

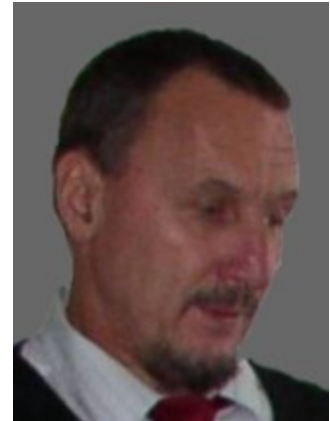


Topic of the Speech:

Multifunctional Effects of Metal Coated Lightweight Nonwovens

Professor Jiri Militky

Head of Textile Engineering Department
Textile Faculty Tu Liberec
Technical University of Liberec



Professor Jiri Militky is the university professor of Textile Science. at the Technical university of Liberec Czech Republic. His scientific activities are in the areas of textile physics, textile material engineering, nanocomposites and statistical data treatment mainly.

He started to work in the field of the modeling of the kinetic processes in solid phase. In this field he published about 30 scientific papers. He was engaged in State Textile Research Institute in the department of the mathematical modeling of the textile structures from 1973 to 1976. He realized research in the field of statistical data analysis and quality control here. On these themes he published 4 books and about 100 scientific papers. From 1976 to 1989 he was engaged in Research Institute of Textile Finishing in Dvur Kralove, nad Labem in many positions, from head of the research department till scientific secretary. Here he worked in the field of textile dyeing, physics of the fibers, mathematical modeling in textile branch and control of dyeing and drying processes. In collaboration with University Pardubice he is working in the field of chemometrics in analytical laboratories. The two volume monographs published in England was finished in 1994 and 1996. Since 1989 he is at the Technical University of LIBEREC (TUL). He obtained full university professor degree in 1993. He is teaching at the Department of Textile Materials (textile fibers, textile testing, quality control, mathematical modeling) since 1989. In 1995 he was appointed Academician of the Ukraine Academy of Engineering Sciences .in 1996 he has obtained professional title EURING. From 1991 to 1993 he was at the position of vice chancellor for foreign relations and from 1994 till 2000 he was dean of the textile faculty. From 2001 till 2003 he was vice chancellor for science and foreign relations. Since 2004 till 2008 he was again a dean of the textile faculty. Currently he is Head of Textile Material Engineering Department.

He is author or co-author of 18 books, about 130 scientific papers published in journals and more than 450 scientific contributions on the international conferences. He is organizer of conferences Textile Science and Strutex.

ABSTRACT SUBMISSION



-For invited speaker only

Multifunctional Effects of Metal Coated Lightweight Nonwovens

Jiri Militky

Technical University of Liberec, Czech Republic

*Presenter's email: jiri.militky@tul.cz

ABSTRACT (NO MORE THAN 500 WORDS:)

Electrically conductive fabrics based on surface coating by conductive materials are promising e.g. for creation of conductive paths and heating elements. By proper selection of conductive components it is possible to obtain fabrics with enhanced electromagnetic shielding, improved thermal insulation reflecting of body heat back and suppressing infrared signature of humans. The benefits of electrically conductive nonwovens are mainly due to their desirable flexibility and light weight compared to traditional materials based commonly on metal sheets. Majority of surface coatings are creating dense layer on textile fabrics surface which is deteriorating their comfort. By proper selection of surface deposition technology it is possible to cover the fibrous part of fabrics only. Because of more than 85 % of nonwovens volume is air it is possible to obtain electrically conductive fabrics with sufficient permeability for air and water vapor. Main aim of this lecture is description of procedure for textiles surface deposition based on the chemical surface activation followed by surface deposition of cuprous salts and in situ reduction of copper particles at ambient temperatures. For this type of surface metallization the polyester nonwovens MILIFE was used. The electrical conductivity, electromagnetic shielding effectiveness, ohmic heating and reflection of IR radiation of metal deposited lightweight nonwovens will be discussed in details.