

CURRICULUM VITAE

Sergey Yarmolenko

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Status: US citizen

Education

1985 - 1989 *PhD in Organic Chemistry*. Institute of Organic Chemistry, Ukrainian Academy of Sciences (Kiev, USSR).

1976 - 1981 *MS in Chemistry (with honor)*. Kharkov University (USSR).

Professional Experience

1999-present *Senior Research Scientist*. Center for Advanced Materials and Smart Structures, North Carolina A&T State University (Greensboro, NC)

1996-1998 *Research Scientist*. School of Engineering, Dept. of Mechanical Engineering, North Carolina A&T State University (Greensboro, NC)

1991 - 1995 *Assistant Professor*. Dept. of Organic Chemistry, Kharkov University (Ukraine).

1992 - 1995 *Head of the Laboratory*. Dept. of Physical Organic Chemistry, Institute of Chemistry, Kharkov University (Ukraine),

1992 - 1996 *Senior Research Scientist*. Laboratory of Chiral Organic Compounds, Institute of Single Crystals Ukrainian Academy of Sciences (Kharkov, Ukraine).

1989 - 1992 *Senior Research Scientist*. Dept. Physical Organic Chemistry, Institute of Chemistry, Kharkov University (Ukraine).

1985 - 1989 *Post Graduate Student*. Dept. of Fluorine-Containing Organic Compounds, Institute of Organic Chemistry, Ukrainian Academy of Sciences (Kiev, USSR).

1981 - 1985 *Research Scientist*. Dept. of Organic Chemistry, Kharkov University (USSR).

Current Research Interests (1996-present)

- *Advanced Materials Research*
 - Mechanical properties of thin films, nanocomposites and nanolaminates
 - Materials for energy applications
 - Functionally gradient and protective coatings
 - Properties and performance evaluation of high temperature ceramics and their composites
 - Carbon nanotube array growth on catalytic surfaces

- Phase transformations in ceramics
TEM, SEM, AFM, nanoindentation, Raman spectroscopy and XRD analysis in materials research
Advanced image analysis
- *Materials Processing and Testing*
High temperature testing of ceramics (bulk, composites and single filament)
Fracture toughness of bulk and thin films
Micro- and nanoindentation
Pulsed laser deposition
Chemical combustion vapor deposition
High-temperature ceramic processing

Past Research Activities (1981-1995)

15 years of research and teaching experience in the area of synthesis, analysis and study of organic dyes, nitrogen and oxygen containing heterocycles, liquid crystals components and fluorine-containing unsaturated ketones. Research studies included low temperature reactions of lithium organic compounds, nucleophilic reactions of unsaturated ketones, conformational analysis, photochemical and thermal reactions of chiral dopants for liquid crystal systems, electronic absorption and emission spectra, photochemistry, photostability, excited state proton transfer, acid-base and tautomeric equilibria of heterocyclic organic compounds using NMR, UV-VIS, IR, Raman, HPLC, fluorimetry, nanosecond time-resolved fluorometry and quantum chemical calculations.

Professional Activities

Symposium organizer and proceedings editor:

- 2002 ASME International Mechanical Engineering Congress and Exposition, "Processing, Characterization and Modeling of Novel Nanoengineered and Surface Engineered Materials" Symposium with full peer-reviewed ASME-IMECE publication, New Orleans, Nov 17-22, 2002.
- 2003 ASME International Mechanical Engineering Congress and Exposition, Washington DC, "Processing, Characterization and Modeling of Multifunctional Materials" (Full Peer Reviewed Proceeding) ASME - IMECE publication, Washington, DC.
- 2004 ASME International Congress and Exposition, "Processing, Characterization and Modeling of Multifunctional Materials", ASME - IMECE publication (Full Peer Reviewed Proceeding), Anaheim, CA.

Reviewer:

- Composites Part B: Engineering
- Surface and Coatings Technology

Session Chair:

- 2003 ASME International Congress and Exposition, Washington DC
- 2004 ASME International Congress and Exposition, November 13-19, Anaheim, CA
- ICCE/10 Tenth International Conference on Composites Engineering, New Orleans, July 20-26, 2003

- ICCE/11 Eleventh International Conference on Composites Engineering, Hilton Head, SC, August 8-13, 2004.

