

- The greatest influence of the weave exists for fabrics with a lower weft setting, while the influence of the weft setting increases with a decreasing in the weave factor.



## References

1. Milašius V. An integrated structure factor for woven fabrics. Part I: Estimation of the weave. *Journal of the Textile Institute*. 2000, 91; 1, 2: 268-276.
2. Brierley S. Theory and Practice of Cloth Setting. *The Textile Manufacturer*, 1931, 58 (3 – 4): 47-49, 130-132, 206-208, 244-246.
3. Newton A. The Comparison of Woven Fabrics by Reference to Their Tightness. *The Journal of the Textile Institute* 1995; 86: 232-240.
4. Ashenhurst Thos. R. *A Treatise on Textile Calculations and the Structure of Fabrics*. 1884, Huddersfield, England.
5. Milašius R, Milašius V, Kumpikaitė E, Olšauskienė A. Influence of Fabric Structure on Some Technological and End-use Properties. *Fibres and Textiles in Eastern Europe* 2003; 11, 2(41): 48-51.
6. Milašius A, Milašius V. New Representation of the Fabric Weave Factor. *Fibres & Textiles in Eastern Europe* 2008; 16, 4(69): 48-51.
7. Malčiauskienė E, Rukuižienė Ž, Milašius R. Investigation and Comparative Evaluation of Fabric Inner Structure Weaved With Different Looms. *Materials Science (Medžiagotyra)*. 2009; 15, 4: 339-342.
8. Yildirim K. Predicting Seam Opening Behavior of Woven Seat Fabrics. *Textile Research Journal* 2010 March 80; 5: 472 - 480.
9. Shimazak K., Lloyd D. Opening Behavior of Lockstitch Seams in Woven Fabrics Under Cyclic Loading Conditions. *Textile Research Journal* 1990 November, 60; 11: 654-662.
10. Galuszynski S. Some Aspects of Mechanism of Seam Slippage in Woven Fabrics. *Journal of the Textile Institute* 1985; 76(6): 425 – 433.
11. Lopes RA, Lucas JM, Carvalho ML, Manich AM. Fabric Design Considering the Optimisation of Seam Slippage. *International Journal of Clothing Science and Technology* 2005; 17, 3/4: 225-231.
12. Gurarda A. Investigation of the Seam Performance of PET/Nylon-elastane Woven Fabrics. *Textile Research Journal* 2008 January, 78; 1: 21 – 27.
13. Malčiauskienė E., Milašius A., Laureckienė G., Milašius R. Influence of Weave into Slippage of Yarns in Woven Fabric. *Materials Science (Medžiagotyra)*. 2011; 17, 1: 47-51.
14. Malčiauskienė E, Milašius A, Milašius R. Weave Factor for Seam Slippage Prediction of Unbalanced Fabrics. *Fibres & Textiles in Eastern Europe* 2011; 19, 4(87): 99-102.

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## Technical University of Łódź Faculty of Material Technologies and Textile Design

### Department of Technical Mechanics and Computer Engineering

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#### Current research topics:

- Modelling and identification of the mechanical properties of textile composite materials
- Optimisation of the mechanical and thermal properties of fibre reinforced composites
- Sensitivity analysis and optimal design of the shape and thermomechanical properties of structural elements
- Identification and computer oriented simulation of defects in structures using thermographic methods and modal analysis

#### Area of research activities:

- Mechanics of textiles, textile structures and composites
- Theory and application of textile and structural mechanics
- Sensitivity analysis and optimal design of structures subjected to thermal and mechanical loads
- Numerical methods in textile and structural mechanics
- Computer-oriented analysis, synthesis and optimisation of materials and structures
- Operation of textile machinery and its reliability
- Application of computer science in textile and mechanical engineering

#### Research achievements:

- Creation of a scientific school with varied approaches to optimal design, identification and sensitivity analysis of structural elements, textile products, composite structures subjected to thermal and mechanical loads
- Creation of principles for the modelling of textile products subjected to static and dynamic loads
- Computer oriented analysis and synthesis of textile products, composite structures and structural elements subjected to mechanical and thermal loads

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