CURRICULUM VITAE

INFORMAŢII PERSONALE

Nume şi prenume	Bîrzu Adrian
Adresă	Str. Zugravi nr. 5, bl. F9-2, ap. 6, 700091, Iaşi
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Naţionalitate	Română
Locul şi data naşterii	Hîrlău, jud. Iaşi, 13.08.1968

EXPERIENŢA PROFESIONALĂ

ACTIVITATE DE EVALUARE ŞI EXPERTIZĂ

Expert evaluator CNCSIS, evaluator pentru Romania-US Fulbright Commission

DOMENII DE COMPETENŢĂ

Chimie fizică, dinamică neliniară

ACTIVITATEA ŞTIINŢIFICĂ *(vezi ANEXE)*

CĂRŢI / ARTICOLE PUBLICATE:

- **Cărţi**, cursuri universitare şi manuale de lucrări practice: 5
- **articole ştiinţifice** publicate în reviste de specialitate: **32**, din care: **12** cu **ISI** in reviste din **străinătate, 12** cu **ISI** in reviste din **ţară, 5**. in reviste non ISI din tara.
- **participări** la manifestări ştiinţifice **50**, din care în străinătate **31**

Citări lucrări indexate/recenzate în baze de date internaţionale: **126;** în SCOPUS, CAPLUS and MEDLINE, de Institute for Scientific Information (ISI), Chemical Abstracts, Current Contents etc. I**ndice Hirsch = 7**

COORDONATOR ŞTIINŢIFIC: lucrări de licenţă **5**, lucrări de disertaţie **5**, lucrări metodico-ştiinţifice pentru obţinerea gradului I în învăţământul preuniversitar **3**.

REFERENT ŞTIINŢIFIC: Electrochimica Acta, Journal of Physical Chemistry, Journal of Electroanalytical Chemistry, Journal of Chemistry, Revue Roumaine de Chimie.

EXPERIENŢĂ DE LUCRU ÎN CERCETARE ŞI INSTRUIRE

DIRECTOR / RESPONSABIL GRANTURI DE CERCETARE / DEZVOLTARE: cu finanţare internă: **2**; cu finanţare externă: **2**

COLABORATOR ÎN GRANTURI DE CERCETARE: cu finanţare internă: **5**; cu finanţare externă: **3**

2004 – 2013, conferenţiar universitar, prin concurs (Ordinul Ministrului Educaţiei şi Cercetării nr. 3895/25.05.2004), la Universitatea „Alexandru Ioan Cuza" din Iaşi, Facultatea de Chimie;

1998 – 2004: **lector universitar**, prin concurs, la Universitatea „Alexandru Ioan Cuza" din Iaşi, Facultatea de Chimie;

1996 – 1998: **asistent**, prin concurs, la Universitatea „Alexandru Ioan Cuza" din Iaşi, Facultatea de Chimie;

1993 – 1996: **asistent cercetare**, prin concurs, la Universitatea „Alexandru Ioan Cuza" din Iaşi, Facultatea de Chimie;

SPECIALIZĂRI POSTUNIVERSITARE	**2012 – 2012** (6 luni), bursă Fulbright de cercetare, **postdoctorat,** Saint Louis University, St. Louis, Missouri, US. **2011 – 2011** (3 luni), bursă Humboldt de cercetare, **postdoctorat,** T. U. Munich. **2008 – 2008** (3 luni), bursă Humboldt de cercetare, **postdoctorat,** T. U. Munich. **2005 – 2005** (3 luni), bursă Humboldt de cercetare, **postdoctorat,** T. U. Munich. **2004 – 2004** (12 luni), bursă Humboldt de reintegrare, **postdoctorat,** UAIC. **2002 – 2002** (3 luni), bursă de cercetare, **postdoctorat,** angajat al T. U. Munich. **2001 – 2003** (14 luni), bursă de cercetare Humboldt, **postdoctorat** la Institutul Fritz Haber al Societăţii Max Planck, Berlin şi la T. U. Munich. **1998 – 2001** (6 luni), bursă din partea Guvernului României, **doctorat** la Universitatea Bremen, Germania **1998 – 2001** (10 luni), bursă de cercetare "Roman Herzog", Fundaţia Humboldt, **doctorat** la Universitatea Bremen, Germania
EDUCAŢIE	**2000** doctorat în Chimie, Specialitatea Chimie Fizică **1996** iunie, examen de licenţă în chimie; **1993-1996**: Facultatea de Chimie, UAIC **1992** iunie, examen de licenţă în fizică; **1987-1992**: Facultatea de Fizică, specializarea Fizica Plasmei, UAIC **1986**, iunie, examen de bacalaureat; **1982-1986**: Liceul Naţional, Iaşi; **1974-1982**: Şcoala primară şi gimnazială: Şcoala de Aplicaţie Iaşi şi Lic. Al. I. Cuza, Iaşi
STAGII DE PREGĂTIRE ŞI MOBILITĂŢI	- **2013** 1 lună, stagiu de cercetare NSF, Saint Louis University, St. Louis, US. - **2012** 6 luni, Senior Fulbright Award, Saint Louis University, St. Louis, US. - **2011** 3 luni, Humboldt Research Fellowship, T. U. Munich. - **2009,** 2 luni, stagiu de cercetare, T. U. Munich. - **2008**, 3 luni, Humboldt Research Fellowship, T. U. Munich.
MEMBRU ÎN SOCIETĂŢI ŞTIINŢIFICE	**Membru** al Societatii Romane de Chimie,
CUNOŞTINŢE UTILIZARE COMPUTERE	**Operare bună PC** (Microsoft Office Word; Microsoft Office Power Point; Microsoft Office Excel; Origin, Internet (Explorer, Mozila, Opera), grafică: Corel; programare: Fortran, MATLAB.
LIMBI STRĂINE CUNOSCUTE	Engleză (citit, scris, vorbit): foarte bine; Franceză: bine; Germană: începător.