Memberships

- Materials Research Society (MRS)
- American Society of Mechanical Engineers (ASME)
- American Ceramic Society (ACerS)
- Ukrainian Fellowship on Theoretical Organic Chemistry

Teaching activities

- 2001, 2005 MEEN 885.1 *Advanced image analysis (graduate course)*. Adjunct lecturer and course developer. Dept. of Mechanical Engineering, North Carolina A&T State University, Greensboro, NC.
- 2001 *Advanced Materials and Smart Structures (graduate course)*. Adjunct lecturer. Dept. of Mechanical Engineering, North Carolina A&T State University, Greensboro, NC.
- 1991 - 1995 *Electronic spectroscopy of organic compounds (graduate course)*. Adjunct Assistant Professor. Dept. of Organic Chemistry. Kharkov State University (Ukraine)
- 1984 - 1985 *Physical methods in organic chemistry*. Adjunct Lecturer. Dept. of Organic Chemistry. Kharkov State University (USSR)
- 1981 - 1983 *Organic chemistry*. College courses for gifted high school students. Adjunct Lecturer. Kharkov State University (Kharkov, USSR).

Graduate student advisor

L. Chepeleva (PhD), A. Karasev (PhD), E. Andreeva (PhD), S. Fialkova (MS)

Graduate student co-advisor

X. Wang (PhD), S. Neralla (PhD), E. Jones (PhD), A. Borovkov (MS), A. Duraphe (MS), H. Dukes (MS), T. Gogayeva (MS), E. Freeman (MS), Y. Acharya (MS)

Grants

- Prepared proposals and conducted the research of the following successful grants:
 - Self-organized nanostructured thin films for catalysis in perovskite related membrane reactors**
PI: J. Sankar. Funds: \$420,000. Dates: 9/1/2005-8/31/2008. Funding Organization: NSF
 - Multifunctional Materials, Structures and Sensors for Homeland Security (Center for Nanoscience and Nanomaterials)**
PI: J. Sankar. Funds: \$2,750,000. Dates: 4/25/2004-12/31/2006. Funding Organization: Office of Naval Research
 - Center for Nano-Chemical-Electrical-Mechanical Manufacturing Systems (Nano-CEMMS)**

PI: J. Sankar. Funds: \$1,017,500. Dates: 10/1/2003-9/30/2008. Funding Organization: NSF-NSEC (subcontract through University of Illinois-Urbana Champagne)

Center for Nanoscience and Nanotechnology for Homeland Security

PI: J. Sankar. Funds: \$1,875,000. Dates: 5/15/2003-5/14/2004. Funding Organization: Army Research Lab

Center for Advanced Materials and Smart Structures.

PI: J. Sankar. Funds: \$3,750,000. Dates: 9/1/2002-8/31/2007. Funding Organization: NSF-CREST

A Digital Library of Ceramic Microstructures

PI: J. Sankar. Funds: \$129,875. Dates: 1/1/2002-12/31/2003. Funding Organization: NSF

An Experimental and Analytical Investigation of Continuous Fiber Matrix Composites Coated for High Survivability

PI: Devdas Pai. Funds: \$247,539. Dates: 11/1/1999-8/31/2002. Funding Organization: Wright -Patterson AFB

Center for Advanced Materials and Smart Structures

PI: J. Sankar. Funds: \$5,000,000. Dates: 9/1/1997-8/31/2002. Funding Organization: NSF-CREST

- **“Fluorescence and photochemistry of nitrogen- and oxygen-containing heterocyclic compounds”** - Principal Investigator. \$8200, International Science Foundation (USA), 1994.
- Principal Investigator of 2 grants of Ukrainian National Committee on Science and Technology in 1992-1995 (~\$40,000).
- Coinvestigator of 3 grants and 9 projects (USSR, Ukraine).

