Korneli G Grigorov

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EDUCATION:

2015
Doctor of sciences (D Sci.) in Physics
Space research and technological Institute, Bulgarian Academy of Sciences
"Deposition and Investigation of Thin Films for Microelectronics and Space Physics Applications"

1986 – 1990
Doctor of Technical Science in Electronics (PhD)
Ph.D. Thesis in Microelectronics: Warsaw University of Technology Poland:
"Irradiation Effects on the Parameters of MOS Structures"

1978 - 1984
University of Mining and Geology. Specialization: Physics and Geophysics. Diploma of Graduated Higher Education.

Work Experience:

Mackenzie Presbyterian University/School of Engineering-Brazil;

Space Research and Technology Institute - Materials Department, Bulgaria;

Institute of Aeronautics ITA, SP, Brazil;

Institute of Electronics, Bulgaria;

Dresden High Magnetic Field Laboratory - Germany;

Interdisciplinary Laboratory of Electron Spectroscopy, University of Namur, Belgium;

Institute of Physics of the Polish Academy of Sciences;

Warsaw Polytechnics – Institute of Micro-and-Optoelectronics - Poland

Institute of Fundamental Electronics. University Paris-Sud, Orsay, France

Specializations:

- High vacuum systems, Thin Film Deposition; magnetron, sputtering, evaporation (e-gun, Knudsen cell), Ion Assisted Physical Vapor Deposition (IA-PVD), IBAD;
- **HiPIMS – industrial coatings**;
- Tribology and Hardness;
- Nitride and Oxide thin films;
- Wear resistant coatings;
- Conductive metal sub oxides;
- Ferroelectrics thin films;
- Organic Semiconductors (PVK);
- **IA PVD** thin film growth - (theoretical modeling of the energy dissipation and concentration profiles, sputtering and related problems);
- Ion Implantation;
- **Diffusion barriers**; Interdiffusion processes and related phenomena;
- High-Tc superconductors - deposition & characterization;
- Colossal Magneto-resistance films deposition and devices;
- High Magnetic Field Measurements;
- Semiconductor and MOSFET - characteristics and modeling;
- Nanoscience and nanotechnologies – ferromagnetic thin films;
- **Synchrotron radiation**.

Analytical Techniques:

- XPS (X-Ray Photoelectron Spectroscopy)
- AES (Auger Electron Spectroscopy)
- RAMAN Spectroscopy
- RBS (Rutherford Backscattering Spectrometry)
- XRD (X-Ray Diffraction)
- FTIR (Fourier Transform Infrared Spectroscopy)
- HREELS (High resolution Electron Energy Los Spectrometry)
- LEED (Low Energy Electron Diffraction)
- RHEED (Reflection High Energy Electron Diffraction)
- AFM (Atomic Force Microscopy)
- SEM (Scanning Electron Microscopy)
- CV (I-V) Characterizations
- DLTS (Deep Level Trap Spectrometry)
- Surface properties – wettability – contact angle measurement.

Languages Skills:

- English, fluent writing and speaking;
- French, fluent writing and speaking;
- Polish, fluent writing and speaking;
- Portuguese, fluent writing and speaking;
- Russian, good command;
- Bulgarian, native speaker.

Computer Skills:

- TRIM/SRIM - “Transport of Ions in Materials”, Monte-Carlo Simulation code
- TRIMDYN – “Dynamic version of TRIM”
- RUMP - Simulation code for Rutherford Backscattering Spectra
- AOS - Algebraic Operation System
- Reverse Polish Notation (RPN)
- Maple V (symbolic programming code)
- GNU Octave high-level computation language.
- UNIX

Research Projects:

1. “Methods for diagnostic of semiconductor structure and integral circuits“- stage III of Project N^{o} V06, central program for basis investigations SVRV 02.20 1987 Poland. Contractors: A. Jakubowski, R. Beck, K. Grigorov, K. Iniewski and M. Duszak.

2. “Technology of the thin oxide films on silicon substrates” – stage IV from Joint Research Project between the Institute of micro and optoelectronics of the Warsaw Polytechnics and the Center of Microelectronics (CEMI), 1988, Poland. Contractors: A. Balasinski, A. Jakubowski, B. Majkusiak, K. Grigorov, R. Beck and M. Duszak.

3. “High Temperature Superconducting Layers (HTSL) – deposition, micro-structuring, development of cryoelectronic elements” – F72 project with the National Fund for Scientific Researchers, 1991, Bulgaria.

4. “Diffusion and interface reactions by thin film structures involving a specific barrier layer” – F64 project with the National Fund for Scientific Researchers, 1993, Bulgaria.

