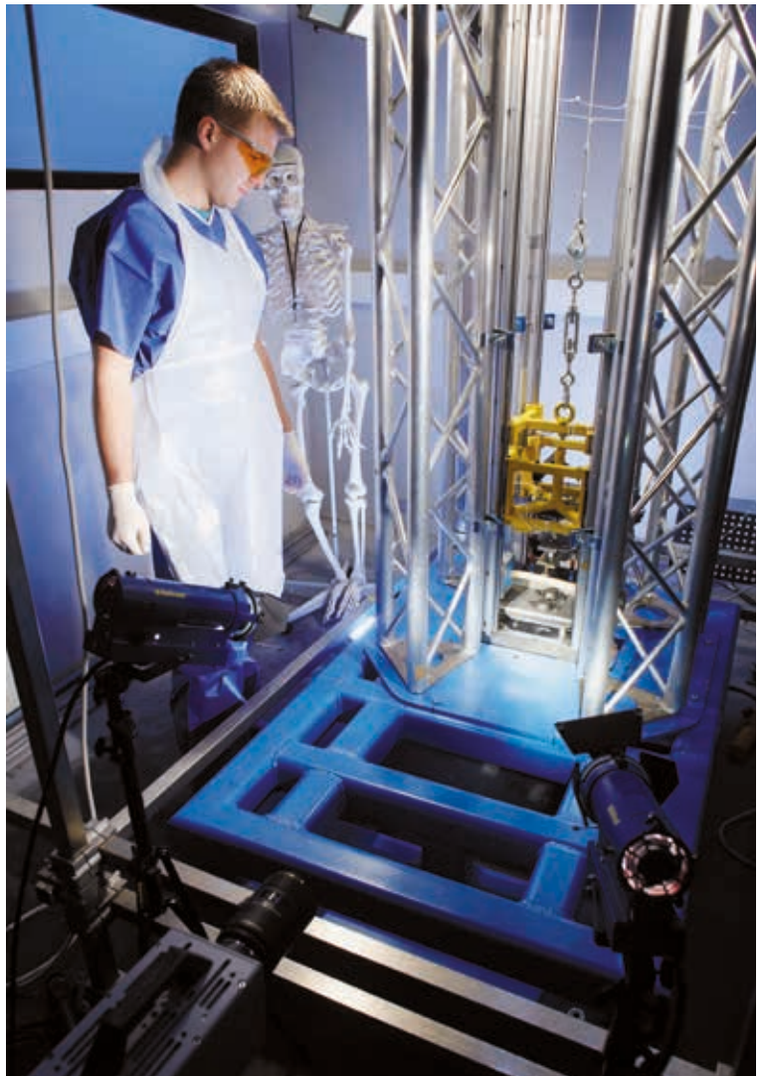

Université de Valenciennes et du Hainaut-Cambrésis

RESEARCH

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CONTENTS

OUR RESEARCH POTENTIAL

Our University's research policy strengthens the link between training programmes in the first instance and commercialisation activities with its industrial partners further down the line.
It capitalises on its small structure and multidisciplinary nature to develop various major cross-cutting projects organised in close collaboration with socio-economic groups:

> It is recognised as a regional pilot structure* and therefore, as a player in national and international research in the field of **sustainable transport and mobility in relation to three major social issues:**
- **energy and the environment**
- **mobility and logistics**
- **safety, security and reliability**

> It also encourages the emergence of multi-laboratory projects, on a smaller scale but for which its knowledge is recognised and which represent many **'original niches':**
- **digital vision**
- **chemistry and materials for sustainable development**
- **urban and hospital engineering**
- **electronic systems for acoustics and telecommunications**
- **legal, including history of law and political science, economics, management science and sociology**

> **Eight laboratories, including two UMR (mixed research units) of the CNRS (National Centre for Scientific Research), work towards multidisciplinarity and complementarity:**
- Automatic, Mechanic and Human IT (LAMIH UMR CNRS)**
- Thermic, Flow, Mechanics and Production Runs (TEMPO)**
- Ceramic Materials and Associated Procedures (LMCPA)
- Ultrasound, Telecommunication, Acoustic Microsystems and Electronics (IEMN DOAE UMR CNRS)
- Mathematics and Related Applications (LAMAV)
- Information - Communication/Design, Visual and Urban (LSC/DeVisU)
- Cultures, Arts, History, Literature, Linguistics and Environment (CALHISTE)
- Law, Economics and Management (IDP)

1 *The research teams in the Valenciennes area are studying transport systems for the future that are safer, more eco-friendly and more accessible.*

2 *The University training programmes are carried out in collaboration with its research laboratories.*

3 *Disability and mobility are the priority focus areas for research in Valenciennes.*

