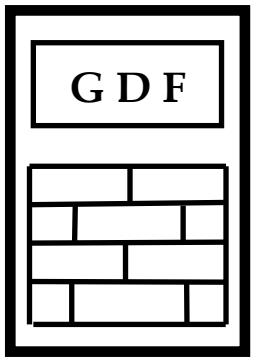
GDF DATA BANKS BULLETIN



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Content

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GDF DATABANKS BULLETIN, VOL. 25, NO. 4, 2021
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Structural aspects of temperature phase transition in PTC-thermistors. IV. Topoenergetic structure of hysteresis behavior

As it was pointed out in the previous note, structural transitions in PTC thermistors (PTC-TH) intrigued because the suspicion of the existence of an inductive element as it was already established in a series of polymers [1], water and aqueous solutions [2].But, before to directly evidence the inductive interaction between two or more specimens, it is necessary to establish in more details composite structure associated to transitions according to topoenergetic principles. In previous notes these transitions were evidenced at fixed temperatures [3] and in dynamic regime [4, 5] by heating and cooling at constant rate and measuring electric and calorimetric (DTA – differential thermal analysis) behavior of one specimen.
The purpose of the present note is to analyze in dynamic regime a series of PTC-TH in view to establish the phylogeny of associated transitions and relationships of topoenergetic parameters with other structural parameters arising from hysteresis behavior.
Unfortunately, the experimental disposition does not allow overcoming +150 ^{0}C because of the temperature sensor (LM35CZ), so only 6 specimens were analyzed (Table 1).

Table 1.

No.	manufacturer	PTC-TH manufacturer code	Tc , oC	Tm , oC	dTcm,%
1	Murata	PTFL04XX471Q2N34B0	60	66.8 ± 2	11
2	Vishay	SL03T081DB1E	80	90.6 ± 3	13
3	Murata	PTFL04BG471Q2N34B0	70	71.4 ± 2	2
4	Murata	PTFL04BF471Q2N34B0	80	80.6 ± 2	1
5	Murata	PTFL04BE471Q2N34B0	90	87.5 ± 2	-3
6	Vishay	PTCSL03T091DB1E	90	96.8 ± 3	8

Tc = transition temperature reported by manufacturer; Tm = T(max(dUout)); dTcm=100*(Tm-Tc)/Tc.

Figures 1 and 2 show the phylogeny of analyzed specimens according to the eigen values [6] θ = area and maximum (peak height) of hysteresis, respectively, and Us as the driving potential [5]. Transitions appear with positive polarity in both representations, so the further significance of LN(Ctr), LN(ctr) and CS results [6, 7] and are represented in Figures 3-6.
Figures 7-9 and 10-12 show these parameters as functions on form factor (FF) [5], for the two eigen values, respectively. These representations evidence the difference between the specimens from the two manufacturers.
CONCLUSIONS: It is important to reveal the significance and mutual correlations of these basic structural parameters as they are represented by arrows on all figures. These results will be also correlated with further results on inductive experiments. More accurate DTA/DSC analyses must be carried out in a proper commercial instrument, but adding circuitry for simultaneous electric measurements.

