

CURRICULUM VITAE

Petri Martti Juhani Vuoristo (Born 1956, Vaasa, Finland)

Professor of Surface Engineering, Tampere University of Technology (TUT), Dept. of Materials Science, Finland

Education

- 1981 M.Sc. (Eng.) in Materials Science, Tampere University of Technology
- 1987 Lic.Tech. in Materials Science, Tampere University of Technology
- 1992 Dr.Tech. in Materials Science, Tampere University of Technology

Most Important Academic Positions

- 1982-1989 Researcher, Tampere University of Technology, Finland
- 1989-1995 Special Researcher, Tampere University of Technology, Finland
- 1995-2002 Senior Researcher, Tampere University of Technology, Finland
- 2002-present Professor in Surface Engineering, Tampere University of Technology, Finland

Professional Activities

- Head of Surface Engineering Laboratory, Tampere University of Technology, Dept. of Materials Science
- European Thermal Spray Association (ETSA), member of board of delegates (representative of Finland), 2009-2013
- ASM/TSS American Society of Materials, Thermal Spray Society, member of Programming Committee (International Thermal Spray Conferences), 2003 to present
- Member of Editorial Committee, Journal of Thermal Spray Technology
- MetSta K11 (corrosion and surface treatments), member of standardization committee
- Referee for Journal of Thermal Spray Technology (Springer)
- Referee for Surface and Coatings Technology (Elsevier)
- Scientific leader of laser cladding research and development at Technology Centre KETEK Oy, Kokkola, Finland, 2002-present
- Founding member of company Oseir Oy in 1999
- Founding member of company Millidyne Oy in 1998
- Organiser and chairman of National Laser Cladding Seminars, Finland, 2002-2011
- TS-klubi (Thermal Spray Club), Finland, member of board, 2006 to present
- International Thermal Spray Conference, member of programming committee, 2006-present
- Deputy head of Materials Science degree program of Tampere University of Technology, 2011-
- Evaluated scientific competence of candidates for Professorships in Sweden, Professor of Manufacturing Technology (Thermal Spraying), 2009
- Examiner/Opponent of 15 Dissertations, of which 9 abroad (France, Norway, Sweden, Estonia) and 6 in Finland)
- Evaluated Project Proposals for Czech Science Foundation GACR, 1999-2001, 2004
- Member of Best Paper evaluation panel for Journal of Thermal Spray Technology, 2009 and 2010

Academic Activities Abroad

- Invited speaker at 2 international conferences and seminars (Cimtec 2010, Tribology seminar 2010)
- Presented appr. 60 papers in international conferences and seminars

- Examiner/Opponent of nine (9) Dissertations abroad

Honors

- The Best Paper Prize together with K. Niemi, T. Mäntylä, E. Lugscheider, J. Knuuttila, and H. Junklaus at 8th Natl. Thermal Spray Conf., 1995, Houston, USA. Paper title: Wear characteristics of oxide coatings deposited by plasma spraying, high powder plasma spraying and detonation gun spraying, ASM International, The Materials Inf. Society
- Award for Post-graduate Lic.Tech. Thesis from Foundation of Imatran Voima in 1988

Doctoral Students Supervised

J. Nurminen (2008), K. Niemi (2009), J. Tuominen (2009), H. Koivuluoto (2010)

Active Doctoral Students under my Personal Supervision

M. Kotilainen, J. Puranen, J. Laurila, J. Näkki, H. Pajukoski, M. Hahtala, and J. Hakalahti

Publications

- 64 refereed journal articles
- 14 refereed article in scientific books
- 27 refereed articles in conference proceedings
- 25 articles in unrefereed journals
- 127 unrefereed articles in conference proceedings
- 86 research reports
- 6 patents
- 187 presentations
- More than 560 citations (in the *ISI Web of Science* database) by other scholars in refereed journal articles, scientific books, published conference proceedings, and doctoral dissertations.

Non-Academic Activities / Expert tasks in society and business

- Member of the Board of Oseir Ltd., 1999-2004
- Member of the Board of Millidyne Ltd., 1997
- Member of the Board of Cavitar Ltd., 2004-2005

