

CURRICULUM VITAE

DAN LUPU

Personal Details

Title: Dr
Family name: Lupu
First name: Dan
Gender: male
Date of birth: 24/05/1942
Nationality: Romanian
Marital status: married

Contact Details

Address work: National Institute for Research and Development of Isotopic and Molecular Technologies
71-103 Donath Street, 400293 Cluj-Napoca, Romania
Tel: +40-264-584037 / extension 121
Fax: +40-264-420042
e-mail: lupu@oc1.itim-cj.ro

Address home: Nr.1, Tarnita Street, Cluj Napoca, jud. Cluj, Tel: +40-264-428622

Linguistic Skills

English: fluent
French: average

Education

1969 - 1972 Ph.D student, Institute of Chemistry, Cluj Napoca, Romania
Ph.D-thesis on "Study of the mixed-valence iron trinuclear acetates".
Title: Doctor in chemistry
1959 - 1964 student, Faculty of Chemistry, Dept. of Inorganic Chemistry, Babes-Bolyai University, Cluj Napoca, Romania.
Title: chemist

Employment History

1964 - 1973 Researcher, Institute of Chemistry "Raluca Ripan", Cluj Napoca, Romania
1973 - present Senior Researcher I at the National Institute for R&D of Isotopic and Molecular Technologies (INCDTIM, Cluj-Napoca) (1987-2003 Head of Department of Materials).

Experience

1964-1973

Magnetochemistry: construction of laboratory equipment for measurements of the magnetic susceptibility by the Gouy and Faraday methods from liquid nitrogen temperature to 300 °C. Determination of the magnetic susceptibilities of various compounds, interpretation of the data in terms of the valence state of transition metal ions and interactions between their magnetic moments. Electron transfer in mixed valence compounds.

Teaching students and researchers from other universities of the country in magnetochemistry.

Fundamentals of metal-hydrogen systems: thermodynamics, phase diagrams, absorption/desorption kinetics, catalytic effects

Experimental: working procedures of handling and methods for characterization of hydrogen storage materials, electrodes for Ni/MH batteries, catalysis by ball milling, synthesis and hydrogen adsorption of porous metal-organic frameworks (MOFs). Synthesis and characterization of carbon nanotubes.

Main research results

Mixed-valence compounds – study of the mixed valence trinuclear oxo-bridged iron complexes, evidencing for the first time temperature-dependent, intra-molecular electron transfer between Fe^{2+} to Fe^{3+} metal sites in different oxidation states [D. Lupu, D. Barb, G. Filoti, M. Morariu, D. Tarina *J. Inorganic Nucl. Chem.*, **34**, 2803, (1972)], and their magnetic exchange interactions *Rev Roumaine de Chimie* **15**, 417 (1970); **16**, 43, (1971)]. These original contributions to the study of electron transfer in mixed-valence compounds are recognized by C. Wilson et al. in *J. Am. Chem. Soc.*, **122**, 11370, (2000) as “initiated in the works of Lupu et al. by employing Mössbauer spectroscopy and magnetochemistry”. The paper on Mössbauer spectroscopy, in cooperation with colleagues from National Inst. of Materials Physics-Bucharest, is cited 27 times (ISI-web excluding self-cit.) and extensively discussed in 2 books: N.N. Greenwood “*Spectroscopic Properties of Inorganic and Organometallic Compounds*”, **1973**, vol. 6, chap.8, p. 520 (ISBN: 0 85186 053 2) and H.J. Emeleus “*Advances in Inorganic Chemistry*” **1977**, vol. 20, 1977, p.362 (ISBN 0-12-023620-6). The above papers contributed also to the visibility of *Revue Roumaine de Chimie* (over 30 citations excluding self-cit.).

Hydrogen storage materials and applications – 43 papers published on hydrogen storage materials: intermetallic compounds, carbon nanostructures and porous metal-organic frameworks (MOF). For intermetallics, the effect of substitutions for the main components on the absorption enthalpy, absorption/desorption isotherms and thermodynamics, reaction kinetics, isotopic effects (hydrogen, deuterium), application related properties have been studied. Studies on metal hydride electrodes for “green” Ni-Metal Hydride batteries were published in cooperation with L. Schlapbach and A. Züttel of the University of Fribourg-Switzerland. The effects of ball milling with catalysts of complex hydrides NaAlH_4 , LiAlH_4 were also studied.

Carbon nanotubes – A new synthesis method utilizing for the first time the induction heating of the catalyst, was developed in our laboratory, in cooperation with Dr. A. Jianu and Prof. E Burkel, from the University of Rostock - Germany [D. Lupu et al. *Carbon*, **42**, 503, (2004)]. The advantages of this original method were later presented [Y. Soneda, H. Hatori, L. Duclaux, **D. Lupu**, A.R. Biris, I. Misan, “Synthesis of multi-walled carbon nanotubes by CCVD – a comparison between outer furnace and induction heating”, poster SA-160, “The International Carbon Conference” 16-21 July 2006, Aberdeen, Scotland UK]. All these achievements promoted cooperation within many national projects and a fruitful long time cooperation with Dr. A.S. Biris of The University of Arkansas at Little Rock (USA).