References

[1] G. Dragan, Amorphous-crystalline coupling in polyethylene, Rev. Roumaine Chim., 26(9, 10), 1315-1326 (1981).
[2] G. Dragan, Mental field-water interaction as evidenced by Isothermal Convection Flow Calorimetry (ICFC), GDF Databanks Bull., 18(2) 2014.
[3] G. Dragan, Structural aspects of temperature phase transition in PTC-thermistors. I. DC electric measurements, GDF Databanks Bull., 24(6) 2020.
[4] G. Dragan, Structural aspects of temperature phase transition in PTC-thermistors. II. Combined DTA and electric measurements, GDF Databanks Bull., 25(1) 2021.
[5] G. Dragan, Structural aspects of temperature phase transition in PTC-thermistors. III. Several features of hysteresis behavior, GDF Databanks Bull., 25(3) 2021.
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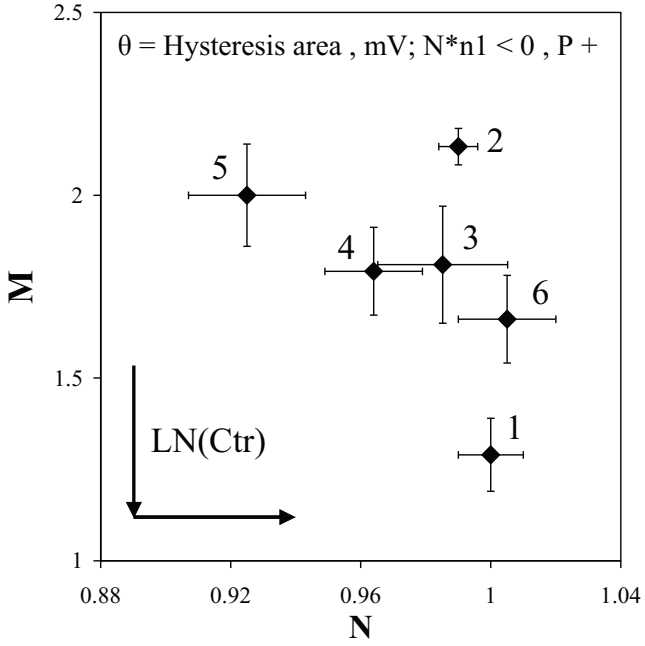

Figure 1.

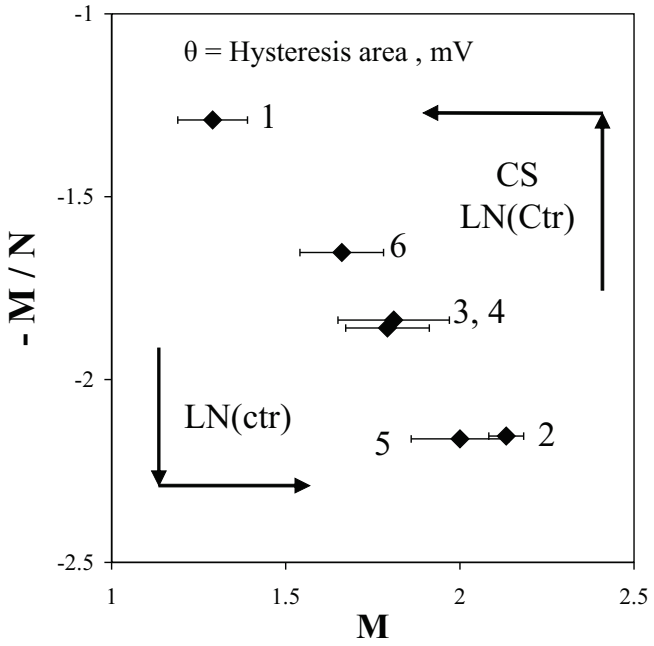

Figure 3.

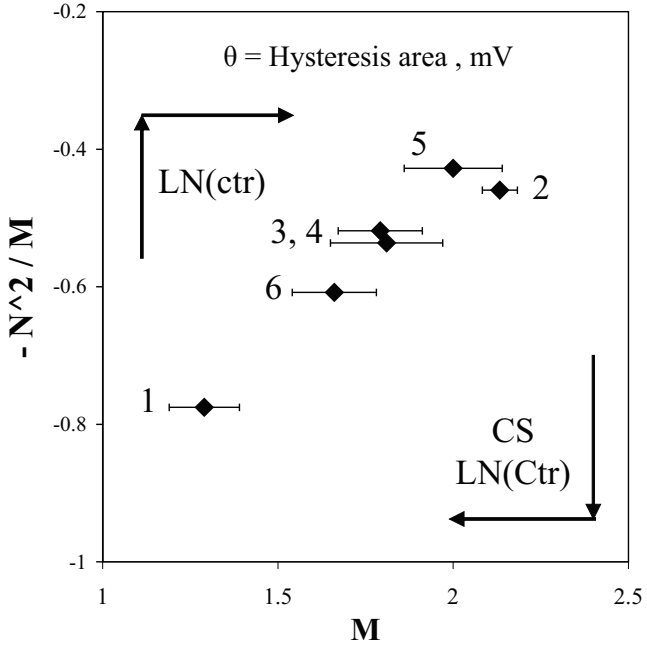

Figure 4.