Collaborators

Jagannathan Sankar (North Carolina A&T State University)

Devdas M. Pai (North Carolina A&T State University)

Dhananjay Kumar (North Carolina A&T State University)

Nina A. Orlovskaya (Michigan Technological University)

George Filatovs (North Carolina A&T State University)

Mark Schulz (University of Cincinnati)

Lidia A. Kutulya (Institute for Single Crystals, Kharkov, Ukraine)

Lev M. Yagupolsky (Institute of Organic Chemistry, Kiev, Ukraine)

Publications

42 articles in refereed journals and books, over 50 articles (5+ pages) in peer-reviewed and refereed conference proceedings. Over 40 technical reports and educational materials.

A. Articles in Journals and Scientific Collections:

1. Orlovskaya, N., Lugovy, M., Kuebler, J., Yarmolenko, S., Sankar, J., “Chapter 7. Design of tough ceramic laminates by residual stresses control”, in: “Ceramic Matrix

Composites: Microstructure/Property Relationship”, Edited by I.M. Low, Woodhead Publishing Ltd, Cambridge, 2006, 550 p.

2. Waters, Cindy K.; Yarmolenko, Sergey; Sankar, Jagannathan; Neralla, Sudhir; Kelkar, Ajit D., “Synthesis, optimization, and characterization of AlN/TiN thin film heterostructures”, *Nanoengineering of Structural, Functional, and Smart Materials* (2006), 529-584.
3. Orlovskaya, Nina; Steinmetz, David; Yarmolenko, Sergey; Pai, Devdas; Sankar, Jag; Goodenough, John, “Detection of temperature- and stress-induced modifications of LaCoO₃ by micro-Raman spectroscopy”, *Physical Review B: Condensed Matter and Materials Physics* (2005), 72(1), 14122-1-14122-7.
4. Orlovskaya, Nina; Lugovy, Mykola; Subbotin, Vladimir; Radchenko, Oleksandr; Adams, Jane; Chheda, Munjal; Shih, James; Sankar, Jag; Yarmolenko, Sergey, “Robust design and manufacturing of ceramic laminates with controlled thermal residual stresses for enhanced toughness”, *Journal of Materials Science* (2005), 40(20), 5483-5490.
5. Xu, Z.; Yarmolenko, S.; Sankar, J., “Exploration of combustion CVD method for YSZ thin film electrolyte of solid oxide fuel cells”, *NATO Science Series, II: Mathematics, Physics and Chemistry* (2005), 202(Fuel Cell Technologies), 49-57.
6. Orlovskaya, N.; Nicholls, A.; Yarmolenko, S.; Sankar, J.; Johnson, C.; Gemmen, R., “Microstructural characterization of La-Cr-O thin film deposited by RF magnetron sputtering on the stainless steel interconnect materials for sofc application.”, *NATO Science Series, II: Mathematics, Physics and Chemistry* (2005), 202(Fuel Cell Technologies), 355-371.
7. Wang, Xinyu; Neralla, Sudheer; Yarmolenko, Sergey; Kumar, Dhananjay; Sankar, Jagannathan, “Tribological property investigation for pulsed laser deposited oxide thin films”, *JOM* (2004), 56(11), 259.
8. Wills, R. R.; Peirson, M. H.; Ferber, M. K.; Tennery, V.; Sankar, J.; Yarmolenko, S.; Thadhani, N. N.; Velez, M.; Karakus, M., “Digital library of ceramic microstructures”, *American Ceramic Society Bulletin* (2004), 83(4), 9101/1-9101/10.
9. Kumar, D.; Yarmolenko, S.; Sankar, J.; Narayan, J.; Zhou, H.; Tiwari, A., “Pulsed laser deposition assisted novel synthesis of self-assembled magnetic nanoparticles”, *Composites, Part B: Engineering* (2004), 35B(2), 149-155.
10. Xu, Z.; Sankar, J.; Yarmolenko, S., “Yttria-Stabilized Zirconia Coatings Produced Using Combustion Chemical Vapor Deposition”, *Surface and Coatings Technology* (2004), 177-178, 52-59.
11. Neralla, S.; Kumar, D.; Yarmolenko, S.; Sankar, J., “Mechanical properties of nanocomposite metal-ceramic thin films”, *Composites, Part B: Engineering* (2004), 35(2), 157-162.
12. Wills, R. R.; Peirson, M. H.; Ferber, M. K.; Tennery, V.; Sankar, J.; Yarmolenko, S.; Thadhani, N. N.; Velez, M.; Karakus, M., “Digital library of ceramic microstructures. Part I. Digital library”, *American Ceramic Society Bulletin* (2004), 83(2), 9301/1-9301/5.
13. Pai, D. M.; Yarmolenko, S.; Freeman, E.; Sankar, J.; Zawada, L. P., “Effect of monazite

