



ROMÂNIA
UNIVERSITATEA BABEŞ-BOLYAI CLUJ-NAPOCA

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RECTORATUL

Universitatea Babeş-Bolyai Competiția Excelenței 2010

Dosar individual

Notă: Toate datele se referă la perioada 2005-2009

Nume, prenume, grad did.	NICOLESCU BASARAB PROFESOR
Facultatea, Catedra	FSE, Catedra de Studii Europene
Domeniul științific	Filosofie și fizică
Adresa paginii web personale	http://basarab.nicolescu.perso.sfr.fr/Basarab/index.html
Adresa e-mail	nicol@club-internet.fr

Criteriaul I – Output

1. Articole științifice publicate în reviste indexate ISI (cu menționare factorului de impact în cazul celor cotate)

"Unified Model for Small-t and High-t Scattering at High Energies: Predictions at RHIC and LHC"

in collaboration with E. Martynov
European Physical Journal **C56** (2008) 57-62
[arXiv:0712.1685](https://arxiv.org/abs/0712.1685)

"How Can the Odderon Be Detected at RHIC and LHC"

European Physical Journal **C49** (2007) 581
in collaboration with R. F. Avila and P. Gauron
[hep-ph/0607089](https://arxiv.org/abs/hep-ph/0607089)

"A New Method for the Determination of the Real Part of the Hadron Elastic Scattering Amplitude at Small Angles and High Energies"

Physics Letters **B 629** (2005) 83
in collaboration with P. Gauron and O. Selyugin.
[hep-ph/0406177](https://arxiv.org/abs/hep-ph/0406177)

2. Articole științifice publicate în ISI proceedings

"The Odderon at RHIC and LHC"

Proceedings of the 12th International Conference on Elastic and Diffractive Scattering - Forward Physics and QCD, Deutsches Elektronen-Synchrotron, Hamburg, Germany, 2007, p. 173-180, edited by J. Bartels, K. Borras, M. Diehl and H. Jung.
[arXiv:0707.2923](https://arxiv.org/abs/0707.2923)

"Calculation of the Real Part of the Nuclear Amplitude at High s and Small t From the Coulomb Amplitude"

Proceedings of the 11th International Conference on Elastic and Diffractive Scattering – Towards High Energy Frontiers, Château de Blois, France, edited by M. Haguenaer, B. Nicolescu and J. Tran Thanh Van, Thê Giôi Publishers, Vietnam, 2006.

in collaboration with P. Gauron and O. Selyugin

hep-ph/0509187

"The Present Situation of the Odderon Intercept – Experiment, Theory and Phenomenology"

Proceedings of the International Workshop « Odderon Searches at RHIC », Brookhaven National Laboratory, USA, September 27-29, 2005, edited by W. Gryn, Y. Kovchegov, W. Vogelsang and L. Trueman, BNL-75092-2005 Formal Report.

3. Articole științifice indexate în BDI (din lista CNCSIS)

4. Alte articole științifice/capitole publicate în reviste/volume cu referenți (peer-reviewed)

"Plots of Total Cross Sections and Related Quantities"

in "Review of Particle Physics", edition 2008 : Particle Data Group, C. Amsler et al., **Physics Letters B**, Vol. 667, Issues 1-5, 18 September 2008, p. 362-369, Section 40,

in collaboration with J. R. Cudell, V. V. Ezhela, P. Gauron, K. Kang, Yu. V. Kuyanov, S. B. Lugovsky and N. P. Tkachenko (COMPETE Collaboration)

<http://pdg.lbl.gov/2008/hadronic-xsections/hadron.html>

5. Cărți științifice publicate în edituri internaționale

- *Nos, a particula e o universo*, Esquilo, Lisbon, Portugal, 2005, translation in Portuguese by Isabel Debot, in the framework of the International Year of Physics.
- *Qu'est-ce que la réalité ?*, Liber, Montréal, Canada, 2009.
- *La Transdisciplinariedad - Manifiesto*, Multiversidad Mundo Real Edgar Morin, Hermosillo, Sonora, Mexico, 2009, translation in Spanish by Mercedes Vallejo Gomez.