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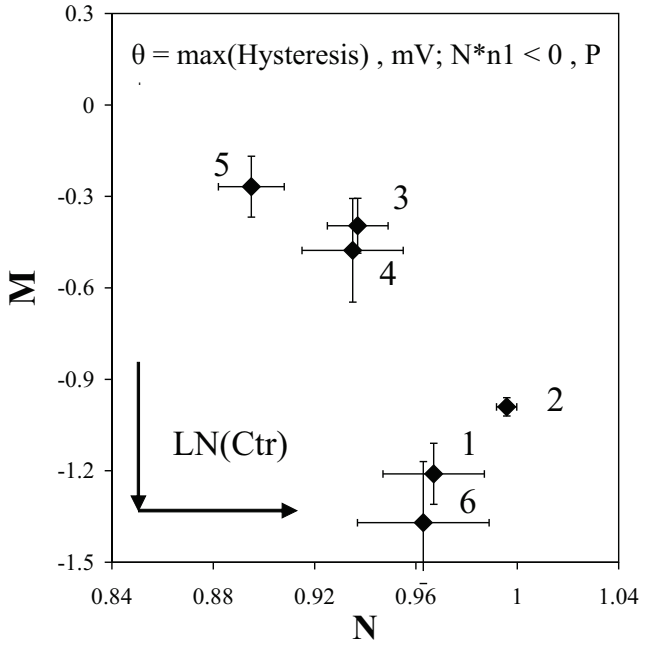

Figure 2.

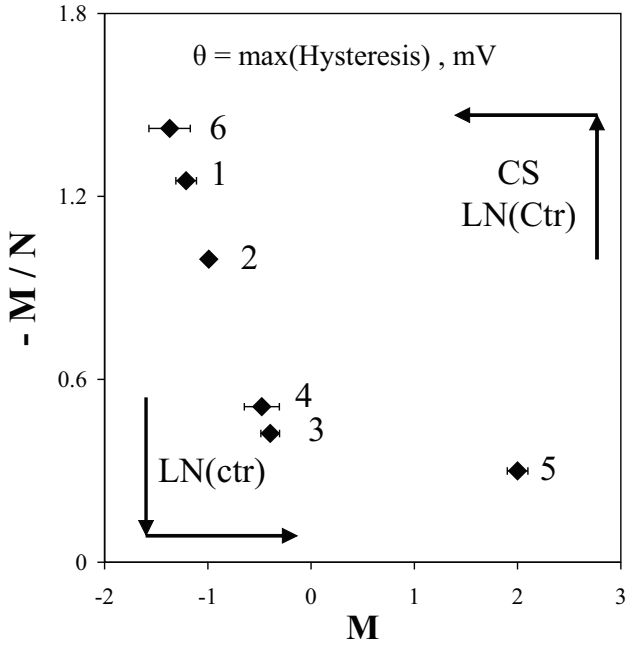

Figure 5.

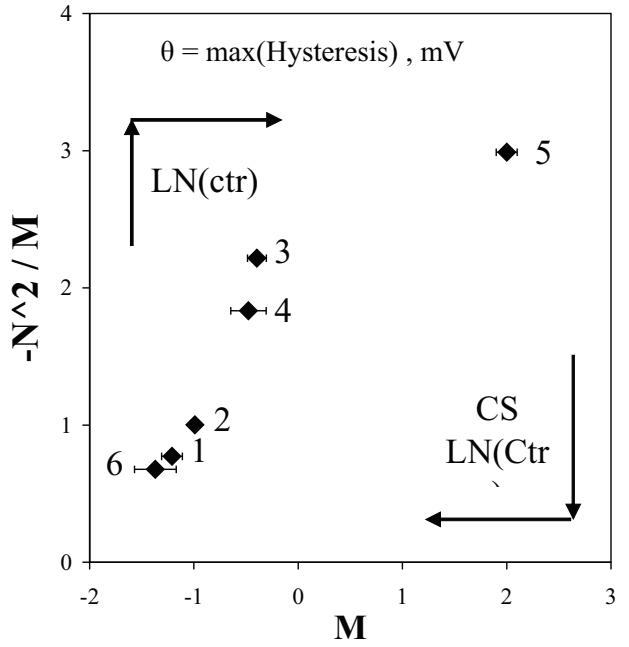

Figure 6.

