

## Dr. Valentin Craciun

[- see published papers -](#)

Senior Research Scientist 1st degree

Group Leader, Thin Films Deposition

Laser Department

National Institute for Laser, Plasma and Radiation Physics

Bucharest-Magurele, Romania

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### Education

1987-1991 PhD in Technical Physics, Polytechnic University Bucharest; title of PhD Thesis: "Surface studies with laser for microelectronics applications"

1979-1984 Diplomat Physicist Engineer, Faculty of Technological Physics, University of Bucharest; title of Diploma Thesis: "Laser Annealing of Semiconductors"

### Employment/Professional Experience:

2007-present: Senior Research Scientist 1st degree, Laser Department, National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele, Romania

2006-August 2012: Associate Research Scientist, Major Analytical Instrumentation Center (MAIC), Materials Science and Engineering (MSE), University of Florida, USA

2003-2006: Assistant Research Scientist, MAIC and graduate faculty MSE, UF

1998-2003: Visiting scientist, MSE, UF

1988-2007: Scientific Researcher, Laser Department, National Institute for Laser, Plasma and Radiation Physics, Bucharest-Magurele, Romania

April 1998-August 1998: research fellow, Electronic and Electrical Engineering Department, University College London, United Kingdom

July 1996-December 1996: research fellow, Electronic and Electrical Engineering Department, University College London, United Kingdom

September 1994-September 1995: visiting scientist, Laboratoire GREMI, Universite d'Orleans, France

October 1991-September 1994: research fellow, Electronic and Electrical Engineering Department, University College London, United Kingdom

1984-1988: Assistant Researcher, Laser Department, National Institute for Laser, Plasma and Radiation Physics,

Bucharest-Magurele, Romania

## Awards

Davis Productivity Award, 2009, University of Florida

A. P. Sloan Certificate of Appreciation, 2007, University of Florida

Diploma for serving the society, European-Materials Research Society in 2002, 2005, 2008, 2009, 2010.

Diploma for outstanding service, Materials Research Society, USA, 2006 and 2008

Fellowship of CNRS at University of Paris VII, France, December 2000.

Fellowship of EPSRC, University College London, UK, 1997

Fellowship of the French Ministry of Higher Education at University of Orleans, Laboratoire GREMI, France, 1994

Fellowship of EPSRC, University College London, UK, 1993

European Community Mobility Fellowship at University College London, Electrical and Electronic Engineering, UK, 1992

## International Activities

Member SPIE, MRS, Member of the European-Materials Research Society: Board of Delegates, from 2003, Executive Committee, from 2009, E-MRS: Program Chair, Fall 2012

## Publications summary

152 papers published in refereed international journals

80 papers published in proceedings of international conferences

15 invited presentations at international conferences

1 patent

## Publications impact

More than 1500 citations, H-index=25

## Conference organization

1. Symposium D, "Physics and Chemistry of Advanced Laser Materials Processing"  
E-MRS Spring Meeting, June 18-21, 2002, Strasbourg, France

2. NATO Advanced Study Institute on Laser processing of biological tissues and biocompatible materials, 23

September – 03 October 2003, Limenas Hersonissos (Crete), Greece

3. Symposium J “Advances in Laser and Lamp Processing of Functional Materials”

E-MRS Spring Meeting, May 31 - June 3, 2005, Strasbourg, France

4. Symposium K, “Current and Future Trends of Functional Oxide Films”, MRS Spring Meeting, April 17-21, 2006, San Francisco

5. Symposium J, “Synthesis Processing and Characterization of Nanoscale Functional Oxide Films” - EMRS 2006, Nice, France, 29 May-02 June 2006

6. Symposium I, “Synthesis and Metrology of Nanoscale Oxides and Thin Films”, MRS Spring Meeting, March 25 - 28, 2008, San Francisco

7. Symposium H, Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films II, E-MRS Spring meeting, June 8-12, 2009, Strasbourg

8. Symposium D, Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films III, E-MRS Spring meeting, May 9-13, 2011, Nice

9. Symposium A, Stress, structure, and stoichiometry effects on the properties of nanomaterials, E-MRS Fall meeting, September 19 - 23, 2011, Warsaw