4 *High-tech teams and facilities centred around innovative audiovisual techniques in Arenberg, a remembrance site in the coal mining area that is on the list of Unesco world heritage sites.*

* *CISIT flagship project at CPER-PO (www.cisit.org) and the main site of IRT Railenium (www.railenium.eu)*
** *The LAMIH and TEMPO laboratories are federated within the University's 'Sustainable Transport and Mobility' research centre*

OUR LABORATORY SKILLS

AUTOMATIC, MECHANIC AND HUMAN IT (LAMIH)

75 teacher researchers

Skills:

- Modelling, command and supervision of industrial and human-centred systems with an automated approach
- Modelling of procedures, structures and the behaviour of materials with a mechanical and impact biomechanics approach
- Cognitive psychology and ergonomy
- Design and simulation of distributed information systems, interactive decision-support systems and embedded systems with an IT approach

THERMIC, FLOW, MECHANICS AND PRODUCTION RUNS (TEMPO)

32 teacher researchers

Skills:

- Fluid dynamics and heat transfers
- Materials, surfaces and forming
- Production, services, information

ULTRASOUND, TELECOMMUNICATION, ACOUSTIC MICROSYSTEMS AND ELECTRONICS (IEMN DOAE)

41 teacher researchers

Skills:

- Non Destructive Testing
- Structural Health Monitoring
- Materials and nanostructures
- Micro technology and microsystems
- Micro and optoelectronics
- Telecommunications circuits and systems

DESIGN, VISUAL AND URBAN (DEVISU)

20 teacher researchers

Skills:

- Audiovisual presentation and digital media engineering
- Communication applied to architecture and urban planning
- Quality of information and communication to encourage creativity and innovation in organisations and companies

CERAMIC MATERIALS AND ASSOCIATED PROCEDURES (LMCPA)

16 teacher researchers

Skills:

- Biomaterials: bioceramics and bioglass, developed for widely varied clinical applications, such as bone replacement
- Thermomechanical and piezoelectric ceramics, used as a base or as plating to improve material properties

CULTURES, ARTS, HISTORY, LITERATURE, LINGUISTICS AND ENVIRONMENT (CALHISTE)

51 teacher researchers

Skills:

- Technical arts and sciences with a digital approach
- Cross-referenced study of texts, archives and images

MATHEMATICS AND RELATED APPLICATIONS (LAMAV)

39 teacher researchers

Skills:

- Algebra and the theory of numbers
- Partial differential equations
- Computer-assisted geometric design
- Geometry and global analysis
- Probability and statistics
- Algebraic topology

DEVELOPMENT AND PROSPECTIVE INSTITUTE (IDP)

54 teacher researchers

Skills:

- Innovation, territories and social inclusion
- Mobility and sustainable development
- Risk, information, organisation
- Contract law, banking and real estate
- Theory, models, systems

OUR PARTNERSHIP **RESEARCH**

WITH INDUSTRIALISTS:
Eurocopter, Alstom, Dassault, Bombardier, Valeo, Toyota, AREVA, EADS, SNCF, RATP, Siemens, PSA, Renault, Audi, Volswagen, Fiat, France Télévision, M6 ,DECATHLON, Eurasanté, Santexcel, public hospitals, etc.

WITH COMPETITIVENESS CLUSTERS:
I-Trans, MOVEO, PICOM, etc.

WITH UNIVERSITIES ABROAD
- within Europe (Germany, Belgium, the Netherlands, Denmark, Romania, Bulgaria, etc.),
- in America (Canada, USA, Ecuador, etc.),
- North Africa (Maghreb, Lebanon, etc.),
- Australia and Asia (China, etc.)

WITH RESEARCH BODIES:
CNRS, IFSTTAR, ONERA, INRIA, INRA, INSERM, etc.

WITH INSTITUT CARNOT ARTS
that sanctions partnership research with the TEMPO laboratory

WITH IRT RAILENIUM TECHNICAL RESEARCH INSTITUTE

Numerous partnerships create links between our researchers and companies in France and abroad within the transport sector. Here are some examples:

- Toyota is partnering studies on polymers relating to pedestrian impact;
- Alstom and the I-Trans competitiveness cluster is contributing to the work taking place on the transformation of heat energy produced during high-speed braking by TGV trains;
- Valéo is participating in work on a hybrid vehicle that generates less pollution.