Visibility of the scientific contributions

Invited lectures presented at: “Hydrogen in Metals” meeting January 5-6, 1976 Birmingham United Kingdom, later published in Journal of Less-Common Metals (paper no.4 of list at B2); and D. Lupu *et.al.* “Hydrogen absorption in Al-Mg-Ti alloys” in “Miami Int. Symp. On Metal-Hydrogen” Systems, 13-15 April 1981 Miami Beach Florida USA – Proc. of Condensed Papers, pp.22-24. Invited lecture: **D. Lupu**, R. Grecu, S.I. Farcas, “Optical properties of Mg_2NiH_4 and hydrogen diffusion” at Proc. 3rd *Int. Symposium Metal-Hydrogen Systems*, Uppsala, 1992 Sweden, vol.1, p.685.

June 2000 – **D. Lupu** “Research guest” at Institute of Physics, University of Fribourg, Switzerland; 2 publications in cooperation in *J. Alloys Comp.* (nr. 1 in list at B2 and nr. 21 at B3).

Invited talk presented by **D. Lupu**: “Hydrogen Storage Materials at INCDTIM Cluj” at JRC-IE training Workshop on “Mapping European knowledge on Hydrogen Storage” 28-29 October 2004, Joint European Research Centre, Petten, Netherlands: <http://www.jrc>.

Reviewer: *International Journal for Hydrogen Energy* (USA) since 1980 (5 manuscripts in last years); *Carbon* (3), *Journal of Vibrational Spectroscopy*, *Journal of Applied Electrochemistry*, *Journal of Optoelectronics and Advanced Materials*, *Synthetic Metals*, *Fuel*.

Publishing Activity. Dan M. Lupu published since 1966 with 137 co-authors (Scopus Author ID: 7004270496). The original ideas attracted cooperation with many foreign scientists, resulting in publications: Prof. L. Schlapbach and A. Züttel (Univ. of Fribourg, Switzerland), Prof. E. Burkel,

Dr. A. Jianu (Univ. Rostock, Germany-cooperation agreement); Prof. A. Weidenkaff (Univ. Augsburg, Germany); Dr. A. Grueneiss (IFW Dresden, Germany); A. Gluhoi, (Leiden University, Netherlands); Prof. L. Duclaux (Univ. Orleans, France), Dr. Y. Soneda (National Institute of Advanced Industrial Science and Technology - AIST), Tsukuba-Japan-Tsukuba (Japan); Dr. A.S. Biris (Univ. of Arkansas at Little Rock, USA).

Participation to FP-6 project proposals: „Particlecoat” FP6-2003-NMP-TI-3-Main, coord. Dr. D. Dowling, Univ. College Dublin. In 2005, Lucie Sanque, student of Institute National des Sciences Appliqu  , Rennes, France, carried out a one month stage in our laboratory. Project co-director with Dr. Theodore Steriotis, Institute of Physical Chemistry, National Centre for Scientific Research “Demokritos”, Athens, Greece.

In hydrogen storage area, the main interest is focused now on porous metal-organic frameworks and composites with them for advanced hydrogen storage materials.

Biography of Dan Miron Lupu recognized in Marquis Who’s Who and H  bner Who’s Who in Romania.

Mandates

Member of the Balkanic Regional Council of experts in Nanoscience and Nanotechnology

Affiliation

Full Member of The American Nano Society - Membership ID: 111402

<http://members.nanosociety.us/danlupu>

1992 Member of the Romanian Society of Physics

2005 Member of the Romanian “Association for Hydrogen and Fuel Cells”

Address of the researcherid.com profile:

ISI Web of Knowledge: Researcher ID: C-3346-2009; <http://www.researcherid.com/rid/C-3346-2009>

Scopus - Author ID: 7004270496

Projects (selected list of main projects in last years)

1996-2000	“Materials and technologies for Metal Hydride Electrodes of Ni/MH batteries” (project manager)
2001-2004	“Devices for the storage of Hydrogen Isotopes” (team leader)
2004-2006	“Interface and surface phenomena in the synthesis of carbon nanotubes” (project director)
2004-2006	“Influence of the dimensionality morphology and structural order on hydrogen storage in amorphous and nanostructured alloys” (team leader)
2001-2005	“Development of integrated research platform in the field of energy” – national project in consortium (team leader)
2005-2008	“Nanostructured composites with carbon nanotubes for applications in optoelectronics and Li-batteries” – national project in consortium, coordinated by INFM Bucharest (team leader CEEX project)
2006-2008	“Advanced hydrogen storage materials for fuel cells” – CEEX project (project director)
2006-2008	“Nanocrystalline hydrogen storage materials of high functional performance” (participant, CEEX project)
2006-2008	“Hybrid organic/inorganic composites with carbon nanotubes and inorganic semiconducting nanoparticles for sensors, energy storage and optoelectronics” (CEEX project, team leader)

- | | |
|-----------|---|
| 2007-2009 | "Molecular targeted therapy of pancreatic neoplasm by resonant optical laser excitation of carbon nanotubes", coordinated by the University of Medicine and Pharmacy of Cluj-Napoca (participant) |
| 2008-2011 | "Hydrogen storage in composites based on porous metal-organic frameworks—COST-H |
| 2011-2014 | "Issues and challenges for hydrogen storage in composites of metal-organic frameworks" project PN-II-ID-PCE-2011-3, (project director) |

Last update
11 December 2012