

IN MEMORIAM: **CONSTANTIN ANDRONACHE**

ETHICS AND INTEGRITY IN ACADEMIC EDUCATION AND RESEARCH BASED ON INTER-, TRANS-, CROS- AND MULTIDISCIPLINARITY

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Abstract. *Life does not involve that we can choose our world or the reality in which we have lived, live, or will live, but on the contrary, we are the ones chosen and devoured by it. We can only choose some questions we have asked, ask, or will ask our world, mentioned that the answers were, are, and will be contained, in the ecclesiastical meaning, long before our appearance in the surrounding reality and found in the universe that surrounds us. Even in a perfectly reasonable world, when two observers have talked, talk or will talk to each other, their described realities remain inseparable. Thus, a continuum of a multiverse that can be perceived simultaneously as non-entropic and multidisciplinary is reconfigured. To simplify the meaning and facilitate the world's perceptions, we could state that if two people witness the disappearance of a third, and one of them pretends that he cannot feel the impact of this collapse and imagine its consequences, then he will certainly need the consciousness of his death, and not a hearing aid or contact lenses. Since that moment, time will run out, is running out or ran out in the opposite sense, from future to past, passing through the translucent present to non-existence, exclusively in memoriam, to the clear demarcation of the map limit of that man's disappearance. Similar to a forest, human species become poorer because of each fallen tree or every human loss, poorer in the future, but at the same time richer in the past and traditions, thanks to the disappeared person's questions as a testimony of that unique reality that made possible his birth.*

Keywords: *in memoriam, ethics, morality, integrity, academic education, research, inter-, trans-, cros- and multidisciplinary, Constantin Andronache.*

1. INTRODUCTION

A team of physicists including Eric Cavalcanti in recent research redefined the scientific paradox in the pages of the journal *Nature Physics* and simultaneously in everybody's mind, based on three major assumptions about the world: "The first assumption is that when a measurement is made, the observed outcome is a real, single event in the world. This assumption rules out, for example, the idea that the universe can split, with different outcomes being observed in different parallel universes. The second assumption is that experimental settings can be freely chosen, allowing us to perform randomized trials, and the third assumption means that once such a free choice is made, its influence cannot spread out into the universe faster than light" [1]. Someone can use these creative ideas to write a new definition for the death paradox in only a few words. I did this myself to offer you the image of Constantin Andronache, my forever friend and one of the most profound researchers in EDEN's family, better known as

Costin. The significant assumptions remain the following: i) non-similarity between all particles becomes non-similarity between all members of EDEN's family; ii) all the experimental settings that were freely chosen are limited to EDEN's family multidisciplinary and its members' passions. iii) from EDEN I to EDEN XI, the impossibility of splitting the universe, identified as reunions of particles, generates a bigger team of friends, researchers, and co-authors (in any order of appreciation can be).

2. WHO IS CONSTANTIN ANDRONACHE?

These three fundamental limits are the theoretical conditions for the brief presentation of such an authentic researcher's life as our EDEN's friend, Constantin Andronache, equivalent to the well-known "Wigner's friend" paradox. Once the consciousness of a second observer of the first observer is involved, the state of quantum inseparability collapses, and any of our friend's observation can be the final one. Unfortunately, it was not Eugene Paul Wigner who was wrong. But only we and our friend's life collapsed when neither one of us nor the experiment anticipated this evolution, hidden under an apparent understanding of all levels of observers in a scenario frequently called "life". The life of Constantin Andronache, based on well-separated quantum particles known as life moments, combined with friends capturing some of the most important life moments or so-called "quantum observers", becomes finally unbelievable, during the decent behavior on an exceptional itinerary underlined by his spiritual wave amplified in education and scientific research. But our lives are not always just quantum theory applied to observers, and some moments violate the limits and predictions. Many of these life moments are comparable but often much more important than any physical experiment.

Thus, all the next slides are a pretty convincing test of whether quantum theory fails for all of us, the so-called observers of EDEN, or whether one of the three major limits could be a false one in our lives. The beautiful story describing life's moments of Constantin Andronache offers multiple flashes of light. But it is too long for these papers and their pages and much more intense compared to the other lives. What I really didn't realize until I started writing this "*In memoriam*" is that his decency in life may also help all of us, either EDEN's members or not, to answer to some philosophical questions

about friendship's nature, simplicity of our physical world or the infinite as a continuous dimension of our mental world and its strong relationship with some beautiful minds. In Costin's life or his unique project, the most significant fact remains a long term planned row of wonders (Slide no. 1). His

attitude generates an extension of the classical paradox and makes it visible faster than light: sometimes, the observer himself can be observed and even changed entirely by such an intense phenomenon as life is.