SELECTED PUBLICATIONS

1. Vuoristo, P., Mäntylä, T. & Kettunen, P. 1992. Properties of Magnetron Sputtered Electrically Insulating Al₂O₃ Coatings on Cu. *J. Mater. Sci.* 27 pp. 4985-4996.
 2. Vuoristo, P., Mäntylä, T. & Kettunen, P. 1991. Application of Sputtered Alumina Coatings as Insulating Coatings for Metallic MHD Electrode and Insulator Modules. *Magnetohydrodynamics - An International Journal* 3 1/2, pp. 55-63.
 3. Vuoristo, P., Mäntylä, T., Kettunen, P. & Lappalainen, R. 1991. RBS Analysis of Sputter-deposited MgO Films. *Vacuum* 42 pp. 1001-1004.
 4. Vuoristo, P., Mäntylä, T., Kettunen, P. & Lappalainen, R. 1991. Stoichiometry and Impurities in Sputtered Alumina Films on Copper. *Thin Solid Films* 204 pp. 297-311.
 5. Vuoristo, P., Wahlroos, J., Mäntylä, T. & Kettunen, P. 1988. Electrical Insulating Properties of R.F. -Sputtered Magnesia Coatings. *Thin Solid Films* 166, pp.
 6. Vuoristo, P., Mäntylä, T. & Kettunen, P. 1986. Adhesion and Structure of Rf-sputtered Magnesium Oxide Coatings on Various Metal Substrates. *J. Vac. Sci. & Techn.* 4, pp. 2932-2937.
- Määttä, A., Kanerva, U. & Vuoristo, P. 2011. Structure and tribological characteristics of HVOF coatings sprayed from powder blends of Cr₃C₂-25NiCr and NiCrBSi alloy. *Journal of Thermal Spray Technology* 20 1-2, pp. 366-371.

7. Bolelli, G., Bonferroni, B., Koivuluoto, H., Lusvarghi, L. & Vuoristo, P. 2010. Depth-sensing indentation for assessing the mechanical properties of cold-sprayed Ta. *Surface & Coatings Technology* 205 7, pp. 2209-2217.
8. Koivuluoto, H., Bolelli, G., Lusvarghi, L., Casadei, F. & Vuoristo, P. 2010. Corrosion resistance of cold-sprayed Ta coatings in very aggressive conditions. *Surface & Coatings Technology* 205 4, pp. 1103-1107.
9. Koivuluoto, H., Honkanen, M. & Vuoristo, P. 2010. Cold-sprayed copper and tantalum coatings - Detailed FESEM and TEM analysis. *Surface and Coatings Technology* 204 15, pp. 2353-2361
10. Koivuluoto, H. & Vuoristo, P. 2010. Effect of powder type and composition on structure and mechanical properties of Cu + Al₂O₃ coatings prepared by using low-pressure cold spray coatings. *Journal of Thermal Spray Technology* 19 5, pp. 1081-1092.
11. Koivuluoto, H. & Vuoristo, P. 2010. Structural analysis of cold-sprayed nickel-based metallic and metallic-ceramic coatings. *Journal of Thermal Spray Technology* 19 5, pp. 975-989.
12. Puranen, J., Lagerbom, J., Hyvärinen, L., Kylmälahti, M., Himanen O., Pihlatie, M., Kiviaho, J. & Vuoristo, P. 2010. The structure and properties of plasma sprayed iron oxide doped manganese cobalt oxide spinel coatings for SOFC metallic interconnectors. *Journal of Thermal Spray Technology* 20 1-2, pp. 154-159.
13. Puranen, J., Lagerbom, J., Hyvärinen, L., Mäntylä, T., Levänen, E., Kylmälahti, M. & Vuoristo, P. 2010. Formation and structure of plasma sprayed manganese-cobalt spinel coatings on preheated metallic interconnector plates. *Surface & Coatings Technology* 205 4, pp. 1029-1033.
14. Koivuluoto, H., Näkki, J. & Vuoristo, P. 2009. Corrosion properties of cold-sprayed tantalum coatings. *Journal of Thermal Spray Technology* 18 1, pp. 75-82.
15. Koivuluoto, H. & Vuoristo, P. 2009. Effect of ceramic particles on properties of cold-sprayed Ni-20Cr-Al₂O₃ coatings. *Journal of Thermal Spray Technology* 18 4, pp. 555-562.
16. Nurminen, J., Näkki, J. & Vuoristo, P. 2009. Microstructure and properties of hard and wear resistant MMC coatings deposited by laser cladding. *International Journal of Refractory Metals and Hard Materials* 27 2, pp. 472-478.
17. Kulmala, M. & Vuoristo, P. 2008. Influence of process conditions in laser-assisted low-pressure cold spraying *Surface and Coatings Technology*. Vol. 202, no. 18, pp. 4503-4508.
18. Koivuluoto, H., Lagerbom, J., Kylmälahti, M. & Vuoristo, P. 2008. Microstructure and mechanical properties of low-pressure cold-sprayed (LPCS) coatings. *Journal of Thermal Spray Technology* 17 5-6, pp. 721-727.
19. Vattulainen, J., Hämäläinen, E., Hernberg, R., Vuoristo, P. & Mäntylä, T. 2001. Novel Method for In-Flight Particle Temperature and Velocity Measurements in Plasma Spraying Using a Single CCD Camera. *Journal of Thermal Spray Technology* 10 1, pp. 94-104.
20. Tuominen, J., Vuoristo, P., Mäntylä, T., Kylmälahti, M., Vihinen, J. & Andersson, P.H. 2000. Improving Corrosion Properties of High-Velocity Oxy-Fuel Sprayed Inconel 625 by Using a High-Power Continuous Wave Neodymium-Doped Yttrium Aluminium Garnet Laser. *Journal of Thermal Spray Technology* 9 ASM International. 4, pp. 513-519.
21. Stenberg, T., Keränen, J., Vuoristo, P., Mäntylä, T., Virtanen, S., Schmuki, P., Büchler, M. & Böhni, H. 1999. Characterisation of r.f. sputtered Fe-Cr-oxide films. *Vacuum* 52, pp. 477-483.