- coating on tensile behavior of Nextel 720 fibers at high temperatures”, *Ceramic Engineering and Science Proceedings* (2004), 25(4), 117-122.
14. Orlovskaya, Nina; Lugovy, M.; Subbotin, V.; Rachenko, O.; Adams, J.; Chheda, M.; Shih, J.; Sankar, J.; Yarmolenko, S., “Design and manufacturing B₄C-SiC layered ceramics for armor applications”, *Ceramic Transactions* (2003), 151(Ceramic Armor and Armor Systems), 59-70.
 15. Lua, J.; Xu, Z.; Sankar, J.; Pai, D.; Yarmolenko, S., “Towards optimal processing of yttria stabilized zirconia thin films by stochastic simulation of grain growth”, *Ceramic Engineering and Science Proceedings* (2002), 23(3), 719-724.
 16. Pai, D.; Acharya, Y.; Yarmolenko, S.; Sankar, J.; Lua, J.; Zawada, L., “Exploration of reliable oxide fiber testing procedures and development of a multi-continuum based creep analysis module”, *Ceramic Engineering and Science Proceedings* (2001), 22(3), 429-438.
 17. Kelkar, Ajit D.; Stevenson, Peter E.; Skochdopole, Todd R.; Yarmolenko, Sergey N., “Effect of gage length and test speed on the measured tensile properties of geosynthetic reinforcements”, *ASTM Special Technical Publication* (2000), 37-46.
 18. Lua, J.; Sankar, J.; Yarmolenko, S.; Windley, W., III; Pai, D.; Russell, L. C., “Testing and finite element analysis of sintered silicon nitride specimens under four-point bending”, *Ceramic Engineering and Science Proceedings* (2000), 21(4), 527-536.
 19. Duraphe, A.; Dukes, H.; Sankar, J.; Pai, D.; Yarmolenko, S.; Kelkar, A. D.; Lang, J.; Bhatt, R. T., “Effect of temperature on fatigue properties of melt infiltrated ceramic composites”, *Ceramic Engineering and Science Proceedings* (2000), 347-354.
 20. Kuznetsov, V. P.; Kulishov, V. I.; Kutulya, L. A.; Chepeleva, L. V.; Yarmolenko, S. N., “Molecular structure of α,β -unsaturated ketones: 2-benzylidenecyclohexanone and some its derivatives”, *Kristallografiya* (1999), 44(2), 229-237.
 21. Andreeva, E. K.; Yarmolenko, S. N.; Doroshenko, A. O.; Ponomarev, A., “Protolytic reactions and photochemistry of N-alkyl derivatives of 7-amino-4-methylcoumarin in a toluene-trifluoroacetic acid medium”, *Russian Journal of General Chemistry (Translation of Zhurnal Obshchei Khimii)* (1998), 68(10), 1643-1649.
 22. Kelkar, Ajit D.; Sankar, J.; Chaphalkar, Pramod; Grace, C.; Yarmolenko, S.N.; Mall, Shankar; Vaidya, U.K., “Fatigue behavior of resin infusion processed S2-Glass woven composites”, *American Society of Mechanical Engineers, Noise Control and Acoustics Division (Publication) NCA* (1997), 24, 243-246.
 23. Doroshenko, A. O.; Ivanov, V. V.; Kovalenko, S. N.; Zhuravel, I. A.; Yarmolenko, S. N.; Ponomarev, O. A., “Solvatofluorochromism and fluorescence quenching of 3-(2-amino-4-thiazolyl)coumarin in polar media”, *Khimicheskaya Fizika* (1997), 16(11), 40-45.
 24. El'tsov, S. V.; Yarmolenko, S. N.; Ponomarev, O. A.; Bondareva, N. V., “Spectrophotometric study of M+[dibenzo-18-crown-6] (M+=Na⁺,K⁺) complexes in water-acetonitrile mixtures (60,80 mass% AN)”, *Zhurnal Neorganicheskoi Khimii* (1997), 42(7), 1217-1219.
 25. Folks, W. R.; Reznikov, Yu. A.; Yarmolenko, S. N.; Lavrentovich, O. D., “Light-induced periodic lattice of defects in smectic A and C liquid crystals: structural and dynamical

