

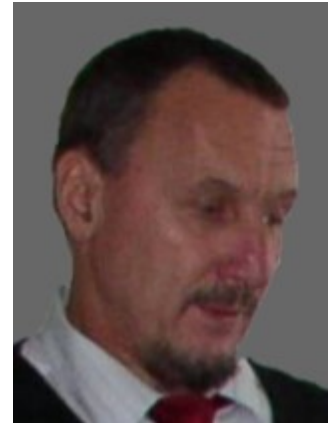


## Topic of the Speech:

Characterization and Ultimate Strength of Hybrid Glass Tapes

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**Professor Jiri Militky**, Prof. MSc. PhD., EURING, FEA, jiri.militky@tul.cz, Department of Material Engineering, Textile Faculty, Technical university of Liberec Studentská 2, 46117 LIBEREC.

**Education and training:** 1996 EURING professional title obtained from FEANI Paris, 1995 Academician of the Ukraine Academy of Engineering Sciences, 1993 University professor degree in the field of textile engineering, 1991 Associate professor, regularly habilitated in the field of textile technique, 1982 Ph.D. degree concerning of the properties of the modified polyester fibers, 1973 Engineer degree, graduated with honor at Textile Faculty.

**Work experience:** 2013 - 2016 Head of Department of Material Engineering, 2009 – 2012 Vice dean for foreign affairs, 2003-2008 Dean of Textile Faculty, 2000 - 2002 Vice rector for science and foreign affairs at TU Liberec, 1994 - 1999 Dean of Textile Faculty, 1991- 1993 Vice rector for foreign affairs at TU Liberec, 1991 – 2012 head of Department of textile materials, 1976 - 1989 Research Institute of Textile Finishing, head of scientific development dept., 1973- 1976 State Textile Research Institute Liberec – research worker.

**Specialization:** Research in the field of modeling of properties of fibers and textile structures. Research in the area of textile material engineering, metrology, and applied statistics. Main activities and responsibilities: 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 started with 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 Dvůr Králové, 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 chemometry in analytical laboratories. The two volume monographs published in England was finished in 1994 and 1996. In 1982 he defended Ph.D. degree concerning of the properties of the modified polyester fibers. Since 1989 he is at the Technical University of LIBEREC (TUL). He is responsible for lectures in TUL at the Department of Textile Materials (textile fibers, textile testing, quality control, mathematical modeling, data treatment).

**Awards and membership in scientific societies:** 1999 - 2010 head of Czech Section of „The Textile Institute“ Manchester, 1999 - G.H. Smith award of The Textile Institute Manchester, 1997 - 2004 board member of Czech Statistical Society, 1994 - board member of Czech Chemometrical Society, 1996 - board member of International Textile Academy, 1995 - president of Czech Monitoring Committee of FEANI, 2006- member of the Czech Engineering Academy.

**Publication activities:** 24 books, 407 articles, H index (SCOPUS) 26

## **Characterization and Ultimate Strength of Hybrid Glass Tapes**

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### **ABSTRACT (NO MORE THAN 500 WORDS:)**

The aim of this study is characterize spreading process during manufacturing advanced form of glass multifilament roving (rectangular cross-section) i. e. hybrid tapes. The SEM images showed glass fibers evenly spaced along the tape and surrounded by the epoxy resin. The fibre strength distribution and tapes strengths distribution is modelled by three parameter Weibull distribution. Parameter estimates are obtained by combination of modified QQ graphs and Weibull moments. Prediction of hybrid tapes strength is based on the modified rule of mixtures adopted for unidirectional composites. For predictive purposes, the strength characteristics (mean and standard deviation) are calculated from the parameters (A, B, C) of the Weibull distribution. It is proven that hybrid tape with particle fly ash reinforcement has excellent mechanical tensile properties and are suitable for new technique of robotic precise winding.