimation of global warming by differential calorimetric procedure.<br>II. Experimental results over 2018 | F |

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| 2019 | 23 | 3 | Composite structure of human mind.<br>HuPoTest results on 5 weeks of fasting before Christmas 2018 | F |
| 2019 | 23 | 4 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>XI. Results obtained over 2018.<br>Book launch: Composite Structure of Human Mind | F |
| 2019 | 23 | 5 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>XII. New results obtained over 2018.<br>Book launch: Composite Structure of Human Mind | F |
| 2019 | 23 | 6 | Composite structure of human mind. HuPoTest results on 7 weeks of fasting before Orthodox Easter 2019<br>Book launch: Composite Structure of Human Mind | F |
| 2019 | 23 | 7 | Eurovision song contest, Tel Aviv, Israel, 18 May 2019<br>Book launch: Composite Structure of Human Mind | F |
| 2019 | 23 | 8 | HuPoTest – 4 weeks of self evaluation, training and additional instructions<br>Book launch: Composite Structure of Human Mind | F |
| 2019 | 23 | 9 | Composite human mind and composite human society<br>(43rd Congress of American Romanian Academy of Arts and Sciences, ASILOMAR Conference Grounds, Pacific Grove, CA, USA, 15-17 November 2019)<br>Book launch: Composite Structure of Human Mind | F |
| 2020 | 24 | 1 | Left-Right Bio-Balance: Calorimetric approach of human mental state<br>I. Introductory principles and experimental details.<br>Book launch: Composite Structure of Human Mind | F |
| 2020 | 24 | 2 | Composite structure of human mind.<br>HuPoTest results on 5 weeks of fasting before Christmas 2019<br>Global warming and human mentality<br>Book launch: Composite Structure of Human Mind | F |
| 2020 | 24 | 3 | Left-Right Bio-Balance: Calorimetric approach of human mental state<br>II. Results on male persons under test.<br>Book launch: Composite Structure of Human Mind | F |
| 2020 | 24 | 4 | Interaction of unpolarized capacitors with Human Mental Field and Bio-Fields.<br>XIII. Results obtained over 2019.<br>Book launch: Composite Structure of Human Mind | F |
| 2020 | 24 | 5 | Estimation of global warming by differential calorimetric procedure.<br>III. Experimental results over 2019<br>Book launch: Composite Structure of Human Mind | F |

*) F=free, AFI=ask for invoice.

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gdf.dragan@gmail.com



ERRATUM:

| VOL. | NO. | place | CORRECT |
|---|---|---|---|
| 15 | 2 | Figure 5 | P- |
| 15 | 3 | page 5, row 7 down-to-up | x = 0.2 |
| 22 | 3 | Figures 4-6 | Values of dTc and exchanged heat must be divided by 10 |
| 22 | 6 | Figure 4 | -N^2/M values are negative; See Figure 8 and comments in issue 23(3) |
| 23 | 1 | Figure 5 | |
| 23 | 1 | HuPoTest-significance of calculated parameters | (yo, Δb)<0, Δa>0: slow reaction<br>(yo, Δb)>0, Δa<0: impulsive reaction |

I encourage readers to advice me any observation.

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