aspects”, *Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals* (1997), 292, 183-197.

26. Yarmolenko, S. N.; Chepeleva, L. V.; Kutulya, L. A.; Vashchenko, V. V.; Drushlyak, T. G.; Ponomarev, O. A., “Photochemical properties of chiral 2-arylidene-p-menthan-3-ones”, *Zhurnal Obshchei Khimii* (1995), 65(1), 145-154.
27. Kutulya, L. A.; Yarmolenko, S. N.; Vashchenko, V. V.; Chepeleva, L. V.; Patsenker, L. D.; Ponomarev, O. A., “Molecular structure of isomeric 2-arylidene derivatives of p-menthanones and p-(4-menthen)one and their capacity for ‘twisting’ of a nematic phase”, *Zhurnal Fizicheskoi Khimii* (1995), 69(1), 88-95.
28. Yarmolenko, S. N.; Kutulya, L. A.; Vashchenko, V. V.; Chepeleva, L. V., “Photosensitive chiral dopants with high twisting power”, *Liquid Crystals* (1994), 16(5), 877-882.
29. Doroshenko, A. O.; Patsenker, L. D.; Baumer, V. N.; Chepeleva, L. V.; Van'kevich, A. V.; Kirichenko, A. V.; Yarmolenko, S. N.; Scherschukov, V. M.; Mitina, V. G.; Ponomaryov, O. A., “Structure of sterically hindered aryl derivatives of five-membered nitrogen containing heterocyclic ortho-analogs of POPOP”, *Molecular Engineering* (1994), 3(4), 353-363.
30. Doroshenko, A. O.; Patsenker, L. D.; Baumer, V. N.; Chepeleva, L. V.; Vankevich, A. V.; Shilo, O. P.; Yarmolenko, S. N.; Shershukov, V. M.; Mitina, V. G.; Ponomarev, O. A., “Synthesis and structure of sterically hindered polynuclear aryl derivatives of five-membered nitrogen-containing heterocycles: ortho analogs of POPOP”, *Zhurnal Obshchei Khimii* (1994), 64(4), 646-652.
31. Kutulya, L. A.; Semenkova, G. P.; Yarmolenko, S. N.; Fedoryako, A. P.; Novikova, I. E.; Patsenker, L. D., “New chiral imines based on S-a-phenyl-and S-a-benzylethylamines for induction of cholesteric and smectic mesophases. I. Structures and twist characteristics of the chiral additives in the induction of cholesteric mesophases in 4-alkyl-4'-cyanobiphenyls”, *Kristallografiya* (1993), 38(1), 183-191.
32. Shapiro, Yu. E.; Kutulya, L. A.; Kalyuskii, A. R.; Pivnenko, N. S.; Yarmolenko, S. N.; Vashchenko, V. V., “Conformational analysis of diastereoisomers of (-)-2-[(aroyloxy)methylene]-p-menthan-3-ones by NMR spectroscopy. I. Trans diastereoisomers”, *Zhurnal Obshchei Khimii* (1993), 63(6), 1381-1390.
33. Kutulya, L. A.; Kulishov, V. I.; Tolochko, A. S.; Yarmolenko, S. N.; Vashchenko, V. V.; Novikova, I. E., “Molecular and crystal structure of diastereomeric (-)-2-O-(p-chlorobenzoyl)oxymethylene-p-methane-3-ones as effective chiral components of induced cholesteric systems. II. Trans-diastereomers”, *Kristallografiya* (1992), 37(1), 104-114.
34. Kulishov, V. I.; Kutulya, L. A.; Tolochko, A. S.; Vashchenko, V. V.; Yarmolenko, S. N.; Mitkevich, V. V.; Tret'yak, S. M., “Molecular and crystal structure of diastereomeric (-)-2-[O-(p-chlorobenzoyl)]oxymethylene-p-menthan-3-ones - effective chiral components of induced cholesteric systems. I. Cis-diastereomers”, *Kristallografiya* (1991), 36(5), 1183-1193.
35. Ponomarev, O. A.; Vasina, E. R.; Yarmolenko, S. N.; Mitina, V. G.; Pivnenko, N. S.,