10. Conference Chair, E-MRS Fall Meeting, Warsaw, September 19 – 23, 2012

11. Symposium B, Stress, structure, and stoichiometry effects on the properties of nanomaterials II, E-MRS Fall meeting, September, 2013, Warsaw, in preparation

## **Books, Edited**

1. Physics and Chemistry of Advanced Laser Materials Processing

Edited by Michel Meunier, Valentin Craciun, Eric Fogarassy, Wolfgang Kautek

Applied Surface Science, Elsevier Science B.V., Volumes 208-209, Pages 1-687 (15 March 2003), Proceedings of the E-MRS 2002 Spring Meeting Symposium D

2. Advances in Laser and Lamp Processing of Functional Materials

Edited by J. Reif, I Zergioti, V. Craciun, T. Lippert, J. Perriere,

Applied Surface Science, Elsevier Science B.V., Volumes 252, Issue 13, 2006: Proceedings of the E-MRS 2005 Spring Meeting Symposium J

3. Synthesis Processing and Characterization of Nanoscale Functional Oxide Films, Edited by M. Alexe, V. Craciun, R. Gaboriaud, D. Kumar and K. Ebihara, Proceedings of Symposium J, E-MRS Nice, France, 29 May-02 June 2006, Thin Solid Films, Volume 515, Issue 16, Pages 6289-6618, 2007

4. Current and Future Trends of Functional Oxide Films, edited by D. Kumar, V. Craciun, M. Alexe, K.K. Singh (Mater. Res. Soc. Symp. Proc. 928E, Warrendale, PA, 2006)

5. Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films II, edited by Valentin Craciun, Maryline Guilloux-Viry, Marin Alexe, José L. Costa Krämer, Jean-Paul Mosnier, Thin Solid Films vol.

518 (2010) and European MRS Symposia Proceedings vol. 244.

6. Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films III, edited by Valentin Craciun, Maryline Guilloux-Viry, Marin Alexe, Gustau Catalán Bernabé, Marco Fanciulli, Thin Solid Films 2012.

7. Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films III , Craciun, Valentin; Guilloux-Viry, Maryline; Alexe, Mann; et al., Thin Solid Films Volume 520 Issue: 14, 2012.

8. Stress, structure and stoichiometry effects on nanomaterials , edited by Craciun, Valentin; Gaboriaud, Rolly; Sanchez, Florencio; Schroeder, Thomas, Applied Surface Science Volume 260, 2012.

### **Books, Contributor of Chapter(s)**

1. ZnO and ZnO-Related Compounds, J. Perriere, E. Millon, V. Craciun, Chapter 12 in Pulsed Laser Deposition of Thin Films, Edited by Robert Eason, Wiley, Hoboken, 2006.

### **Theses and dissertations completed under my supervision at UF**

1. Jinwoo Kwak (co-chair), Preparation of multilayered structural composites for enhancing gas barrier property of isotactic polypropylene, August 2010.

2. Junghun Jang, Observation of Defects Evolution in Electronic Materials, May 2009

3. Carmen V. Gaines, Near-surface structural changes in human tooth enamel subject to demineralization and remineralization, April 29, 2008

4. Juhyun Woo, Growth and characterization of ZrC thin films, December 2005

### **PhD Committee member for more than 40 students at UF**

Students from other institutions:

1. Christophe Dutouquet, External Member (Rapporteur), PhD Committee, Université d'Orleans, Orleans, France, 2001

2. Valentin Dan Nelea, External Member (Rapporteur), PhD Committee, Université Louis Pasteur, Strasbourg, France June 2002

3. Sebastien Bruneau, External Member (Rapporteur), PhD Committee, Université de la méditerranée, Marseille, France, June 2005

### **Invited Presentations**

1. Pulsed laser deposition of hard coatings

ROMOPTO, August 31-September 3rd 2012, Bucharest, Romania.

## 2. Structural and Mechanical properties of Pulsed Laser Deposited carbide thin films

International Conference on Materials Science and Engineering BRAMAT'09, February 26-28, 2009, Brasov, Roman

3. Combinatorial Pulsed Laser Deposition of Thin Films, High Power Laser Ablation Conference, 21-24 April 2008, Taos NM (SPIE).