Iaşi
16.12. 2013

Conf. dr. Adrian Bîrzu

ANEXA

Cărţi

1. A. Bîrzu, G. Bourceanu, L. Onel, "*Dinamică neliniară*", Matrix Rom, Bucureşti, 2003.

2. G. Bourceanu, A. Bîrzu, "*Termodinamica evoluţiei şi dinamică neliniară*", Matrix Rom, Bucureşti, 2003.

3. A. Bîrzu, M. Dumitraş, "*Cinetică chimică. Aspecte fundamentale*", Matrix Rom, Bucureşti, 2008.

4. M. Dumitraş, A. Bîrzu, "*Cinetică chimică. Capitole speciale*", Matrix Rom, Bucureşti, 2010.

5. Petru Bogdan, "*Metodele termodinamice*", Editura UAIC, Iaşi, 2010 (editor).

Articole reprezentative

1. A. Bîrzu, B.J. Green, R.D. Otterstedt, N.I. Jaeger, J.L. Hudson, "Modelling of spatiotemporal pattern during metal electrodissolution in a cell with a point reference electrode", *Phys. Chem. Chem. Phys.* **2**, 2000, 2715-2724.

2. A. Bîrzu, B. J. Green, N. I. Jaeger, J. L. Hudson, "Spatiotemporal patterns during electrodissolution of a metal ring: three-dimensional simulations", *J. Electroanal. Chem.* **504**, 2001, 126-136.

3. A. Bîrzu, B.J. Green, R.D. Otterstedt, J.L. Hudson, N.I. Jaeger, "Spatiotemporal Patterns on a Disk Electrode: Effects of Cell Geometry and Electrolyte Properties", *Z. Phys. Chem.* **216**, 2002, 459-477.

4. N. I. Jaeger, R. D. Otterstedt, A. Bîrzu, B. J. Green, J. L. Hudson, "Evolution of spatiotemporal patterns during the electrodissolution of metals: Experiments and simulations", *Chaos* **12**, 2002, 231-239.

5. A. Bîrzu, F. Plenge, N. I. Jaeger, J. L. Hudson, K. Krischer, "Complex spatiotemporal antiphase oscillations during electrodissolution of a metal disk electrode: model calculations", *J. Phys. Chem. B* **107**, 24, 2003, 5825-5835.

6. A. Bîrzu, F. Plenge, N. I. Jaeger, J. L. Hudson, K. Krischer, "Excitable dynamics during electrodissolution of a metal disk electrode: model calculations", *Phys. Chem. Chem. Phys.* **5**, 2003, 3724-3731.

7. K. Krischer, H. Varela, A. Bîrzu, F. Plenge, A. Bonnefont, "Stability of uniform electrode states in the presence of Ohmic drop compensation", *Electrochim. Acta* **49**, 2003, 103-115.

8. P. Jitaru, A. Bîrzu, R. Mocanu, F. C. Adams, "Effect of the interface on separation in multicapillary gas chromatography-based hyphenated techniques for speciation analysis of organometallic compounds", *Anal. Bioanal. Chem.* **382**, 2005, 1993-1998.

9. A. Bîrzu, K. Krischer, "Two-dimensional electrochemical turbulence during the electrodissolution of metal disk electrodes: Model calculations", *Phys. Chem. Chem. Phys.* **8**, 2006, 3659-3668.