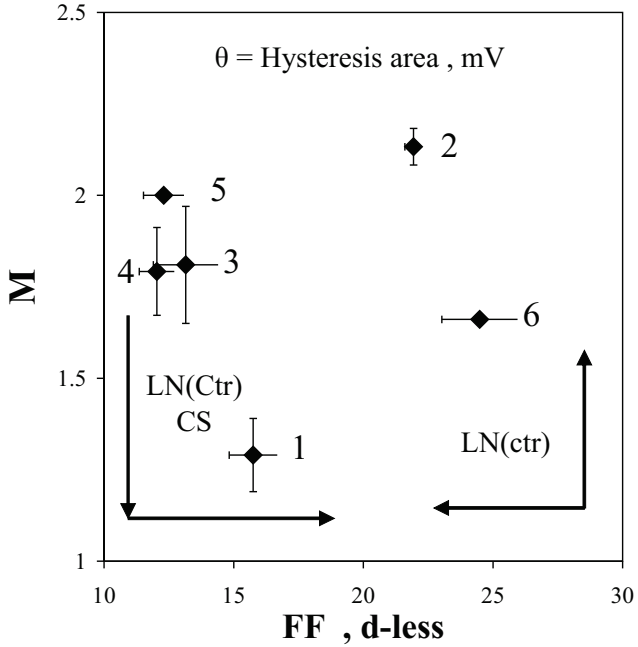

Figure 7.

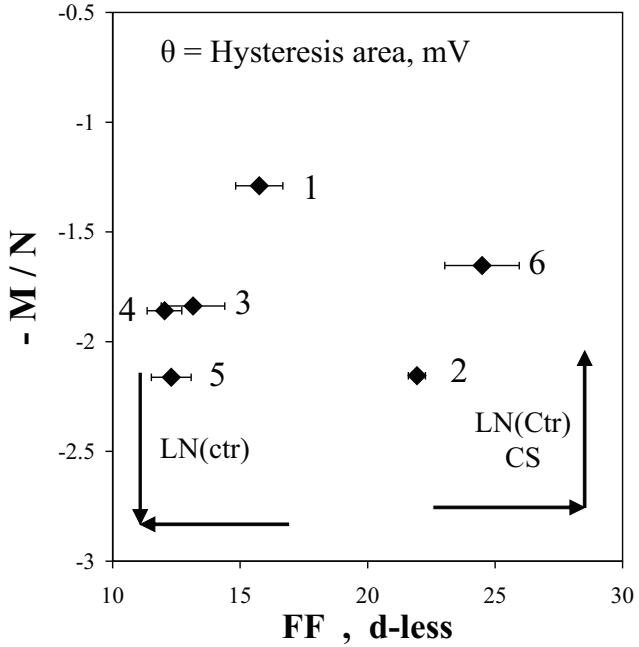

Figure 8.