6. Cărți științifice publicate în edituri naționale acreditate

- *Noi, particula si lumea*, Junimea, Iasi, Romania, 2007, translation in Romanian by Vasile Sporici.

- *Știința sensul și evoluția - Eseu asupra lui Jakob Böhme*, Cartea Românească, Bucharest, 2007.
- - *Ce este Realitatea ?*, Junimea, Iași, 2009, translation from French into Romanian by Simona Modreanu.

7. Editor de volume publicate în edituri naționale și internaționale

Proceedings of the 11th International Conference on Elastic and Diffractive Scattering – Towards High Energy Frontiers, Château de Blois, France, May 15-20, 2005, edited by M. Haguenauer, B. Nicolescu and J. Tran Thanh Van, Thê Giôi Publishers, Vietnam, 2006.

Transdisciplinarity - Theory and Practice, Hampton Press, Cresskill, NJ, USA, 2008.

René Daumal ou le perpétuel incandescent, Le bois d'Orion, L'Isle-sur-la-Sorgue, France, 2008, in collaboration with Jean-Philippe de Tonnac.

Moartea astăzi, Curtea Veche Publ., Bucharest, 2008.

Transdisciplinary approaches of the dialogue between science, art, and religion in the Europe of tomorrow, Curtea Veche, Bucharest, 2008, in collaboration with Magda Stavinschi.

Science and Orthodoxy, a necessary dialogue, Curtea Veche, Bucharest, 2006, in collaboration with Magda Stavinschi.

8. Brevete internaționale

9. Brevete naționale

10. Impact tehnologic al brevetelor: resurse financiare extrabugetare atrase în relație cu economia

11. Realizări artistice naționale și internaționale (Domeniul Arte)

(Expoziții, spectacole, concerte, publicații, filme, înregistrări)

DVD

L'homme entre science et religion, with the participation of Thierry Magnin, Basarab Nicolescu, Bruno Guiderdoni.

CLC Productions, KTO, 2007 with the support of Centre National de la Cinématographie, France.

Producer: Caroline Puig-Grenetier.

Broadcast by TV KTO in 2007.

European prize of Spiritual Film, 2008.

DVD

Physique quantique et réenchantement du monde, Lazaret Ollandini, Corse, 2007.

Vidéocassette

La science pense-t-elle? – debate with Jean Bricmont and Jacques Vauthier, produced by VIDEOSCOPE/University Nancy 2 for the Ministry of Education and Research, France, 2005 ; broadcast twice by Canal U, « Amphis de France 5 »

Criteriul II – Prestigiu profesional

1. Citări ale articolelor ISI listate la Criteriul I

Articles considered as « very known » by the data basis SPIRES from Stanford University (USA):

TOPCITE = 100+

L. Lukaszuk et B. Nicolescu, Nuovo Cimento Letters **8** (1973) 405

K. Kang et B. Nicolescu, Physical Review **11** (1975) 2461

TOPCITE = 50+

J. R. Cudell, V. V. Ezhela, P. Gauron, K. Kang, Yu. V. Kuyanov, S. B. Lugovsky, E. Martynov, B. Nicolescu, E. A. Razuvaev et N. P. Tkachenko, Physical Review Letters **89** (2002) 201801

J. R. Cudell, V. V. Ezhela, P. Gauron, K. Kang, Yu. V. Kuyanov, S. Lugovsky, B. Nicolescu et N. Tkachenko, Physical Review **D65** (2002) 074024

D. Bernard, P. Gauron et B. Nicolescu, Physics Letters **199B** (1987) 125

P. Gauron, E. Leader et B. Nicolescu, Physical Review Letters **54** (1985) 2656

D. Joynson, E. Leader, C. Lopez et B. Nicolescu, Nuovo Cimento **30A** (1975) 345

2. Alte citări ale lucrărilor listate mai sus

2. Citări în perioada 2005-2009 ale articolelor anterioare anului 2005

My scientific works are quoted in more than 1000 articles (see the data basis SPIRES).

3. Distincții, premii și alte recunoașteri naționale și internaționale

2007: "Inter-Balkan Cultural Association - Rigas' Charta" Award, Athens, Greece

2008: Prize of Excellence "Convorbiri literare", Iasi, Romania.