10. A. Bîrzu, K. Krischer, "Confined spatio-temporal chaos during metal electrodissolution: simulations", *Z. Phys. Chem.* **221 (9-10)**, 2007, 1245-1254.

11. A. Bîrzu, V. Gáspár, "Synchronization of electrochemical oscillators of S-NDR type", *Electrochimica Acta* **55**, 2009, 383-394.

12. A. Bîrzu, K. Krischer, "Resonance tongues in a system of globally coupled FitzHugh-Nagumo oscillators with time periodic coupling strength", *Chaos* **20**, 2010, 043114.

Alte articole

1. I.C.Bîrzu, A. Bîrzu, "Considerations concerning the dynamics of a terrace edge during step-flow growth of a crystal",

2. I.C.Bîrzu, A. Bîrzu, "Linear analysis of some step-flow growth modes of a crystal", both in *An. Şt. Univ. Al.I.Cuza*, Fizică, tom **XL**, 1994, p. 73-78, 79-83.

3. V. Melnig, M. Bourceanu, A. Bîrzu, I. Bîrzu, "Comments on the thermodynamic theory of binary liquid mixtures", *An.Şt. Univ. Al.I.Cuza*, Chemistry, tome **III**, 1995, p. 35-44.

4. G. Bourceanu, P. Joulain, A. Bîrzu, I. Bîrzu, "Considerations sur la miscibilite partielle des liquides", *Entropie* **197**, 1996, 47-51.

5. G. Bourceanu, M. Bourceanu, A. Bîrzu, P. Joulain, "A new method to obtain the periodic-chaotic sequence in the oscillating reactions", *Rev.Roum.Chim.* **43**, 1998, 841-848.

6. G. Bourceanu, A. Bîrzu, M. Bourceanu, J. Vatamanu, "Nonlinear dynamics and chaotic behavior 1." *Rev. Chim.* **49**, 1998, 488-496 (in Romanian).

7. G. Bourceanu, A. Bîrzu, M. Bourceanu, J. Vatamanu, "Nonlinear dynamics and chaotic behavior 2.", *Rev.Chim.* **49**, 1998, 781-795 (in Romanian).

8. A. Bîrzu, I. Bîrzu, J. Vatamanu, G. Bourceanu, "Properties of phenomenological coefficients in case of chemical reactions", *Rev. Chim.* **50**, 1999, 647-655 (in Romanian)

9. L. Odochian, I. Călugăreanu, O. Vicol, A. Bîrzu, "Study on the nature of crystallization water through the compensation effect from thermogravimetric data", *Rev. Roum. Chim.* **45**, 2000, 227-230.

10. G. Bourceanu, C. Ciobîcă, A. Bîrzu, “Mechanism of the onset of oscillations in electrochemical systems. I. Oscillations described by electrical models”, *Rev. Chim.* **52**, 2001, 724-730 (in Romanian).

11. G. Bourceanu, A. Bîrzu, C. Ciobîcă, “Mechanism of the onset of oscillations in electrochemical systems. II. Oscillations described by chemical models”, *Rev. Chim.* **53**, 2002, 217-221 (in Romanian).

12. A. Bîrzu, G. Bourceanu, C. Ciobîcă, “Mechanism of the onset of oscillations in electrochemical systems. III. Modeling of nonlinear processes in electrochemical systems”, *Rev. Chim.* **53**, 2002, 437-441 (in Romanian).

13. G. Bourceanu, A. Bîrzu, M. Bourceanu, L. Onel, “Le role de l’ion de Mn^{2+} sur la production de I_2 dans le systeme oscillant Briggs-Rauscher”, *J. Univ. Chem. Technol. Metallurg. Sofia*, **XXXVII**, 5, 2002, 39-46.

14. G. Bourceanu, A. Bîrzu, M. Bourceanu, L. Onel, “Fractals and strange attractors”, *Rev. Chim.* **54**, 3, 2003, 224-229 (in Romanian).

15. M. Bourceanu, A. Bîrzu, G. Bourceanu, "Etude de la stabilité des systèmes avec comportement périodique type cycle limite. I. Etudes experimentales", *Rev. Roum. Chim.* **48** (7), 2003, 527-533.

16. M. Bourceanu, A. Bîrzu, G. Bourceanu, "Etude de la stabilité des systèmes avec comportement périodique type cycle limite. II. Modèle réactionnel et modélisation mathématique", *Rev. Roum. Chim.* **48** (7), 2003, 535-541.