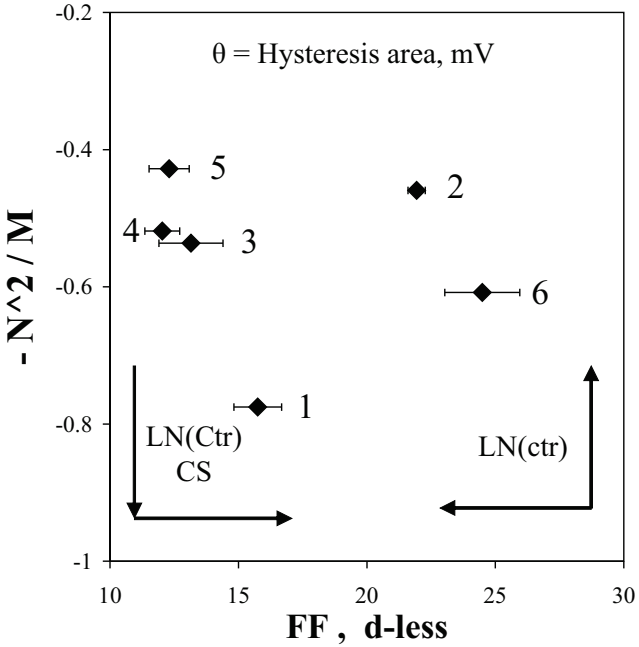

Figure 9.

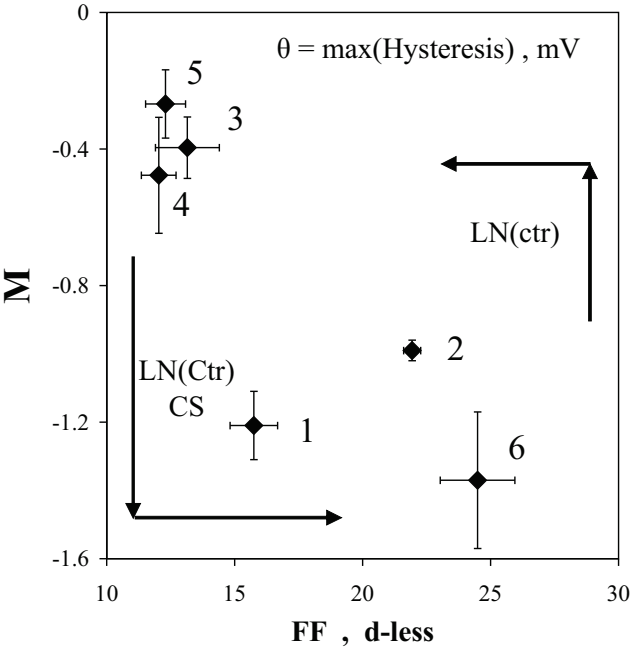

Figure 10.

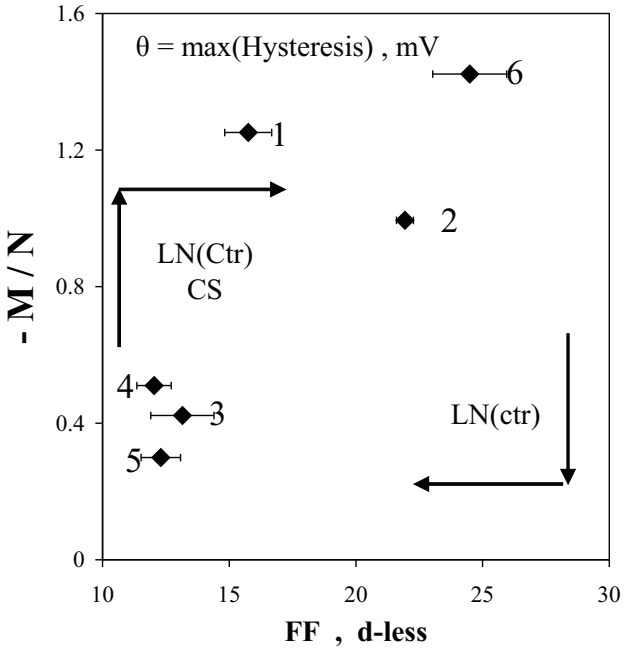

Figure 11.

