ENSAIT

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Research & education since 1881
Research at ENSAIT
GEMTEX laboratory

www.gemtex.fr

V. KONCAR
GEMTEX Scientific Structure

ONE RESEARCH TEAM - TEXTILES ADVANCED MATERIALS
1. Présentation de l’unité

Actions réalisées pendant la période 2009 - 2013

Action 1 :
La production scientifique, en termes de qualité et de quantité, en tenant compte de l’équilibre des thématiques de recherche, doit être consolidée et améliorée.
1. Présentation de l’unité

**Bilan quantitatif des publications de l’entité.** 206 ACL, 17 ACLN, 6 OV, 27 OS, 263 ACT, 74 COM, 48 AFF, 31 INV, 25 VB
GEMTEX Scientific Structure

- Human centred design
  - Mass customisation
  - Supply chain management
  -- Smart textiles
  11 PhD Thesis on-going

- Mechanics textile composites
  - Textile composites reinforcements,
  - Textile composites, ballistics
  14 PhD Thesis on-going

- Multifunctional textiles and processes
  - Bio sourced textiles
  - Multifunctional materials
  - Surface treatment
  - Sustainable development
  6 PhD Thesis on-going
1. Présentation de l’unité

Action 4 : Mise en place de la gestion participative au GEMTEX

Director of GEMTEX (V. KONCAR)
Deputy Director of Gmtex (L. KOEHL)
Administrative Service of Gmtex (D. MERCIER)
1 Head, 2 Assistants

COMMITTEES
- GEMTEX governing board
  (2 meetings per month)
  Directors (GEMTEX, ENSAIt), Head of Administration of GEMTEX, Head of collaborative Project Unit and Transfer
- Scientific committee of GEMTEX
  (1 meeting per month)
  Directors (GEMTEX, ENSAIt) and committee members
- GEMTEX laboratory meeting
  (1 meeting per month)
  Organized in presence of all laboratory members including also a 30 minutes research seminar
- STEERING committee
  (1 meeting every 2-3 years)
  Pr. Nadia MAGNENAT THALMANN, Pr. Andy LONG, Pr. Stephen RUSSELL

SUPPORT UNITS
- Collaborative project set up guidance Unit
  (C. MAGNIEZ - M. VOUTERS)
  1 Head, 1 Engineer
- Technology Transfer Unit
  EUGENIE
  (F. CLEMMERSSEUNE)

RESEARCH SKILLS
- HCD
  Human Centered Design
  (X. ZENG)
- MTC
  Mechanics Textile Composites
  (D. SOULAT)
- MTP
  Multifunctional Textiles and Processes
  (C. CAMPAGNE)
At a glance

8 Full professors
19 Associate professors
6 Post doc researchers
31 PhD students
4 Engineers
3 Technicians
9 Administrative staff
3 Members from HEI

TOTAL : 81 members

Annual Turnover : 5 M€
Fields of application : Aeronautics, Automotive, Trains, Medical, Sport, Leisure, Building, Apparel,...
Research topics

- Mass customization, virtual prototyping

Différentes étapes de validation dynamique du modèle en 3D
Research topics

- Mass customisation, Virtual shop
Research topics

Supply chain management & optimisation

1. Optimal planning

2. Cost estimation and optimisation

EDI, Internet

Reduce the delay

Sales forecast

100 €
Research topics

Textile comfort, quality assessment, perception ...

Hand

Material

Objective measurement
Research topics

Textile materials from bio resources: processable synthetic polymers from bio resources, natural fibres

Life cycle analysis, environmental impact

PLA
Research topics

- Multifunctional and communicative textiles, high added value textile structures, flexible sensors & actuators, nanotech applied to textiles

Figure 6: TEM analyses of longitudinal section
Research topics

Surface treatment, Micro capsules, controlled drug release ...
Research topics

Smart textiles

OF Flexible screens

ELECTROCHROMIC Flexible screens
Research topics

- Smart textiles, flexible sensors for aeronautics

Textile sensor

Miniaturized card for data acquisition & processing
Research topics

Textile composites: *reinforcement*, ballistic, energy

Wing box

Box corner
Research topics

Groups IDM - ATM – common topics

Textile composites: reinforcement, **ballistic**, energy

3D weaving
Research topics

Textile composites: reinforcement, ballistic, energy

Flexible photovoltaic cells, integration to textile structures
Research topics

- Non woven structures, filtration, insulation, clothing for special purposes...

CENT
Research topics

Textile transistors – textile electronics
Research topics

Textile transistors – textile electronics
Research topics

PDT
Light Emitting Textiles