17. L. Onel, A. Bîrzu, M. Bourceanu, "Oscillateurs biochimiques couplés par échange d'une espèce intermédiaire. I. Couplage de deux modèles Selkov contraints symétriquement", *An. Şt. Univ. Al. I. Cuza, Iaşi*, ser. Chimie, tome **XI**, 2003, 103-108.

18. L. Onel, G. Bourceanu, A. Bîrzu, "Resonance for two Brusselators coupled through mass exchange", *Rev. Roum. Chim.*, **50** (9-10), 2005, 777-782.

19. A. Bîrzu, “Nonlinear dynamics in a complex electrochemical system”, *Acta Chem. Iaşi* **17**, 2009, 137.

20. A. Bîrzu, V. Gáspár, “Complex spatio-temporal dynamics in metal electrodissolution: three-dimensional cell geometry models”, *Journal of Computational Interdisciplinary Sciences* **3**, 2012, 1.

Granturi de cercetare

Granturi naţionale, coordonate:

1. “Modeling of globally coupled arrays of oscillators with applications in neurocomputation”, CNCSIS 1154/2006.

2. “Theoretical study of some complex electrochemical systems with nonlinear behavior”, CNCSIS 2219/2009.

Granturi internaţionale coordonate:

- 2001-2003, Humboldt Research Fellowship, Germania;

- 2012 - Senior Fulbright Award, US.

Granturi naţionale la care am participat:

1. “Study of stability and evolution of oscillating chemical system using perturbations” (1993-1994, A22/3011).

2. “Dynamics of chemical reactions for environmental compounds” (1995, B8/4011).

3. “Nonlinear dynamics of complex chemical systems and their stability to the variation of the constraints and external perturbations” (1998-2000, code CNCSU 185).

4. “Integrated platform for advanced studies in molecular nanotechnologies (AMON)” – Laboratory of interdisciplinary training and research, CNCSIS, 2006-2008.

5. “Dynamics of chemical reactions from stratosphere, with formation and destruction of the ozone”, CNCSIS 1164, 2006-2007.

Granturi internaţionale la care am participat:

1. “Nonlinear dynamics in chemistry and environmental sciences”, Romanian – Hungarian bilateral cooperation grant, 2006-2007, directors prof. G. Bourceanu, University “Al. I. Cuza” Iaşi and prof. Z. Noszticzius, Technical University Budapest.

2. “Functional Dynamics in Complex Chemical and Biological Systems”, Research Networking Programme of the European Science Foundation, 2007 – 2011.

3. “Functional Dynamics”, OTKA (Hungarian Scientific Research Fund), nr. K81646, 2010-2013.

Prezentări reprezentative

1. G. Bourceanu, J. Vatamanu, A. Bîrzu and L. Păvăloaia, “Oscillations electrochimiques dans le systeme $Fe/H_2SO_{4(aq)},K_2Cr_2O_{7(aq)}/Pt$”, Journees d’Electrochimie, June 1999, Toulouse, France, oral presentation.

2. R.D. Otterstedt, P.J. Plath, N.I. Jaeger, U. Sydow, A. Bîrzu, B.J. Green, J.L. Hudson, “Raumzeitliche Strukturen bei der anodischen Auflösung von Kobalt”, Jahrestagung 1999, Metalle in der Elektrochemie, Freiberg, September 1999, Germany, poster.

3. A. Bîrzu, B.J. Green, J.L. Hudson, N.I. Jaeger, R.D. Otterstedt, P.J. Plath, U. Sydow, "Spatiotemporal Patterns in the Electrodissolution of Metals", The 11th Asian-Pacific Corrosion Control Conference, November 1999, Vietnam, invited lecture.

4. A. Bîrzu, B.J. Green, R.D. Otterstedt, N.I. Jaeger, J.L. Hudson, "Modelling of spatiotemporal patterns during oscillatory metal electrodissolution", Bunsentagung 2000, Würzburg, June 2000, Germany, poster.

5. A. Bîrzu, B.J. Green, R.D. Otterstedt, N.I. Jaeger, J.L. Hudson, "Modelling of spatiotemporal patterns during oscillatory metal electrodissolution" Symposium "Engineering of chemical complexity", Fritz Haber Institute, Berlin, June 2000, poster.

6. A. Bîrzu, B.J. Green, J.L. Hudson and N.I. Jaeger, "Modelling of spatiotemporal patterns during oscillatory metal electrodissolution", Gordon Research Conference, Oscillations and Dynamic Instabilities in Chemical Systems, August 2000, Roger Williams University, Bristol, Rhode Island, USA, poster.

7. A. Bîrzu, "Modeling of spatiotemporal patterns during oscillatory metal

electrodissolution", invited talk presented at Fritz Haber Institute of the Max Planck Society, Berlin, December 2000.