EDEN XI - 2020

IN MEMORIAM: CONSTANTIN ANDRONACHE

"Constantin Andronache was the son of Constantin and Dumitra Andronache and he was born on February 5th, 1957. He passed away on the morning of February 10th, 2020. Constantin Andronache was raised and educated in Romania. In 1990, he came to the US to continue his graduate education at Georgia Institute of Technology, Atlanta, where he obtained a Ph.D. in Atmospheric Sciences. After graduation, Constantin worked as a research scientist, and he has been employed by Boston College since 2001. His professional interests focused on the effects of clouds and aerosols on the climate and environment, and computer modeling of these phenomena. He published numerous research papers in the Journal of Geophysical Research and shared his passion for science and its use for solving the natural world problems with his students." (Excerpt from his Obituary available online at: <http://hosting-6792.tributes.com/obituary/show/Constantin-Andronache-108150929>)

Slide no. 1. An excerpt from Constantin Andronache's obituary, available online at: <http://hosting-6792.tributes.com/obituary/show/Constantin-Andronache-108150929>

Since Constantin Andronache became our friend and colleague at Bratianu College from Pitesti, he amazed all of us with his quality of a passionate reader, doubled by that of a charming storyteller. Above all, in his personality, we all perceived the future existence of a mature, precise, rigorous researcher, a logical, but also an incandescent and a philosophical mind, erupting from all his dialogues (Slide no. 2). An excerpt from one of his emails from 2006 can prove even today the charm of his narratives: "The story of the hurricanes is spicier and its charm has a lot to do with the history of meteorology, feminism, American culture and

Hollywood. I will not go further into many details, but before 1950 there were fewer women in the weather service and it seems that men were feeling alone. Therefore, they gave women's names to hurricanes, somehow instinctively associating the character of these tropical storms with inconsistent, unpredictable behavior, etc. (in fact, the method was used for the first time by an Australian). After making a lot of noise, the feminist movement managed to "convince" the world that this is a form of discrimination and then they decided to give men's names to hurricanes. And thus, storms are named after women and men, alternatively".

CONSTANTIN ANDRONACHE

From: "candro2000@aol.com" <candro2000@aol.com>
To: "gsavoIU@yahoo.com" <gsavoIU@yahoo.com>
Sent: Wednesday, September 6, 2006, 07:09:58 PM GMT+3
Subject: Re: Asa da te recunosc... amuzant



Despre educație...

O bună educație este o poartă spre libertate și, în principiu, ar trebui să dezvolte ceea ce există potențial în fiecare individ... Mă tem însă că s-a pierdut acel ideal de educație europeană sau, cel puțin, acel ideal nu mai este cultivat la fel sau nu mai este accesibil multora...

About education ...

A good education is a door to freedom and, in principle, it should develop what is potential in every human individual. But, I am afraid of the idea of a lost ideal of European education or, at least, that ideal is no longer considered in the same way or is no longer accessible to many ...

Slide no. 2. An excerpt from one message of Constantin Andronache's e-mail (September, 6, 2006)

“Another explanation would be that women's names were no longer enough and then they had to expand the list, multiplying names with undesirable nicknames or cognomens as in Roman Empire. Moreover, everything that happens here in USA is advertized in the Hollywood way, to create an effect as dramatic and realistic as possible. In this situation, people's names become much easier to communicate or memorize. When people hear about Hurricane Katrina, we all know what we really mean. If I tried to say “Hurricane category 5, on August 29, 2005, in the New Orleans area,” it

would be much more unattractive and so difficult to imagine.” Now, you can try now to compare his humorous excerpt with his final scientific conclusion, written in Slide no. 3, as a useful general remarque to a future book. You will find out the real difference between his cultural and scientific ideas and conceptions, as a matter of delimitation with a lot of decency, so specific to sober personalities, defined by the invisible balance between a glamorous spiritual dialogue and a rigorous academic introspection characteristic to a long-term approach.


ABOUT PASSION OR HURRICANES ...

