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1. E. Stefanescu (2014), The relativistic dynamics as a quantum effect, Journal of Basic  
and Applied Research International 1, 13-23.  
http://www.ikpress.org/abstract.php?iid=432&id=42&aid=3576#.VLTTBSvuizh .  
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coherent electromagnetic energy, Progress in Quantum Electronics 34, 349-408.  
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3. LONGITUDINAL QUANTUM HEAT CONVERTER, Inventors: Eliade Stefanescu  
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4. TRANSVERSAL QUANTUM HEAT CONVERTER, Inventors: Eliade Stefanescu  
and Lucien Eugene Cornescu, US 20100019618 (US Patent Office, Jan. 28, 2010),  
http://www.freepatentsonline.com/y2010/0019618.html .  
5. QUANTUM INJECTION SYSTEM, Inventors: Eliade Stefanescu and Lucien  
Eugene Cornescu, US 20090007951 (US Patent Office, Jan. 08, 2009),  
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6. E. Stefanescu, W. Scheid, and A. Sandulescu, Non-Markovian master equation for a  
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tunneling with dissipation through a fission-like barrier, J. Phys. G: Nucl.Part.Phys.  
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16. A. Isar, A. Sandulescu, H. Scutaru, E. Stefanescu and W. Scheid, Open Quantum  
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Level Atom with a Single Mode of the Electromagnetic Field, Physica A 161 (1989)  
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Conversion into Usable Energy, Bentham Science Publishers,  
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2. Eliade Stefanescu (2012), Quantum Injection Dots In: Fingerprints in the Optical and  
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http://www.intechopen.com/profiles/105272/Eliade-Stefanescu  
3. E. Stefanescu (2000), Dissipative Systems (in Romanian), The Publishing House of  
the Romanian Academy (Bucharest).  
4. P. Sterian, I. M. Popescu, E. Stefanescu (1988), Optical Bistability, New Dimensions  
of the Scientific and Technical Revolution (in Romanian), Scientific and  
Encyclopedic Publishing House (Bucharest).  
TECHNOLOGICAL DEVELOPMENTS: semiconductor devices and characterization  
equipment – high power, high frequency, low noise, rapid commutation, automation.  
SELECTED RESULTS:  
1. Unitary relativistic quantum theory [1].  
2. Physical principle for inducing order in nature, and semiconductor device for  
converting the environmental heat into usable (electric, electromagnetic) energy  
[2-7].  
3. Quantum master equation for a system of Fermions interacting with an  
electromagnetic field, with analytic coefficients describing transitions stimulated  
by thermal fluctuations of environmental Fermions, and the non-Markovian  
dynamics induced by these fluctuations [2, 6].  
4. Quantum master equation of a system of Fermions with explicit microscopic  
coefficients for the coupling to a complex dissipative environment including  
Fermions, Bosons and a free electromagnetic field [2, 6, 9-11].  
5. Quantum master equation with explicit microscopic coefficients for a harmonic  
oscillator in a free electromagnetic field [8].  
6. Expressions of Lindblad's axiomatic coefficients as functions of the environment  
operators [12, 14].  
7. More or less at the same time with other authors, but independently on these  
authors, I found that dissipation increases the penetrability of a potential  
barrier [51, 13, 15, 17], in contradiction with what was believed before, namely  
that dissipation suppresses the tunneling process.  
8. The amplification of a coherent electromagnetic beam by coupling through  
environment of the population with the polarization [18].  
EXPERIENCE:  
Senior Scientist I (July 2000 - March 2004)  
Employer Name: National Institute of Physics and Nuclear Engineering "Horia Hulubei"  
Department: Department of Theoretical Physics  
Sector: Academic  
Responsibilities: Basic research (open quantum systems).  
Senior Scientist I (December 1998 - June 2000)  
· Employer Name: Institute of Optoelectronics  
· Department: Optoelectronic Devices  
· Sector: Academic  
5  
· Responsibilities: Basic research (open quantum systems).  
Senior Scientist I (January 1997 - November 1998)  
· Employer Name: National Institute for Research and Development in Microtechnologies (former  
Reseach Institute for Electronic Components)  
· Department: Department of Nanotechnology  
· Sector: Academic  
· Responsibilities: Basic research (open quantum systems).  
Professor (October 1995 - June 2000)  
· Employer Name: Polytechnic University of Bucharest  
· Department: Photonics  
· Sector: Academic  
· Responsibilities: Teaching a course of lectures entitled "Dissipative Systems".  
Senior Scientist II (August 1990 - December 1996)  
· Employer Name: Research Institute for Electronic Components  
· Department: Reliability Department  
· Sector: Industry  
· Responsibilities: Basic research (open quantum systems).  
Senior Scientist III (March 1986 - July 1990)  
· Employer Name: Research Institute for Electronic Components  
· Department: Reliability Department  
· Sector: Industry  
· Responsibilities: Non-contact characterization of silicon wafers. Basic research in theoretical physics  
- open quantum systems.  
