

أسنجة لال

﴿فَفَهَّمْنَهَا سُلَيْمَانَ ۚ وَكُنَّا ءَاتِينَا حُكْمًا وَعِلْمًا ۚ
وَسَخَّرْنَا مَعَ دَاوُدَ الْجِبَالَ يُسَبِّحْنَ وَالطَّيْرَ ۚ وَكُنَّا
فَاعِلِينَ ﴿٧٩﴾ وَعَلَّمْنَاهُ صَنْعَةَ لَبُوسٍ لَّكُمْ
لِيُحَصِّنْكُمْ مِّنْ بِأْسِكُمْ ۗ فَهَلْ أَنْتُمْ شَاكِرُونَ ﴿٨٠﴾
وَلِسُلَيْمَانَ الرِّيحَ عَاصِفَةً تَجْرِي بِأَمْرِهِ إِلَى
الْأَرْضِ الَّتِي بَارَكْنَا فِيهَا ۚ وَكُنَّا بِكُلِّ شَيْءٍ
عَلِيمِينَ ﴿٨١﴾ ... ﴿﴾

صدق الله العظيم

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ABSTRACT

This study was carried out in order to predict the knitted fabrics irregularity based on yarn irregularity. Seven types of yarns were used. Using the Uster statistics of yarn mass irregularity, the knitted fabric specifications were determined. In order to build up a theoretical model, the sine function of the Non-linear regression function was applied for the different types of yarn used using the Origin program 8.5. The sine function was chosen because it shows the best fitting results compared with the different functions. The results obtained from the proposed model showed a high correlation and good significance. Furthermore, the results obtained using the Non-linear regression equations show optimal correlation with experimental results for the different types of yarns used in this study. The knitted fabric specifications were proposed for all yarn used in study.

المستخلص

اجريت هذه الدراسة بغرض التوصل الى نموذج للتنبؤ بانتظامية اقمشة التريكو اعتمادا على انتظامية الخيط المستعمل ومن ثم التنبؤ بمواصفات القماش حسب المواصفات المعطاة بواسطة احصاء اليوستر (Uster statistics). تم استخدام سبعة انواع مختلفة من الخيوط المستخدمة لانتاج اقمشة التريكو. لبناء النموذج تم استخدام دالة الجيب (Sine function) من النماذج غير الخطية (Non-linear regression) باستخدام برنامج (Origin 8.5) حيث انها اظهرت افضل النتائج. اظهرت النتائج المتحصلة باستخدام النموذج المقترح ارتباط عالي واستمرارية افضل وتطابق جيد مقارنة بالنتائج العملية التي تم الحصول عليها من انواع الخيوط المختلفة التي تم استعمالها فى هذا البحث. تم الحصول على المواصفات المقترحة لاقمشة التريكو التي يتم انتاجها باستخدام الخيوط التي اجريت عليها الدراسة.

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List of abbreviation

Symbol	Description
KES	Kawabata Evaluation System
FAST	Fabric Assurance Simple Testing
ASTM	American Society for Testing and Materials
PMD	Percentage Mean Deviation
CTT	Constant Tension Transport
AR	Autoregressive
MA	Moving Average
ARMA	Autoregressive Moving Average model
CV_{eff}	Measure yarn irregularity
CV_{lim}	limit irregularity
I	Index of irregularity
CVm	Coefficient of variation of yarn mass
S	Standard deviation of results
D	Yarn diameter
R	Correlation coefficient
sig	Significant
MSE	Mean square error
CV fm	Coefficient of variation of knitted fabric mass

1.5. Preface:

This thesis contains five chapter .Chapter One give an introduction and a brief background on yarn and fabric irregularities and the measuring techniques used. Critical review of the literature related to this research work is given in Chapter Two. Chapter Three described the material used and the methods. The experimental work, the results obtained, the proposed models and the discussion are reported in Chapter Four. Recommendations and suggestions to future work are given in chapter Five.