From: candro2000@aol.com <candro2000@aol.com>

To: "gsavoIU@yahoo.com" gsavoIU@yahoo.com

Sent: Thursday, September 7, 2006, 06:10:23 PM GMT+3

Subject: Re: Numele uraganelor - update



Toate uraganele primesc un nume. De ce asta? Pentru că ne ajută să identificăm furtunile și să le urmărim în timp ce se deplasează peste ocean. Amintiți-vă că pot exista mai multe uragane la un moment dat și, fără a le denumi, le-am putea confunda și nu am mai putea atunci identifica cu precizie la ce furtună facem referire. Timp de sute de ani, uraganele din Indiile de Vest au fost numite după ziua sfântului în care acestea au avut loc. Un meteorolog australian a început să dea nume de femei furtunilor tropicale înainte de sfârșitul secolului al XIX-lea. În 1953, US National Weather Service a folosit pentru prima oară nume de femei pentru furtuni. În 1979, erau folosite atât nume de femei, cât și de bărbați. Se selectează un nume pentru fiecare literă a alfabetului, exceptând literele Q, U și Z ...

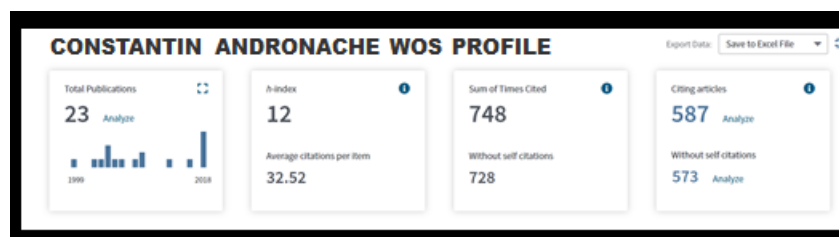
All hurricanes are given names. Why is that? To help us identify storms and track them as they move across the ocean. Remember that there could be several hurricanes at a time and, without naming them, we could get confused, and we could no longer precisely identify to what storm we refer. For hundreds of years, hurricanes in the West Indies were named after a particular saint's day when they occurred. An Australian meteorologist began giving women's names to tropical storms before the end of the 19th century. In 1953, the U.S. National Weather Service began using female names for storms. In 1979, both women and men's names were used. One name for each letter of the alphabet is selected, except for Q, U, and Z ...

Slide no. 3. An excerpt from a message analysing a future scientific book (September, 7, 2006)

In his evolution, the multiple difficulties of the reconciliation of the researchers' isolation with the inter-, trans-, cross-, and multidisciplinary expansiveness of any academic observer had transformed Andronache Constantin and his entire life, following such a profound scenario, but enough to demonstrate a major contradiction between the three hypotheses of the physical reality of Cavalcanti's paradox. Andronache Constantin was an excellent researcher (C-4431-2011) in atmospheric sciences (17 articles) and environmental sciences (5 articles). His virtual

treemap, made instantly by Web of Science (WOS) can prove this, analysing his incredible papers and books [2, 3, 4]. Based on the decency of publishing *non multa, sed multum*, this specific scientific approach defined him as a genuine physicist and exquisite researcher.

Along with his research work, he focused on teaching seminars and courses to students, especially to graduate students, who considered him a skilled and meticulous coordinator, and even a mentor.



Source: <https://apps-webofknowledge-com.am.e-nformation.ro/>

Fig. no. 1. Constantin Andronache's H index (Web of Science ResearcherID C-4431-2011)

At the end of 2019, according to Web of Science (Clarivate Analytics), Constantin Andronache had a Hirsch index score of 12 (Fig. no. 1), in Scopus = 13, Research Gate = 16, and Google Scholar = 14. In 2017 and 2018, he published as editor two significant books in prestigious publishing houses as Springer: *Remote Sensing of Clouds and Precipitation*, and Elsevier: *Mixed - Phase Clouds: Observations and Modeling* [2, 3] (Slide no. 4). His most cited article, written as a coauthor in 2008,

exceeded 200 WoS' mentions [5]. Constantin Andronache remains one of the initiators and contributors to the book dedicated to Econophysics [6]. He always believed that an alliance between economists and physicists could generate a more accessible modeled and more predictable economic world. He also considered that such a realized project could be a tribute to a long friendship embodied in joint articles [7, 8], as EDEN's family was, and I hope it still is.