“Acid-base and absorption and luminescence spectral properties of coumarin and carbostyryl derivatives”, *Zhurnal Obshechi Khimii* (1990), 60(5), 1161-1170.

36. Yarmolenko, S. N.; Semenkova, G. P.; Fialkov, Yu. A.; Yagupol'skii, L. M., “Fluorine-containing chalcones. IV. Basicity of 4- and 4'-substituted α -fluoro- and α,β -difluorochalcones. Mechanism of hydrolysis of α,β -difluorovinyl carbonyl compounds in aqueous sulfuric acid”, *Zhurnal Organicheskoi Khimii* (1990), 26(4), 848-860.
37. Yarmolenko, S. N.; Fialkov, Yu. A.; Yagupol'skii, L. M., “Fluorinated chalcones. III. Rearrangement of 1,3-diaryl-1,2-difluoro-1-propen-3-ols into α -fluorochalcones”, *Zhurnal Organicheskoi Khimii* (1989), 25(9), 1955-1962.
38. Tret'yak, S. M.; Yarmolenko, S. N.; Fialkov, Yu. A.; Yagupol'skii, L. M., “Fluorinated chalcones. II. Conformations of α,β -difluorochalcones and structure of 4'-methyl- α,β -difluorochalcone”, *Zhurnal Organicheskoi Khimii* (1989), 25(9), 1950-1955.
39. Yarmolenko, S. N.; Fialkov, Yu. A.; Kremlev, M. N.; Yagupol'skii, L. M., “Fluorinated chalcones. I. Synthesis of α,β -difluorochalcones”, *Zhurnal Organicheskoi Khimii* (1988), 24(12), 2584-2590.
40. Ponomarev, O. A.; Vasina, E. P.; Yarmolenko, S. N.; Mitina, V. G., “Prototropic reactions of 7-hydroxy-4-methylcoumarin in nonaqueous media”, *Zhurnal Obshechi Khimii* (1988), 58(2), 438-446.
41. Shkuratov, Yu. G.; Stadnikova, N. P.; Yarmolenko, S. N., “Modeling the albedo spectral dependence of Phobos and Deimos”, *Astronomicheskii Zhurnal* (1986), 63(6), 1183-1188.
42. Ponomarev, O. A.; Vasina, E. R.; Yarmolenko, S. N.; Mitina, V. G., “Basicity of coumarin derivatives in ground and excited states”, *Zhurnal Obshechi Khimii* (1985), 55(1), 179-183.

B. Articles in per-reviewed proceedings for last 5 years (5+ pages and refereed in Sci-Finder)

1. Waters, C.; Young, G.; Yarmolenko, S.; Wang, X.; Sankar, J., “Tribological aspects of AlN-TiN thin composite films”, *Materials Research Society Symposium Proceedings* (2005), 843(Surface Engineering 2004--Fundamentals and Applications), 61-66
2. Pai, D.M.; Kailasshankar, B.; Konchady, M.S.; Wang, X.; Mason, J.; Sankar, J.; Yarmolenko, S.N., “Friction performance of coatings”, *ASEE Annual Conference and Exposition, Conference Proceedings* (2005), 6669-6679
3. Deyneka, E.; Yarmolenko, S.; Sankar, J., “Fully automated PVD process for multilayer metallic film coating”, *TMS Annual Meeting* (2005), 791-800
4. Pai, Devdas M.; Yarmolenko, Sergey; Sankar, Jagannathan; Kailasshankar, Balasubramanian; Murphy, Christopher; Freeman, Edwardo; Zawada, Larry P., “Effect of monazite coating on tensile properties of nextel 720 fibers, tows and minicomposites.”, *Materials Research Society Symposium Proceedings* (2004), 795(Thin Films--Stresses and Mechanical Properties X), 429-434
5. X. Wang, C. Waters, S. Yarmolenko, D. Kumar, J. Sankar, “Mechanical Property and Processing Investigation of Pulsed Laser Deposited Al₂O₃ and AlN-TiN Thin Films”,