Doctor Honoris Causa of the Technical University of Cluj-Napoca, Romania

Doctor Honoris Causa of the University "George Bacovia", Bacau, Romania.

2009: Diploma of Excellence of the Ministry of Foreign Affairs of Romania "for the promotion of the Romanian culture and of the image of Romania abroad".

2010: The ATLAS Ramamoorthy & Yeh Transdisciplinary Distinguished Award, offered by the Academy of Transdisciplinary Learning and Advanced Studies, Southwestern University, Georgetown, Texas, USA.

5. Studenți naționali atrași (activități de coordonare științifică și didactică)

- Îndrumare lucrări de licență (număr lucrări susținute)
- Îndrumare lucrări de disertație (număr lucrări susținute)
- Doctoranzi (lista nominală a doctoranzilor înmatriculați resp. lista nominală a tezelor susținute)

14 doctoranzi :

Anul 3

Mihaela Grigorean
Gabriela Craciunescu (Popescu)
Anca Mustea
Petrisor Militaru

Anul 2
Florin Negrutiu
Dana Oltean
Lucia Muresan
Marius Ene

Anul 1
Adrian Mirel Petrariu
Cantemir Mambet
Gabriela Toma
Alitea Turtureanu
Gabriela Nica
Pascal Verniory

- Post-doctoranzi (lista nominală)

6. Studenți internaționali atrați (activități de coordonare științifică și didactică)

- Îndrumare lucrari de licenta (număr lucrări susținute)
- Îndrumare lucrări de disertație (număr lucrări susținute)
- Doctoranzi (lista nominală a doctoranzilor înmatriculați resp. lista nominală a tezelor susținute)

Pascal Verniory (Elveția)

- Post-doctoranzi (lista nominală)

7. Membru in comitetul de redacție la reviste ISI

Co-Editor-in-Chief "Transdisciplinary Journal of Engineering and Science", Academy of Transdisciplinary Learning and Advanced Studies (ATLAS), Texas, USA.

« Annales Philosophici », University of Oradea, Romania.

« Convorbiri literare », Iasi, Romania.

« Cercetari Transdisciplinare în Economie », Center of Financial and Monetary Researches (CCFM) « Victor Slavescu » of the Romanian Academy, Bucharest, Romania.

« Bulletin of the Polytechnic Institute », University Gheorghe Asachi, Iasi, Romania.

« Studia Europaea », University Babes-Bolyai, Cluj-Napoca, Romania.

« The Journal for Transdisciplinary Research in Southern Africa », North-West University, Wanderbijlpark, South Africa.

European Journal of Science and Theology », Academic Organisation for Environmental Engineering and Sustainable Development, Iasi, Romania.

« Caiete Critice », Bucharest, Romania.

« Annals of the University Constantin Brancusi », Sociology series, Targu Jiu, Romania.

« Tabor », Magazine of Culture and Spirituality, Cluj-Napoca, Romania.

« Scientific Bulletin », University "George Bacovia", Bacau, Romania.

8. Membru in comitetul de redacție la reviste BDI

9. Participări la programe/granturi de cercetare finanțate din sursă internațională (se menționează și valoarea)

10. Participări la programe/granturi finanțate din sursă națională (se menționează și valoarea)

11. Coordonări de programe/granturi finanțate din sursă internațională (se menționează și valoarea)

Templeton Foundation (USA) – Program “Science and Orthodoxy – Research and Education” – 1200000 euros/3 years

12. Coordonări de programe/granturi finanțate din sursă națională (se menționează și valoarea)

13. Profesor invitat la universitati de prestigiu, cu titlu oficial

Universidad Federal do Rio de Janeiro; University of Sao Paulo; University of Veracruz, Xalapa, Mexico; University of Costa Rica; University of Stellenbosch, South Africa, University of Pennsylvania, Philadelphia, USA; Georgetwn University, Texas, USA.