5. “Synthesis and characterization of sub oxide conducting metal films” – a researcher bilateral project between the Bulgarian Academy of Sciences and the Institute of Fundamental Electronic in Orsay, 1993, France, entitled: “Synthèse sous irradiation ionique et caractérisation de films des couches minces”

6. “Damage Free Submicron Structures of High Temperature Superconductor Thin Films” – NATO project, Science for Peace Program, SfP N^{o} 973718, 1995, Bulgaria.

7. "Investigation of transistor-like heterostructure of La0.67Sr0.33MnO3/YSZ/YBa2Cu3O7-Junctions based on spin-polarized quasiparticle injection in strong magnetic fields" - research project, International Laboratory of Strong Magnetic Fields and Low Temperatures Wroclaw, 1999, Poland.

8. “Phases transformation of multi-layered HTS/Manganate and HTS/Manganate/HTS structures studied in Real Time Synchrotron X-Ray Scattering study” – a research project in cooperation of the Rossendorf researcher center, 2001, Germany and the Synchrotron Facilities center in Grenoble, France.
9. "High textured AlN thin films grown by RF magnetron sputtering; Composition, structure, morphology and hardness" - scientific research project - ITA, CTA, 2003, Brazil.

10. “Surface anisotropy and magnetic properties of ferroxidase nanoparticles and multiferroics” – a bilateral project between BAN and the Institute of Low Temperature and Structure Research, PAN, Wroclaw, 2005, Poland.

11. “Structural and magnetic properties of nanosized barium hexaferrite powders obtained by micro-emulsion techniques” – bilateral cooperation between BAS and the International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, 2006, Poland.

12. "Low-temperature and low-pressure dry etching of crystalline and amorphous thin films" - scientific research project - ITA, CTA, 2007 Brazil.

13. “Magnetic, structural and microwave properties of new thin film composite materials produced from nano-sized powder” – a bilateral project between the Bulgarian Academy of Sciences (BAS) and the Technological Institute of Aeronautics (ITA), 2008, Brazil.

14. “Synthesis of ferromagnetic nano-powders for medical applications and its characterization in high magnetic field and low temperatures” – collaboration between BAN, International Laboratory of High Magnetic Field and Low temperatures in Wroclaw and the Dresden High Magnetic Field Laboratory, 2008 Germany.

15. “Optical and morphological properties of N-doped TiO_2 thin films” – scientific research project, ITA, CTA, 2009, Brazil.

16. “Hybrid processing of materials and alloys by concentrated energetic beams for wear-resistant applications” – operational programme for development of the competitiveness of the Bulgarian Economy 2007-2013.

17. “Characterization and Production of piezoelectric Sensors” UNIFERS, Project supported by the “AEB” – Spatial Agency of Brazil, 2013-2015

18. “Hardness improvement strategy implementation in production of high-performance industrial coatings” - Haute école ARC - Ingénierie des surfaces, Switzerland, 2018-2018

19. Study of the influence of outer space on the physico-chemical properties of glass-carbon coatings after a long stay on the International Space Station, FNI – BG, 2018-2023

Participation in scientific committees:

Member of 9 scientific committee

Teaching:

4 specialized courses

Plenary speeches:

7 plenary reports

Participation in conferences, congresses and symposia:

20 items

Anonymous Manuscript Reviewer:

1. Manuscript ID: CRYS-D-10-00942
2. Manuscript ID: JP373
3. Manuscript ID: VAC494
4. Manuscript ID: SCA-12-0014
5. Manuscript ID: APSUSC-D-15-05978
6. Manuscript ID: JSST-15923
7. Manuscript ID: MR-2019-0513

Students (PhD, post-doc):

1. Cicero Alves Cunha – PhD
2. Shirley Wakavaiachi - MS
3. Diego Alexandre Duarte - MS
4. Mauro Santos Oliveira – PhD
5. Sara Fernanda Fissmer – MS
6. Rodrigo S. Pessoa – PhD, (Membro interno banca examinadora)
7. Danilo Cavalcante Braz – MS, UFRN (Examinador Externo a Instituição)
8. Juliano Libardi (Post Doc.)
9. Helson Toku (MS)
10. Anna Buzekova (PhD) - orientador
11. Abrão Merij – (PhD) – co-orientador
12. Carlos Alberto Monezi Oliveira – co-orientador
13. Camila Benini Gaudencio - co-orientador

Books and monographs:

1 Book chapter

List of Publications:

90 items

Impact factor – 150
Citations: 900
Since 2019 = 290
H-index 17;
i10-index 24

https://scholar.google.com/citations?hl=bg&user=AerncRwAAAAJ
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