Senior Scientist III (January 1979 - March 1986)  
· Employer Name: Research Institute for Electronic Components  
· Department: Division of Discrete Semiconductor Devices  
· Sector: Industry  
· Responsibilities: Research and development of facilities for the dynamic characterization of high  
frequency, high power transistors; rapid commutation, high power transistors; automation systems with  
high immunity to electromagnetic perturbations. Basic research of devices for optical communications.  
Scientist (certified) (January 1976 - December 1978)  
· Employer Name: Research Institute for Electronic Components  
· Department: Division of Discrete Semiconductor Devices  
· Sector: Industry  
· Responsibilities: Research and development of facilities for the dynamic characterization of high  
frequency, high power transistors; dynamic characterization of rapid commutation, high power  
transistors.  
Researcher (October 1973 - December 1975)  
· Employer Name: Research Institute for Electronic Components  
· Department: Rating Department of Semiconductor Devices  
· Sector: Industry  
· Responsibilities: Head of the research and development group for the characterization of the high  
power devices.  
Researcher (November 1972 - September 1973)  
· Employer Name: Research Institute for Electronic Components  
· Department: Rating Department of Electronics Semiconductor Devices  
· Sector: Industry  
· Responsibilities: Research and development of electronic systems for measuring the blocking time toff  
of high power thyristors.  
Diplomat Engineer (August 1970 - November 1972)  
· Employer Name: Mounting Chemical Equipment Company, Bucharest  
· Department: Development Department  
· Sector: Industry  
· Responsibilities: Development of defectoscopy techniques with radioactive isotopes.  
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OTHER PUBLICATIONS:  
19. Eliade Stefanescu, Taking energy from environment, Annals of the Academy of  
Romanian Scientists, Physics Series, 1 (2009) 7-32.  
20. Eliade Stefanescu and Aureliu-Emil Sandulescu, Master equation of the matter-field  
dynamics with energy dissipation, Annals of the Academy of Romanian Scientists,  
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21. Eliade Stefanescu and Aurel Sandulescu, Dissipative dynamics of a system of  
Fermions, Rom. J. Phys. 52 (2007) 193-215.  
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system of electrons tunneling in a micro-cavity, Rom. J. Phys. 50 (2005) 629-638.  
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tunneling electrons, Rom. J. Phys. 49 (2004) 199-207.  
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34. E. Stefanescu, I. M. Popescu, and P. Sterian, The Semiclassical Approach of the  
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(Romanian Patent Office, Feb 11, 1985).  
3. Stefanescu Eliade, Codreanu Nita, Gozner Stefan, Nedelcu Liviu, Fetcu Emilian,  
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4. Codreanu Nita, Stefanescu Eliade, Gozner Stefan, Electronic Device for the  
Automatic Control of the Boiling Process in the Sugar Fabrication, Patent 84617  
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5. Stefanescu Eliade, Gheorghe Sadacliev, Mono-stable Circuit with Large Scale  
Temporization Domain, Patent 72650 (Romanian Patent Office, Sept 28, 1979).  
VISITING SCIENTIST/PROFESSOR:  
1. Joint Institute of Nuclear Research, Dubna (Soviet Union): Characterization of heavy  
ions beams (3 months in 1985).  
2. Institute of Theoretical Physics of "Justus Liebig" University, Giessen (Germany,  
Prof. Dr. Werner Scheid): Theory of dissipation and fluctuations in quantum  
mechanics with applications in atomic and nuclear physics (2 months in 1994).  
3. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Nuclear giant resonances as collective states with  
dissipation (2 months in 1995).  
4. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Application of quantum theory of open systems to  
11  
nuclear giant resonances (2 months in 1996).  
5. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Nuclear giant resonances as collective states with  
dissipative coupling (3 months in 1997).  
6. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Dynamics of Fermi open systems (3 months in  
1998).  
7. Institute of Theoretical Physics of "Justus Liebig" University, Giessen (Germany,  
Prof. Dr. Werner Scheid): Dissipation in nuclear physics (2 weeks in 1998).  
8. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Dynamics of open quantum systems of Fermions  
(1 month in 1998).  
9. Royal Institute of Technology, Stockholm – Department of Theoretical Nuclear  
Physics (Prof. Dr. Roberto Liotta): Dynamics of an open quantum systems of  
Fermions (1 month in 2000).  
10. Catholic University in Louvain-La-Neuve, Belgium (Paul de Vadder, on a project  
with private support): Total dynamic conversion (2 months, 2003).  
11. Institute of Theoretical Physics of "Justus Liebig" University, Giessen (Germany,  
Prof. Dr. Werner Scheid): Non-Markovian dynamics of open quantum systems (1  
month in 2005).  
12. Institute of Theoretical Physics of "Justus Liebig" University, Giessen (Germany,  
Prof. Dr. Werner Scheid): Non-Markovian dynamics of open quantum systems (1  
month in 2006).