4. Characterization of Thin-Layered Structures by X-Ray Scattering Methods,

Florida AVS Meeting, 2007

5. Pulsed laser deposition of ZrC and LaB<sub>6</sub> thin films

ICMCTF 06, May 1-4, 2006, San Diego, USA.

6. Epitaxial ZrC and LaB<sub>6</sub> thin films grown by pulsed laser deposition

High Power Laser Ablation, SPIE, Taos, NM 2006

7. Deposition of low-work function thin films by PLD

Advanced Laser Technologies, SPIE, Brasov, 2006

8. Pulsed laser deposition of ZrC and LaB<sub>6</sub>

6th International Balkan Workshop on Applied Physics, July 4-7, 2005, Constanta, Romania

9. Photo-formation of interfacial layers during pulsed laser deposition of high-k dielectrics on silicon, E-MRS Spring Meeting 2003, June 10-13, Strasbourg, Symposium H - Photonic processing of surfaces, thin films and devices

10. Ultra-violet assisted pulsed laser deposition of thin films, NATO Advanced Study Institute on Laser processing of biological tissues and biocompatible materials, 23 September – 03 October 2003, Limenas Hersonissos (Crete), Greece

11. Oxygen trapping and interfacial layer formation during pulsed laser deposition of oxide films on silicon, ICMAT-IUMRS-ICA 2003 Meeting, Symposium M: Photo-processing of surfaces, thin films and devices, 7-12 December 2003, Singapore

12. Pulsed laser deposition of Y<sub>2</sub>O<sub>3</sub> on Si: characteristics of the interfacial layer

ALT'01 International Conference on Advanced Laser Technologies, September 10-14, 2001, Constanta, Romania

13. Ultraviolet-assisted pulsed laser deposition of thin oxide films, NATO ARW on Atomistic Aspects of Epitaxial Growth, 25-30 June, 2001, Corfu, Greece

14. Ultraviolet-assisted pulsed laser deposition: a new technique for the growth of thin oxide films at medium and low temperatures, ROMOPTO 2000: Sixth Conference on Optics, 4-7 September, Bucharest, Romania

15. Characteristics of ultraviolet-assisted pulsed laser deposited thin oxide films

MRS Spring Meeting, 24-28 April 2000, San Francisco

16. Challenges in the oxidation of strained SiGe layers

NATO ASI "Fundamental Aspects of Ultrathin Dielectrics on Si-based Devices: Towards an Atomic-Scale

Understanding" St. Petersburg, 3-8 August 1997, E. Garfunkel et al Eds., pp. 461-475 (Kluwer, 1998).

### **Invited seminars**

University of Cyprus, 2012

University of Florida, a 2007

University of Central Florida, 2006

North Carolina A&T University, 2005

University of Texas, El Paso, 2003

Rochester Institute of Technology, 2003

University College London, 2002

University of Rutgers, 2002

University of Orleans, 2000

### **Funded Research Contracts and Grants**

#### 1. High Brightness Electron Source Developments

Office of Naval Research /Subcontract from William and Mary University, CoPI, 2003-2006, 150,000 \$

#### 2. Thin Film Photovoltaics Partnership Program:

Fundamental materials research and advanced process development for thin film CIS-based photovoltaics, Midwest Research Inst Renew Energy Lab, 2003-2004, \$30,120

3. Combinatorial pulsed laser deposition of transparent and conductive oxides, Romanian Government grant, 2007-2010, PI, \$330,000.

4. Pulsed laser deposition of amorphous transparent and conductive oxides for TFTs applications, Romanian Government grant, 2013-2015, PI, \$475,000.

### **Specialized equipment knowledge**

X-ray diffraction systems and analysis techniques,

Scanning Electron Microscopy

Energy Dispersive X-ray Analysis

FTIR, Raman, VASE

XPS and AES

nanoindentation

**Reviewer for papers to various journals including:**

Applied Physics Letters

Journal of Applied Physics

Thin Solid Films

Applied Surface Science

Materials Science and Engineering A.