A HAPPY BALANCE FOR A MATURE RESEARCHER AS EDITOR



Slide no. 4. A happy balance of two major scientific books of Constantin Andronache as editor

During his doctoral studies (1990-1996), graduated from Georgia Institute of Technology, Constantin Andronache developed numerical models to evaluate aerosols' impact on microphysical and radiative properties of clouds, with applications to contrails, air pollution, background tropospheric chemistry, and cloud-resolving models. He was involved in several important research projects as GTE (Global Tropospheric Experiment), AEFAP (Aerosol Emission and Formation in Aircraft Plumes), AGAA (Aviation and the Global Atmosphere), AEA Review (Atmospheric Effects of Aviation: A Review of NASA's Subsonic Assessment Project), SUCCESS (Subsonic aircraft: Contrail & Clouds Effects Special Study), SOS (Southern Oxidants Study). As a visiting scientist at Princeton University (1997 – 1999), he developed numerical models to evaluate the impact of aerosols on the microphysical and radiative properties of clouds, with applications to cloud-resolving models, aerosol scavenging by clouds and precipitation, and climate change contributing to research programs

as INDOEX (Indian Ocean Experiment) or TOGA/COARE (Tropical Ocean Global Atmospheres/ Coupled Ocean-Atmosphere Response Experiment) [6]. With such a complex research experience in atmospheric sciences, climate processes, physics, applied mathematics, and computer modeling, doubled by his permanent interest in teaching, he became a senior researcher at Boston College. His activity continued focusing on aerosols-clouds-climate interactions & climate predictability in several American and international research projects: CRYSTAL-FACE (Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment), TCSP (NASA Tropical Cloud Systems and Processes), etc. and developed a model for pollution studies for assessing the role of aerosols in the climate system. But beyond his “nimbus” or aura of a respected specialist, Constantin Andronache kept his original thoughts and the passion of a philosopher in the most diverse life situations, dialogues, or comments (Slide no. 5).

TO BE A SPECIALIST AS ELIADE OR A PHILOSOPHER AS CIORAN?

From: "candro2000@aol.com" <candro2000@aol.com>
To: "gsavoiu@yahoo.com" <gsavoiu@yahoo.com>
Sent: Monday, March 19, 2007, 01:24:46 AM GMT+2
Subject: Re: work-shop si altele

Emil Cioran? Da, este remarcabil, am citit multe de el si despre el dar nu *Caietele*. E foarte popular in USA, cred ca este cel mai cunoscut autor roman aici, chiar mai cunoscut decat Mircea Eliade, care trece drept un veritabil specialist si este citit mai mult de studentii din domeniul istoriei religiilor. Dar Emil Cioran, el trece drept filosof... si din cauza asta are o audienta mult mai larga, mai ales la tineri, care sunt satui de conventionalism...



Emil Cioran? Yes, he's remarkable. I read a lot written by or about him but not the *Notebooks*. He is very popular in the USA, and I think he is the most famous Romanian author here, even better known than Mircea Eliade, who is considered a real specialist and is read more by students in the field of religion's history. Speaking about Emil Cioran, he passes as a philosopher ... and because of this, he has a much wider audience, especially among young people, who are fed up with conventionalism...

Slide no. 5. Enigma: To be a specialist as Eliade or a philosopher as Cioran?

There is not a similarity between two particles, but one could be found in multiple spiritual connections between two members of the EDEN's family and two peasants in a photo of the campaigns of the Romanian interwar sociological school (Slide no.

6). Time passes over all of us or even better written through all of us, but we must try to remember that people's essence doesn't change profoundly from their youth years until the old age!

TIME PASSES THROUGH ALL OF US, BUT PEOPLE'S ESSENCE DOESN'T CHANGE PROFOUNDLY!



Slide no. 6. A similarity between two particles or between two members of the EDEN's family and two peasants in a photo of the campaigns of the Romanian interwar sociological school.

The EDEN's family's meeting point is somewhere in the past, in an old high school friendship between a future and prestigious physicist and a future statistician disguised as an economist [7, 8].

From the two friends' dialogue emerged ethical ideas about the economics of a physicist:
"The crisis is essentially caused by greed and incompetence (serious errors in the financial system). First, it generally transfers money from the

ordinary world (billions of people worldwide) to the very rich (maybe a few million people in total).

Second, there is a lack of financial risk control mechanisms (banks have been over-indebted, for example, but there are many others).”

