

Cornel Hategan

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- Born 17 August 1940, Ohaba-Matnic/Caras-Severin, Romania
- Education
 - University Diplomat, (Nuclear Physics), University of Bucharest (1964)
 - Doctor in Physics, (Nuclear Physics), Institute of Atomic Physics (1973)
- Employment
 - Assistant-Researcher, Researcher, Senior-Researcher, (1964 -),
Institute of Atomic Physics (IFA), Bucharest
- Fields of Research
 - Nuclear Reactions
 - Atomic Collisions
 - Nuclear Astrophysics
 - Nuclear Spectroscopy
 - Computational Physics
- Research Topics
 - Polarization Phenomena in Nuclear Reactions
 - Channel Coupling Phenomena in Nuclear Reactions
 - Threshold Phenomena in Nuclear Reactions
 - Quasiresonant Reactions
 - Reduced Scattering Matrix
 - Quantum Defect in Atomic Collisions
 - Nuclear and Atomic Spatial Extended States
 - Threshold Reactions and Nuclear Stellar Cycles
 - Anomal States and Hadronic Excitations in Nuclear Spectroscopy
 - Coupled Channel Method
- Publications in
 - Physics Journals of The Romanian Academy; also in Physics Letters, Physical Review Letters, Modern Physics Letters, Europhysics Letters, Journal of Physics, Annals of Physics, Nuclear Physics, Physical Review, Yadernaia Fizika, Izvestia Akademii Nauk, Journal de Physique, Journal of Computational Physics, etc
- Scientific Achievements
 - Isotopic Threshold Effect
 - R- Matrix Theory of Threshold Phenomena
 - Intermediate Structure in Threshold Phenomena
 - Nuclear Threshold Effects and Neutron Strength Function
 - Quasi-Resonant Scattering; Resonance Direct Compression
 - Level Matrix and Atomic Quantum Defect
 - Reduced Scattering Matrix

- Significant Results in
 - Threshold States (Astrophysical, Borromean)
 - Polarization Studies of Threshold Phenomena
 - Polarization Phenomena in Nuclear Reactions

- Professional Records
 - * Fellow of the Alexander von Humboldt-Stiftung:
 - Forschungsstipendium*: Universitaet Erlangen-Nuernberg, (1970-1971)
 - Wiedereinladung*: Universitaet Munchen, (in Sommersemester 2002)
 - Wiederaufnahmen*: Universitaet Munchen, (in Sommersemesters 2004, 2006, 2008)

 - * Direct Scientific Supervisor of two IAEA Fellows, for Research (1973-1974) and Doctorate (1977-1981) in IFA. (IAEA - International Atomic Energy Agency, Vienna).

 - * Cooperation Projects on Polarization Phenomena and Threshold Phenomena in Nuclear Reactions
 - Physico-Technical Institute, Harkov, U.S.S.R., (1978-1982)
 - University of Munich, F.R.G., (1989-1995)

 - * Topical Editor (Nuclear Physics), Romanian Reports in Physics, (1992-2005)
 - * Member of Editorial Board, Proceedings of The Romanian Academy, (2000-)
 - * President, Nuclear Physics Division, Romanian Physical Society, (1990-)

- Distinctions
 - Humboldt Urkunde (1971)
 - Physics Prize of The Romanian Academy (1976)
 - Corresponding Member of The Romanian Academy, (elected March 1992)
 - Fellow of The Institute of Physics, Chartered Physicist, (*CPhysFInstP*), (elected May 2000)

- Biographical References
 - * A. von Humboldt Romanian Fellows
 - * Marquis (- Who's Who in the World; - Who's Who in Science and Engineering)
 - * Cambridge Dictionaries (- International Biography; - Outstanding People;
 - 2000 Outstanding Scientists of the 20th Century;
 - 2000 Outstanding Scientists of the 21st Century)
 - * American Biographical Institute (- Research Board of Advisers;
 - International Directory of Distinguished Leadership)

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CV-Annex

- A. Priority Results

→ *Isotopic Threshold Effect*, (IFA- 1975, 1978)

It is one of the three threshold effects known in Nuclear Physics.
Corroborated and Research Topic in Soviet Laboratories:

- Leningrad State University (Izv. Akad. Nauk 50(1986)160);
- Harkov Physico-Technical Institute *and* Harkov State University (A.S. Deineko - Diss. Dr. Fiz-Mat Nauk - Harkov 1986 *and* R.P. Slabospitsky - Harkov PhysTech Institute Review - 1993)

→ *R- Matrix Theory of Threshold Phenomena*, (IFA- 1978, 1979, 1984)

- Solution to Wigner's classical problem on Nuclear Threshold Effects. "Excellent.....results not altogether expected" (Annals of Physics)
- Results confirmed subsequently via complementary theoretical methods, (Institute of Theoretical and Experimental Physics -Moscow).
- Quoted, by side classical papers and books, in basic reviews: Physics Reports 82(1982)31; EChAYa 23(1992)305

→ *Threshold Effects and Neutron Spectroscopic Factor*, (Erlangen- 1971; IFA- 1973, 1986, 2002)

- ORNL Research Topic (Physical Review C75(2007)031301R).
- Intermediate Structure and Threshold Phenomena
- Result corroborated (proved also) by A M Lane

→ *Reduced Scattering Matrix in Atomic Collisions and Nuclear Reactions*, (IFA- 1989, 1991, 1994, 1995, 2005)

- Unitary Approach to Atomic Quantum Defect and Nuclear Threshold Cusp. "Profound and interesting" (Journal of Physics: Atomic, Molecular, Optical)
- Quasiresonant Reactions: Approach to Coupled Channel Resonances. Prediction of Resonance Direct Compression.

→ *Nuclear Scattering on Isomeric Level $^{178}\text{Hf}^{m2}(16^+)$* , (Munche- 1996)

An unique experimental and theoretical study of nuclear scattering on target nucleus in excited state.

- B. Significant Results

→ *Astrophysical Threshold States in Ne-Na Stellar Cycle*, (Munich-1995, 2007)
"Important step forward in understanding Ne-Na cycle" (Nuclear Physics).

→ *Isotopic Threshold Effect in Polarized Reaction $^{30}\text{Si}(d,p)^{31}\text{Si}$* , (Harkov- 1979)
Coexistence in polarization of a threshold effect and of an intermediate process.
(K.F. Ustimenkov - Diss. C. Fiz-Mat Nauk - Harkov 1980).

→ *Threshold Effect in Polarized Reaction $^{88}\text{Sr}(d,p)^{89}\text{Sr}$* , (Erlangen- 1973)
First theoretical study of Deuteron Stripping Threshold Effect in polarized reaction.
(A.M. Lane - *Current Topics of Prime Interest-Lectures*, Canberra University, 1974)

→ *Contributions for elucidation of Deuteron Stripping Threshold Effect*,
(Erlangen- 1971, IFA- 1973). Results taken over in Soviet and German works:
Institute of Nuclear Physics - *Porogovyye Effekty v Teorii Yadernykh Reaktsii* -
Tashkent 1975; W. Stach - Diss. Dr. Rer. Nat. - Erlangen 1975.

→ *Polarization in Proton Inelastic Scattering*, (IFA- 1966, 1970)
One of few experimental data existing in literature.

- C. Other Results

→ *Polarization Phenomena in Transfer Reactions: $\text{Li}^7(p,\alpha)^4\text{He}$,
 $^9\text{Be}(d,\alpha)^7\text{Li}$, $^9\text{Be}(d,t)^8\text{Be}$, $^9\text{Be}(d,p)^{10}\text{Be}$, $^{40}\text{Ca}(d,p)^{41}\text{Ca}$, $^{154}\text{Sm}(d,t)^{153}\text{Sm}$* ,
(IFA- 1966; Harkov- 1984; Munich- 1986, 1998)

→ *Polarization in Proton or Deuteron Elastic Scattering on Light and
Medium Nuclei: Be, Mg, Al, Cu, Zn*, (IFA- 1969; Harkov- 1983)

→ *Multichannel Effects in Nuclear Reactions*, (IFA- 1975, 1985)

→ *Nuclear Spatial Extended States*, (IFA- 1983, 1999; Munich- 2007)

→ *Contribution for Evidence of Selective Mixing Configurations*, (Munich- 1994)

→ *Computational Problems of Coupled Channels*, (IFA- 1969, Munich- 1996)

→ *Algebraic Methods of Nuclear Physics*, (IFA- 1995, 1998, 1999)