International Mechanical Engineering Congress and Exposition (IMECE)2004-61000, November 13-19, 2004, Anaheim, California, Anaheim Hilton (2004),

6. Wang, Xinyu; Waters, Cindy; Yarmolenko, Sergey; Kumar, Dhananjay; Sankar, Jagannathan., "Mechanical property and processing investigation of pulsed laser deposited Al₂O₃ and AlN-TiN thin films", MD (American Society of Mechanical Engineers) (2004), 99(Proceedings of the ASME Materials Division--2004), 147-151
7. Xu, Zhigang; Sankar, Jag; Yarmolenko, Sergey; Wei, Qiuming, "Nucleation and Growth of Yttria-Stabilized Zirconia Thin Films Using Combustion Chemical Vapor Deposition", Materials Research Society Symposium Proceedings (2003), 756(Solid State Ionics--2002), 509-514
8. Waters, C.; Kumar, D.; Yarmolenko, S.; Xu, Z.; Sankar, J., "Synthesis and Mechanical Properties of TiN-AlN Thin Film Heterostructures", Materials Research Society Symposium Proceedings (2003), 778(Mechanical Properties Derived from Nanostructuring Materials), 37-42
9. Wang, Xinyu; Yarmolenko, Sergey; Kumar, Dhananjay; Xu, Zhigang; Sankar, Jagannathan, "Pulsed laser deposition parameter optimization for growth of alumina (Al₂O₃) thin film on silicon (100).", Materials Research Society Symposium Proceedings (2003), 788(Continuous Nanophase and Nanostructured Materials), 577-582
10. Filatovs, Juri; Pai, D.M.; Yarmolenko, S.N.; Sankar, J., "Approaches to computational materials science", ASEE Annual Conference Proceedings (2003),, 11979-11984
11. Kumar, D.; Yarmolenko, S.; Waters, C.; Sankar, J., "Synthesis and Characterization of MgB₂ Bulk Superconductors with Enhanced Properties by Means of Silver Doping", MD (American Society of Mechanical Engineers) (2003), 98(Proceedings of the ASME Materials Division--2003), 349-352
12. Xu, Zhigang; Hilton, Corydon; Watkins, Bobby; Yarmolenko, Sergey; Sankar, Jag., "Thin YSZ electrolyte film depositions on dense and porous substrates", MD (American Society of Mechanical Engineers) (2003), 98(Proceedings of the ASME Materials Division--2003), 343-348
13. Pai, D. M.; Yarmolenko, S. N.; Freeman, E.; Zawada, L. P., "Elevated temperature tensile behavior of Nextel 720 fibers", MD (American Society of Mechanical Engineers) (2003), 98(Proceedings of the ASME Materials Division--2003), 327-330
14. Orlovskaya, N.; Adams, J.; Chheda, M.; Shih, J.; Yarmolenko, S.; Sankar, J.; Lugovy, M.; Subbotin, V., "Boron carbide - silicon carbide laminate ceramics for ballistic protection", MD (American Society of Mechanical Engineers) (2003), 98(Proceedings of the ASME Materials Division--2003), 319-326
15. Xu, Z.; Waters, C.; Wang, X.; Sudhir, N.; Yarmolenko, S.; Sankar, J., "Texture and Nano Mechanical Properties of YSZ Electrolyte Thin Films Prepared by CCVD and PLD", Materials Research Society Symposium Proceedings (2003), 778(Mechanical Properties Derived from Nanostructuring Materials), 189-194
16. Pai, D.; Yarmolenko, S.; Kailasshankar, B.; Sankar, J.; Lua, J.; Zawada, L., "Tensile Behavior of Monazite Coated Nextel 720 Fibers and Tows", MD (American Society of Mechanical Engineers) (2002), 97(Proceedings of the ASME Materials Division--2002),