ECONOPHYSICS – A MEETING POINT FOR EDEN

From: "candro2000@aol.com" <candro2000@aol.com>
To: "gsavoiu@yahoo.com" <gsavoiu@yahoo.com>
Sent: Saturday, January 5, 2008, 02:57:23 AM GMT+2
Subject: Alianta dintre fizicieni si econmisti



Nu avem timp sa pornim de la mecanica statistica, sau de la modele fizice... Mai degraba, gandeste-te ca fizicienii au pornit de la niste date economice si au folosit metode statistice, unele sugerate de analogii cu care se tratau sisteme fizice si au gasit niste regularitati ori legi, care poate nu fusesera depistate de economisti. Mai toti fizicienii care se ocupa de asa ceva sunt teoreticieni si si incearca, indiferent de domeniul unde rezolva problema, sa gaseasca solutii generale...

We don't have time to start from statistical mechanics or physical models... Rather, think that physicists began with some economic data and they used statistical methods, some of them suggested by analogies to physical systems' applications, and they found some regularities or laws, which may not have been detected by economists. Most physicists who deal with such a thing are theorists and they try to find general solutions, regardless of the field where they solve the problem ...

Slide no. 7. The beginning of a workshop, a creative EDEN's family and a multidisciplinary review ESMSJ

Constantin Andronache knew so well what really means to have a scientific vision. Thus, he wrote me in a message on March 15, 2009: “EDEN could become an International Conference on Econophysics or Advances in Econophysics, but the “exploratory” stage must be overcome, and EDEN should be focused on statistical methods in Economics, risk analysis, mathematical methods in Finance, time series analysis, specific methods in Econophysics, and a forecast of financial markets.”

3. SOME FINAL REMARKS

In 2019, Constantin wrote me a strange message about our split and uncertain spirit. History is not easy to understand, and in general, it is manipulated not by historians but by others who interpret it according to their interests. History is also a complicated topic, far from the methods of the exact sciences. Constantin Noica wrote in his first book that we first have the geometric spirit, the one that leads to simple principles, rules, logic, a mathematical approach to the world, and only afterward we have the historical nature to live and think this chaotic, but inevitable becoming evolution or involution. The reality is that we have both, you can't escape history, but you can take refuge as much as you can in the geometric spirit if that suits you.

To paraphrase Cavalcanti [1], when a tree falls in a millennial forest, without any observers around it, according to the vast majority of physicists' opinion, the specializing in the quantum domain of

reality will not make noise. Constantin Andronache's disappearance respects all the three appearance hypotheses mentioned at the beginning of this paper:

(1) eight months later than the fact itself, we hear and perceive the noise of Constantin Andronache's disappearance as observers of such a sad event, which is only one really happening for us now;

(2) a lot of moments during Constantin Andronache's life show he could make free or at least random choices from a statistical point of view;

(3) many choices he made in a particular place instantly influenced many events in the EDEN's family that occurred remotely, as physicists say, following the principle of "location" or position.

Discovering his disappearance, we change our perception of reality. If the quantum theory does not provide definitive answers to the question: “where is that particle that bears his name in the universe at this time?” we find out instead that the maximum probability to be located as an observer remains in the EDEN's family, in a particular state of “quantum inseparability.” If Niels Bohr was right and objects' physical properties do not exist before their measurement, Constantin Andronache's life collapsed for the EDEN's family's observers only right now, after eight months.

As Eugene Paul Wigner argued, the equations of quantum mechanics tell us that the EDEN's family and Constantin Andronache are in a relationship of the observed observer in turn, enter a state of

inseparability with the particles they observe, with everyone else around, which can induce the paradox of an objective collapse. Albert Einstein also solved this by taking the contradiction of the place and space of disappearance but keeping as absolute truth the disappearance or event itself. However, relational quantum mechanics or interpretation by accepting parallel universes' existence leaves one chance to the disappearance of Constantin Andronache, who may not be a reality for all of us, other members of the EDEN's family, but only to remain a Christian reference in eternity...

Costin's serenity and discretion of such a life spent and described in signs similar to the Tibetan alphabet remain unique and paradoxical, as if he would have followed the thought in one of Ralph Waldo Emerson's essays: "To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment."

Costin's serenity and discretion of such a life spent and described in signs similar to the Tibetan alphabet remain unique and paradoxical, as if he would have followed the thought in one of Ralph Waldo Emerson's essays: "To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment."

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I acknowledge Daniela Andronache's real efforts of reading the article, modifying Constantin's usual expressions and comments, translating properly some phrases, offering the necessary photos and other important contributions. Without all her substantial help, this IN MEMORIAM couldn't have been published. Just like Constantin, who

explained me the first major aspects of ethics and integrity in scientific research, so did Daniela, she helped me discover the decency of her apparent "anonymity" and the secret of Constantin's equilibrium.

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