14. Membru în comisii profesionale relevante, cu titlu oficial

15. Conferințe invitate internaționale

Astrophysics Meeting - "Man-Particle – Fundamental Interrogations of Man Confronted with Cosmos", Lazaret Olandini, [Ajaccio](#), 25 July 2007, with the participation of Stephen Hawking
- Physique quantique et réenchantement du monde

12th International Conference on Elastic and Diffractive Scattering - Forward Physics and QCD, DESY, Hamburg, Germany, 21st - 25th May 2007
- *The Odderon at RHIC and LHC*

RIKEN BNL Research Center Workshop "Odderon Searches at RHIC", Brookhaven National Laboratory, Upton, NY, USA, September 2005
- *The Recent Situation of the Odderon Intercept - Experiment, Theory and Phenomenology*

11th International Conference on Elastic and Diffractive Scattering - Towards High Energy Frontiers, Château de Blois, France, May 2005

- *Calculation of the Real Part of the Nuclear Amplitude at High s and Small t from the Coulomb Amplitude*

IV International Symposium on Environment Issues - "Activities Promoting Sustainability",
Universidade Federal do Rio de Janeiro, [Rio de Janeiro, Brazil](#), 10 July 2009

- The Emerging Science Paradigm

France Culture, Workshop "Freud, Jung, Lacan: où en est la psychanalyse aujourd'hui; relectures et avancées", Château de la Hulpe, [Brussels, Belgium](#), 16 - 19 September 2008

- [Niveaux de Réalité et non-réductionnisme - Jung, Pauli et Lupasco face au problème psychophysique](#)

International Congress "The Dialogue between Science and Religion in the Orthodox World",
Romanian Academy, [Bucharest, Romania](#), 8 September 2008

- The Dialogue between Science and Religion in the Orthodox World - Conclusions and Perspectives (closing talk)

International Congress "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood",
Universidad Pontificia Comillas, [Madrid, Spain](#), 13 July 2008

- The Idea of Levels of Reality and its Relevance for Non-Reduction and Personhood (opening talk of the mini-conference "Exploring Non-Reduction and Levels of Reality")

International Congress "Economy, Transdisciplinarity, Cognition", [Bacau, Romania](#), 17 June 2008

- "Transdisciplinarity and Sustainable Futures" (opening talk)

11th International Conference on Public and Development Management (Winelands 2008), Spier Estate, [Stellenbosch, South Africa](#), 17 April 2008

- Transdisciplinarity and Sustainable Futures (opening talk)

International Conference "Living in Truth - A Conceptual Framework for a Wisdom Society and the European Construction", University Babeş-Bolyai, [Cluj-Napoca, Romania](#), 11 September 2007

- Spiritual Dimension of Democracy - Utopia or Necessity?

International Congress "Transdisciplinarity and the Unity of Knowledge", Metanexus Institute, University of Pennsylvania, [Philadelphia, USA](#), 4 June 2007

- Transdisciplinarity as Methodological Framework for Going Beyond the Science-Religion Debate

Workshop «La transdisciplinarité, entre mythes et réalités», Haute Ecole Cantonale Vaudoise de la Santé (HECVSanté), [Lausanne, Switzerland](#), 19 October 2006

- La transdisciplinarité –Genèse, finalité et enjeux

World Festival of Peace, [Florianopolis, Brazil](#), 1-6 September 2006

- Transdisciplinarity and the Nature of Peace Today

Workshop « Science, Civilisations, Cultures », Interdisciplinary University of Paris (UIP), Palais de Luxembourg, [Paris](#), 7 January 2006

- La vision quantique du monde

International Workshop « Transmodernity and the paradigm of transdisciplinarity », Indexicals, University of Vienna, [Vienna, Austria](#), 10 December 2005

- The challenge of transdisciplinarity : from postmodernity to cosmodernity

CT99. Workshop « Science sans conscience n'est que ruine de l'âme », Institut International de Psychanalyse et de Psychothérapie Charles Baudoin, [Brussels, Belgique](#), 19 November 2005
- Le réenchâtement du monde : approche transdisciplinaire de la conscience

International Congress « Science and Orthodoxy – A necessary dialogue », Romanian Academy, [Bucharest, Romania](#), 22 October 2005
- Towards an Apophatic Methodology of the Dialogue between Science and Theology