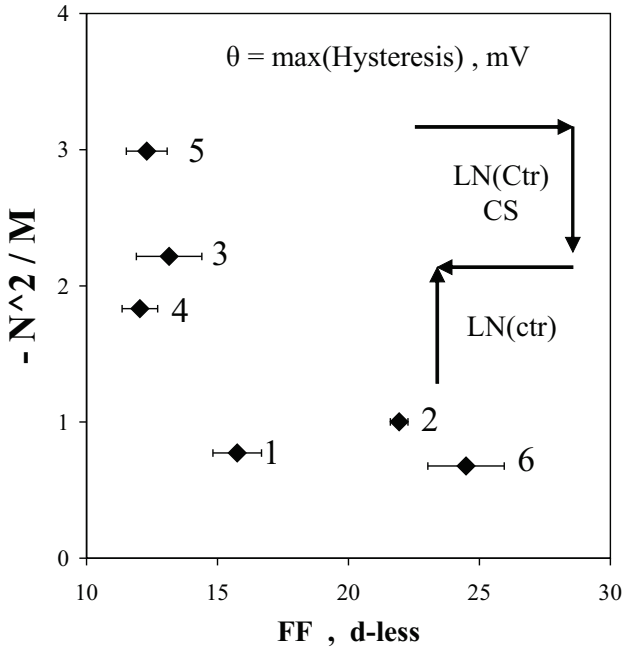

Figure 12.

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https://www.lap-publishing.com

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

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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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Previous issues of GDF DATABANKS BULLETIN

Year	VOL	NO	Content (titles)	$*)
1997	1	1	Editorial: Databanks – the compulsory language. LOGKOW – a Databank of evaluated octanol-water partition coefficients (James Sangster). Solubility behavior introducing topoenergetic working principles. Comments on 1-octanol-water partition of several n-alkane related series.	F
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); Behavior in vapor-liquid equilibria (VLE): I. Structural aspects; Behavior in vapor-liquid equilibria: II. Several structures in databanks; 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) DIFFUTOR: Databanks of diffusion kinetics. VAPORSAT: Databanks of vapor-liquid separation kinetics.	F
1999	3	2	Discussions on Applied Metrology	AFI
2000	4	1	Editorial: Laboratory accreditation and inter-laboratory comparisons (Virgil Badescu) Doctoral Theses – important data banks. GDF intends to open new series of experiments on thermo-physical properties. Some comments on uncertainty: global budget and DFT analysis. Events: The 9th International Metrology Congress, Bordeaux, France, 18-21 October 1999.	F
2000	4	2	Measurement and Calibration.	AFI
2001	5	1	Editorial: Metrology ensures moral and technological progress. Topoenergetic aspects of amorphous-crystalline coupling. I. Composite behavior of water and aqueous solutions (paper presented at nanotubes and Nanostructures 2001, LNF, Frascati, Rome Italy, 17-27 October 2001). 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. Visco-Dens Calorimeter: general features on density and viscosity measurements. New vision on the calibration of thermometers: ISOCALT® 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. MOSATOR: topoenergetic databanks of one component molten salts; thermally driven viscosity and electrical conductance.	F
2002	6	3	Editorial: Quo vadis Earth experiment? ISOCALT® : Report on metrological tests	F
2003	7	1	Editorial: Time – an instrument of the selfish thinking. 1st NOTE: Homoeopathy: upon some efficient physical tests revealing structural modifications of water and aqueous solutions. I. Mixing experiments.	F
2004	8	1	Metrological verification and calibration of thermometers using thermostats type ISOCALT® 21/70/2. 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. Physics and Homoeopathy: some physical requirements for homoeopathic	F

			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. Upon some aspects of temperature measurements. (12th International Metrology Congress, 20-23 June 2005, Lyon, France)	F
2005	9	2	A new technique for temperature measurement and calibration. National Society of Measurements (NSM). 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. Universal representation of Cancer Diseases. 2. UK cancer registrations on 1999-2002. Vital Potential can estimate our predisposition for cancer diseases.	F
2006	10	1	NTC – thermistors -1	AFI
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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. HuPoTest - errors originating from software HuPoTest – seven week mental training during Ortodox Easter Fasting. I. New rules for more realistic and efficient measurements.	F
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2021	25	2	Covid-19 pandemic: I. First wave Book launch: Composite Structure of Human Mind	F
2021	25	3	Structural aspects of temperature phase transition in PTC-thermistors. III. Several features of hysteresis behavior Book launch: Composite Structure of Human Mind	F

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

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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 (yo, Δb)>0, Δa<0: impulsive reaction

I encourage readers to advice me any observation.

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