1 *Real-time optimisation and simulation of helicopter trajectories on embedded architectures.*

2 *Analysis of the vibrations transmitted to cyclists from different road surfaces.*

3 *Optimisation of the quality of digital video transmission.*

4 *Bioceramic orbital implants, a great example of our researchers' know-how in biomaterials.*

5 *A research team is developing a new generation of electric power steering that takes account of the abilities of drivers with reduced mobility.*

A FEW OF OUR **LABORATORY PROJECTS**

RESEARCHERS IMPROVE OUR COMMUNICATION SIGNALS

A group of researchers in the opto-acousto-electronics department of the Institute IEMN is providing original solutions to optimise the performances of telecommunications systems. It's not a good idea to be too far from the telephone exchange if you want to receive high-definition television via ADSL broadband. The further away the customer is from the telecommunications centre, the poorer is the quality of reception. The researchers are developing a system that adapts the signal output to the features of the telephone line and so optimise the transmission parameters.

INTERCONNECTED TRANSPORT

A research team is working on intelligent transport systems. For example, it is perfecting an anti-collision radar for road vehicles that can detect the nature of the obstacle (motorbike, pedestrian, motorway barrier, etc.). The designed radar system signals to the driver any obstacle it picks up around 360°, by means of spatialised warning alarms (3D sound).

BIOMECHANICS ATTACKS THE SUBJECT OF BACKACHE

A research team at LAMIH is working on the biomechanical analysis of the movements of patients with chronic lumbago, in other words, people who suffer from great pain in the lower back. The laboratory is aiming to complement doctors' diagnoses and help them adapt their treatment to the life of the patient and the evolution of their condition. Their system of analysing movement offers information that cannot be observed and targeted by any other tool, such as the speed and rate of the movement.

CERAMIC COMES TO HELP OUR OLD BONES

The LMCPA laboratory is working on bioceramics capable of reconstructing human bone. More than a million bone transplants are carried out each year in Europe, to repair complex fractures or replace a bone eaten away by cancer or bacteria. Over the last 15 years or so, surgeons have preferred a man-made material, bioceramic, to autologous human bone or animal bone transplants.

MORE INTELLIGENT HELICOPTERS

A team of computer researchers are working in partnership with Eurocopter, a subsidiary of EADS and the largest helicopter manufacturer in the world, to set up intelligent units to test the avionics of its new helicopter ranges. Our researchers have designed the embedded electronics system, steered by software that is fully built into the system it commands and controls: the computer decisions enable the automatic pilot, flight mechanics and navigation systems to be tested.

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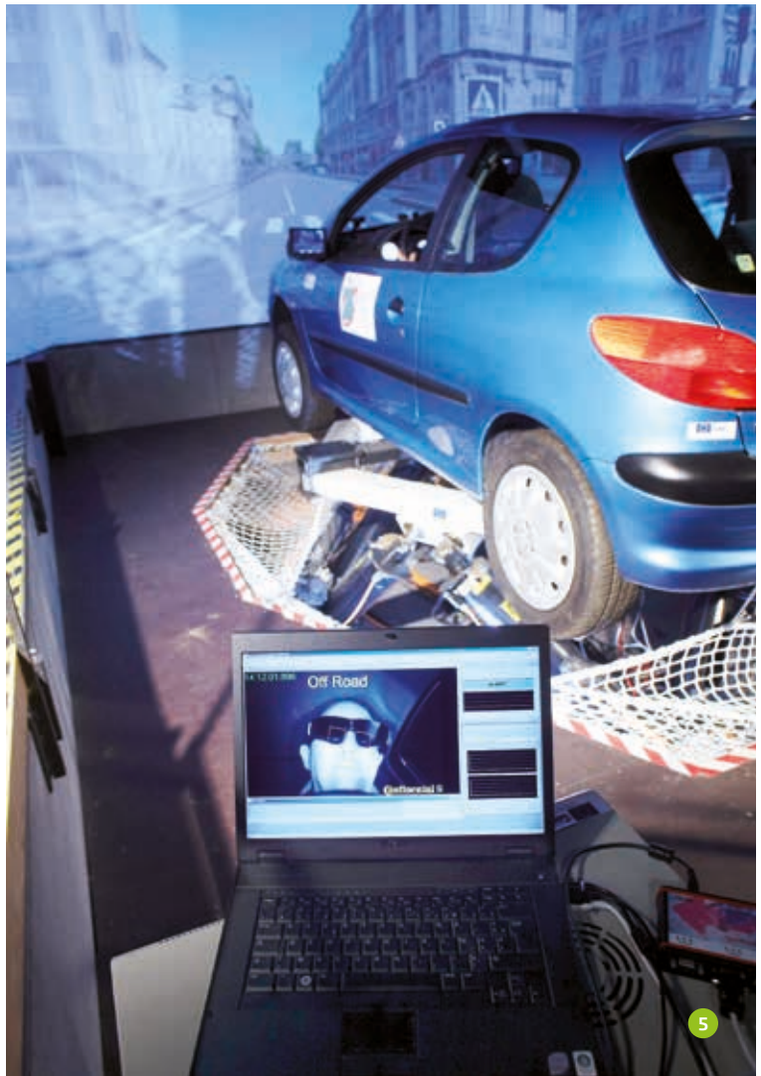