17. Kumar, D.; Sudhir, N.; Yarmolenko, S.; Wei, Q.; Sankar, J.; Narayan, J.; Pennycook, S. J., "Synthesis and characterization of metal-ceramic thin film nanocomposites with improved mechanical properties", MD (American Society of Mechanical Engineers) (2002), 97(Proceedings of the ASME Materials Division--2002), 291-295
18. Kumar, D.; Yarmolenko, S.; Sankar, J.; Narayan, J.; Tiwari, A.; Zhou, H.; Jin, C.; Kvit, A. V.; Pennycook, S. J.; Lupini, A., "Processing and properties of nanostructured magnetic materials", MD (American Society of Mechanical Engineers) (2002), 97(Proceedings of the ASME Materials Division--2002), 261-267
19. Sankar, Jagannathan; Pai, Devdas; Yarmolenko, Sergey, "American Society of Mechanical Engineers, Materials Division (Publication) MD: Foreword", American Society of Mechanical Engineers, Materials Division (Publication) MD (2002), 97
20. Filatovs, G.J.; Yarmolenko, S.N.; Pai, D.M.; Sankar, J., "Materials characterization by digital microscopy", ASEE Annual Conference Proceedings (2002),, 5689-5697
21. Xu, Zhigang; Wei, Qiuming; Yarmolenko, Sergey; Sankar, Jag; Lua, Jim; Pai, Devdas, "Deposition of YSZ Thin Films by Liquid Fuel Combustion Chemical Vapor Deposition", MD (American Society of Mechanical Engineers) (2002), 97(Proceedings of the ASME Materials Division--2002), 281-289
22. Wei, Q.; Yarmolenko, S.; Sankar, J.; Sharma, A. K.; Narayan, J., "Preparation of Superhard Functionally Graded Tetrahedral Amorphous Carbon Coatings by Pulsed Laser Deposition", Materials Research Society Symposium Proceedings (2001), 617(Laser-Solid Interactions for Materials Processing), J7.7.1-J7.7.6
23. Wei, Q.; Yarmolenko, S.; Sankar, J.; Sharma, A. K.; Yamagata, Y.; Narayan, J., "Microstructure and nanomechanical properties of amorphous carbon thin films prepared by pulsed laser deposition in various atmospheres", Materials Research Society Symposium Proceedings (2000), 616(New Methods, Mechanisms and Models of Vapor Deposition), 217-222
24. Wei, Q.; Sharma, A. K.; Yarmolenko, S.; Sankar, J.; Narayan, J., "Fabrication and characterization of functionally gradient diamondlike carbon coatings", Materials Research Society Symposium Proceedings (2000), 593(Amorphous and Nanostructured Carbon), 323-328
25. Wei, Q.; Sharma, A. K.; Yarmolenko, S.; Sankar, J.; Narayan, J., "Electrical behavior of pure and Cu doped diamondlike carbon prepared by pulsed laser deposition.", Materials Research Society Symposium Proceedings (2000), 593(Amorphous and Nanostructured Carbon), 377-382
26. Wei, Q.; Sharma, A. K.; Yarmolenko, S.; Sankar, J.; Narayan, J., "Fabrication and characterization of functionally gradient diamondlike carbon coatings", Materials Research Society Symposium Proceedings (2000), 594(Thin Films--Stresses and Mechanical Properties VIII), 313-318

C. Presentations on International Conferences – more than 100 (for 1997-2006 are listed at <http://camss.ncat.edu/presentations>. Full list is available upon request)

D. Dissertations

1. MS Thesis “Acid-Base Properties of 7-Hydroxycoumarins in Ground and Excited States”, 1981. Advisor: V.G. Mitina
2. Ph.D. Thesis “Synthesis, Structure and Properties of α,β -Difluoro- and α -Fluoro-chalcones”, Institute of Organic Chemistry, Ukrainian Academy of Sciences, Kiev, 1989. Advisor: L.M. Yagupolsky