8. N. I. Jaeger, A. Bîrzu, "Spatiotemporal patterns during electrodissolution of a metal ring: three-dimensional simulations", Heraeus Seminar – Dynamische Strukturbildung in Komplexen Systemen, Bad Honef, Germany, March 2001, oral presentation.

9. A. Bîrzu, N. Jaeger, J. Hudson, R. Otterstedt, B. Green, "Spatiotemporal patterns during oscillatory metal electrodissolution of a disk electrode: model calculations", Heraeus Seminar – Dynamische Strukturbildung in Komplexen Systemen, Bad Honef, Germany, March 2001, poster.

10. A. Bîrzu, N. I. Jaeger, J. L. Hudson, K. Krischer, F. Plenge, "Spatiotemporal patterns during electrodissolution of a metal disk electrode: model calculations", 2nd Gerischer Symposium, Berlin, June 2002, poster.

11. A. Bîrzu, N. I. Jaeger, J. L. Hudson, F. Plenge, K. Krischer, "Spatiotemporal patterns during electrodissolution of a metal disk electrode: model calculations", Gordon Research Conference "Oscillations and dynamic instabilities in chemical systems", Oxford, July 2002, poster.

12. A. Bîrzu, N. I. Jaeger, J. L. Hudson, K. Krischer, F. Plenge, "Spatiotemporal patterns during electrodissolution of a metal disk electrode: model calculations", Symposium "Engineering of chemical complexity", Fritz Haber Institute, Berlin, June 2002, poster.

13. A. Bîrzu, F. Plenge, N. I. Jaeger, J. L. Hudson, K. Krischer, „Spatiotemporal patterns during electrodissolution of a metal disk electrode: model calculations", keynote lecture at „53rd Annual Meeting of the International Society of Electrochemistry", Düsseldorf, September 2002.

14. A. Bîrzu, F. Plenge, N. I. Jaeger, J. L. Hudson, K. Krischer, "Excitable dynamics during electrodissolution of a metal disk electrode: model calculation", SFB 555 Workshop "Complex Nonlinear Processes", Berlin, September 2003, poster.

15. A. Bîrzu, V. Gáspár, "Synchronization of S – NDR type electrochemical oscillators", Workshop on Reaction Kinetics and Photochemistry, Chemistry Division of the Hungarian Academy of Sciences, Balatonalmadi, 26 – 27 April 2007, oral presentation.

16. A. Bîrzu, V. Gáspár, "Synchronization of large number of nonidentical electrochemical oscillators of S-NDR type", 1st ESF workshop, Funcdyn Programme, Haslev, Denmark, 2 – 5 May 2007, oral presentation.

17. A. Bîrzu, K. Krischer, "Confined spatio-temporal chaos during metal electrodissolution: model calculations", 4th Gerischer Symposium, Berlin, June 2008, oral presentation.

18. A. Bîrzu, V. Gáspár, "Synchronization of electrochemical oscillators of SNDR type", 4th Gerischer Symposium, Berlin, June 2008, poster.

19. A. Bîrzu, V. Gáspár, "Synchronization of electrochemical oscillators of SNDR type, Gordon Research Conference Oscillations and Dynamic Instabilities in Chemical Systems, Waterville, USA, July 2008, poster.

20. A. Bîrzu, K. Krischer, "Modelling of globally coupled arrays of oscillators", Second ESF conference on functional dynamics, Rothenburg ob der Tauber, Germany, September 2008, oral presentation.

21. I. Grosu, M. Hasler, A. Bîrzu, "Synchronization in chains of oscillators", Second ESF conference on functional dynamics, Rothenburg ob der Tauber, Germany, September 2008, poster.

22. A. Bîrzu, K. Krischer, "Giant subharmonic Arnold' tongues in a system of globally coupled FitzHugh-Nagumo oscillators with

time-periodic coupling strength", Conference "Engineering of chemical complexity", Berlin, July 2011, poster.

23. T. Pourrostami, A. Bîrzu, K. Krischer, "Entrainment in a forced spatially extended electrochemical system with negative global coupling", Conference "Engineering of chemical complexity", Berlin, July 2011, poster.

24. A. Bîrzu, K. Krischer, "Global coupling in systems with time-periodic coupling strength", 4th ESF Conference on Functional Dynamics, Prague, September 2011, poster.

25. A. Bîrzu, "Nonlinear dynamics in spatially extended electrochemical systems", invited talk, Saint Louis University, February 2012.

26. A. Bîrzu, "Nonlinear dynamics in spatially extended electrochemical systems", invited talk, University of New Orleans, April