22. Stenberg, T., Vuoristo, P., Keränen, J., Mäntylä, T., Buchler, M., Virtanen, P., Schmuki, P. & Böhni, H. 1998. Characterization of r.f.-sputtered iron oxide films for modeling passive films. *Thin Solid Films* 312 1-2, pp. 52-66.
23. Ctibor, P., Kraus, L., Tuominen, J., Vuoristo, P. & Chraska, P. 2007. Improvement of mechanical properties of alumina and zirconia plasma sprayed coatings induced by laser post-treatment. *Ceramics - Silikaty* 51 4, pp. 181-189.
24. Kanerva, U., Lagerbom, J. & Vuoristo, P. 2007. Development of thermal spray powders for improved tribological and corrosive applications and cost-effective solutions. *International Journal of Materials and Product Technology* 28 3, pp. 377-398.
25. Koivuluoto, H., Lagerbom, J., Vuoristo, P. 2007. Microstructural studies of cold sprayed copper, nickel, and nickel-30% copper coatings. *Journal of Thermal Spray Technology* 16 4, pp. 488-497.
26. Marcocsan, N., Nylén, P., Turunen, E., Vuoristo, P., Wigren, J. 2007. Thermal spraying in Europe's Nordic region. *Journal of Thermal Spray Technology* 16 4, pp. 463-464.
27. Vuoristo, P., Nylén, P. 2007. Industrial and research activities in thermal spray technology in the Nordic Region of Europe. *Journal of Thermal Spray Technology* 16 4, pp. 466-471.
28. Suutala, J., Tuominen, J. & Vuoristo, P. 2006. Laser-assisted spraying and laser treatment of thermally sprayed coatings. *Surface & Coatings Technology* 201 pp. 1981-1987.
29. Ahmaniemi, S., Vuoristo, P., Mäntylä, T., Gualco, C., Bonadei, A. & DiMaggio, R. 2005. Thermal cycling resistance of modified thick thermal barrier coatings. *Surface & Coatings Technology* 190 pp. 378-387.
30. Cernuschi, F., Lorenzoni, L., Ahmaniemi, S., Vuoristo, P. & Mäntylä, T. 2005. Studies of the sintering kinetics of thick thermal barrier coatings by thermal diffusivity measurements. *Journal of the European Ceramic Society* 25 pp. 393-400.
31. Ahmaniemi, S., Tuominen, J., Vippola, M., Vuoristo, P., Mäntylä, T., Cernuschi, F., Gualco, C., Bonadei, A. & Di Maggio, R. 2004. Characterization of Modified Thick Thermal Barrier Coatings. *Journal of Thermal Spray Technology* 13 3, pp. 361-369.
32. Ahmaniemi, S., Vippola, M., Vuoristo, P., Mäntylä, T., Cernuschi, F. & Lutterotti, L. 2004. Modified thick thermal barrier coatings: Microstructural characterization. *Journal of the European Ceramic Society* 24, pp. 2247-2258.
33. Ahmaniemi, S., Vuoristo, P. & Mäntylä, T. 2004. Mechanical and elastic properties of modified thick thermal barrier coatings. *Materials Science and Engineering A* 366, pp. 175-182.
34. Ahmaniemi, S., Vuoristo, P., Mäntylä, T., Cernuschi, F. & Lorenzoni, L. 2004. Modified thick thermal barrier coatings: Thermophysical characterization. *Journal of the European Ceramic Society* 24, pp. 2669-2679.
35. Leivo, E., Wilenius, T., Kinos, T., Vuoristo, P. & Mäntylä, T. 2004. Properties of thermally sprayed fluoropolymer PVDF, ECTFE, PFA and FEP coatings. *Progress in Organic Coatings* 49, pp. 69-73.
36. Uusitalo, M.A., Vuoristo, P.M.J. & Mäntylä, T.A. 2004. High temperature corrosion of coatings and boiler steels below chlorine-containing salt deposits. *Corrosion Science* 46, pp. 1311-1331.
37. Berger, L.-M., Ettmayer, P., Vuoristo, P., Mäntylä, T. & Kunert, W. 2001. Microstructure and Properties of WC-10%Co-4% Cr Spray Powders and coatings: Part 1. Powder Characterization. *Journal of Thermal Spray Technology* 10 ASM International. 2, pp. 311 - 325.