Indexicals Symposium, University of [Graz, Austria](#), 11 October 2005
- Levels of Reality : History of the Concept and Consequences in Culture, Spirituality and Social Life

2^e Congrès Mondial de la Transdisciplinarité, [Vitoria/Vela Velha, Brazil](#), 6 September 2005
- Transdisciplinarité – Past, Present and Future (opening talk)

International Congress « Science and Religion : Global Perspectives », Metanexus Institute, University of [Philadelphia, USA](#), 4 June 2005
- Transdisciplinarité and the Global University

16. Membru în comitete de organizare sau științifice ale unor conferințe internaționale

Founder and coordinator (in collaboration with J. Tran Thanh Van) of the international biannual conference series "Elastic and Diffractive Scattering" ("Blois Workshops").

13 meetings were organized till now: Blois, France - 1985, New York, USA - 1987, Evanston, USA - 1989, Isola d'Elba, Italy - 1991, Providence, USA - 1993, Blois, France - 1995, Seoul, Korea - 1997, Protvino, Russia - 1999, Prague, Czech Republic - 2001, Helsinki, Finland - 2003, Blois, France - 2005, Hamburg, Germany – 2007, CERN - 2009.

For the history of these conferences consult the following web page

http://basarab.nicolescu.perso.sfr.fr/Basarab/Notice_bn/BN_Blois_accueil.html

III. Realizare remarcabilă

(Descrieți într-o manieră cât mai accesibilă (în maximum 1 pagină) cea mai importantă realizare științifică/tehnică/artistică din ultimii 5 ani și impactul acesteia.)

I am the founder (in collaboration with the Polish physicist Leszek Lukaszuk) of a new domain of strong interactions, known under the name of *Odderon*.

I introduced the concept of Odderon in 1973 based on the asymptotic theorems. Considered, at the beginning, as « heretical », the concept of Odderon acquired now a theoretical status which is beyond doubt. The Odderon was rediscovered in Quantum Chromodynamics (QCD) in 1980 by J. Bartels, J. Kwiecinski and M. Praszalowicz.

Recent advancements concerning Odderon physics were discussed in September 2005 at the workshop "Odderon Searches at RHIC" at Brookhaven National Laboratory, where I was invited to give the opening talk. They were also discussed at other congresses and workshops (for example, the workshop "Pomeron and Odderon in Theory and Experiment" organized in by the University of Heidelberg where I gave the opening talk.

Several PhD thesis, having as subject the Odderon, were sustained these last years at the University of Heidelberg (Tobias Golling, Tania Robens, Volker Schatz et Oliver Nix). Finally, an important review on the Odderon was published: Carlo Ewerz, *The Odderon in Quantum Chromodynamics*, hep-ph/0306137. In this paper, all my works are analyzed and discussed.

On theoretical level, the Odderon is the first non-trivial case of application of the general Yang-Baxter formalism to QCD. On experimental level, the Odderon stimulates experimental researches at present accelerators (Tevatron, HERA, RHIC and LHC).

One of my major scientific aims was the study of the theoretical status of the Odderon in perturbative QCD. My work was performed in a long-term collaboration with Lev Lipatov from the University of Sankt Petersburg (Russia).

There are some firm experimental indications of the Odderon: the existence of a difference between the proton-proton and proton-antiproton differential cross sections at $\sqrt{s} = 52.8$ GeV, and also the t-dependence of the charge-exchange pi-nucleon polarisation at medium energies. However these indications are not considered as establishing the experimental existence of the Odderon.

The Odderon remains an elusive object, 36 years after its invention. In the history of physics, it is very rare that a scientifically testable idea is neither proved nor disproved after such a long time.

The cause of this enigma is very simple to understand. On one side, most of the experimental efforts were concentrated on the proton-proton and proton-antiproton scatterings separately, where the Odderon is totally hidden by the huge contribution of the Pomeron. On other side, the most spectacular effect of the Odderon is to induce a difference between proton-proton and proton-antiproton scatterings at very high energies, which unfortunately will not be measured at the planned accelerators.

Odderon is now a fundamental object in QCD and it *has to be found experimentally if QCD is right*.

Data:

Semnătura:

Certific validitatea datelor prezentate

Sef de catedră,