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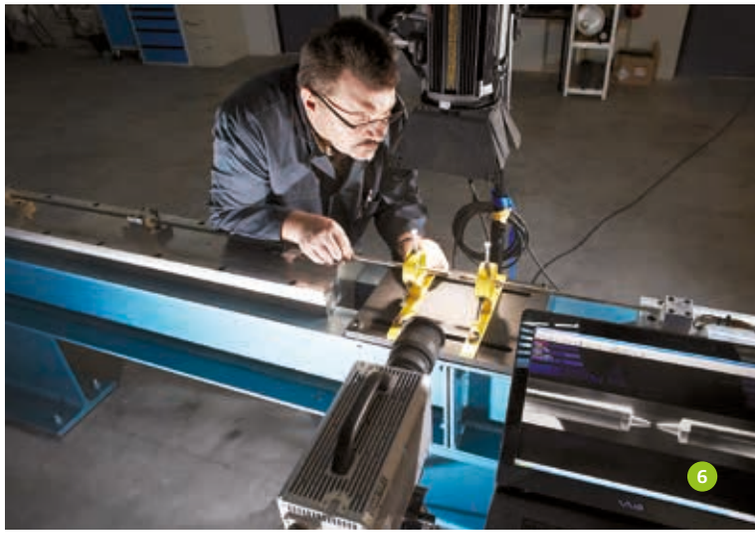

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1 *Micro-CT scanners are able to reconstruct a 3D image of a sample with a finer resolution than ordinary scanners, where the time taken for the capture and reconstruction of the image is longer.*

2 *The wind tunnel is used to develop basic experimental research and for aerodynamic testing; it is labelled 'CREST' (Centre of Resource and Expertise in Science and Technology).*

3 *An interactive table that enables intervention to regulate road traffic for example.*

4 *The 'Gleeble 3500' platform is able to test the tension and compression of metal alloys, from ambient temperature up to temperatures close to melting point.*

5 *This driving simulator is used for research projects and the industrial testing of driving behaviour and its impact on road safety.*

6 *Hopkinson bars used within the context of behavioural characteristics of very high rates of deformation.*

7 *The heat engine test unit enables the behaviour of car engines to be studied.*

OUR SCIENCE EQUIPMENT

Our University has invested in full-scale equipment in the field of transport, notably at the Technology Centre (C3T) dedicated to serve companies and managed by Valutec, a University subsidiary that promotes innovation, meets industrial requirements and assists in the creation of companies.

- Rail driving and traffic management
- Railway driving simulator
- Driving simulator
- Street simulator for pedestrians
- Air traffic simulator
- Flotilla of rovers
- Fast-motion videos
- Aeraulic test unit
- Sound interference test unit
- Braking test unit
- Operating test unit
- Environmental chamber
- Drop shaft
- Electrodynamic exciter
- Acoustic chamber
- Hopkinson bars
- Cylinder with fast ram movement, high-speed braking
- Glass-tool interface
- Interactive RF-ID table
- Crash materials and structures
- Shock biomechanics
- 3D gestural analysis
- Acoustic technologies workshop
- Scientific calculator
- Hybrid vehicle
- Heat engine test unit
- Large semi-industrial wind tunnel
- Catapult
- Pedestrian impact unit
- Heat measurement platform
- Crash materials and structures
- Intelligent product
- Tribology under heat
- Clean room for the design, realization and characterization of ultrasonic sensors.
- Scanning Acoustic Microscope
- Platform for Non Destructive Testing and Acoustic Imaging
- System for acoustic radiation transducers measurement
- Measurement System for 3D and 2D localization
- …

OUR AIM:

INVENTING TRANSPORT FOR THE FUTURE THAT IS MORE ECOLOGICAL, SAFER, MORE RELIABLE AND MORE ACCESSIBLE

WORKING WITH:

> **A 'SUSTAINABLE TRANSPORT AND MOBILITY' RESEARCH CENTRE** that develops driving, protection and energy saving systems suited to human behaviour.

> **AN INTERNATIONAL CAMPUS FOR TRANSPORT SAFETY AND INTERMODALITY (CISIT)** with the aim of developing sustainable mobility for persons and goods by making transport and its infrastructures more reliable, more intelligent and especially more eco-friendly, by federating the best research units in the Nord-Pas de Calais region.
More information: www.cisit.org

> **AN 'INNOVATIVE CAMPUS' LABEL IN THE FIELD OF SUSTAINABLE TRANSPORT**
In 2008, the Ministry for Higher Education and Research handed out four 'Innovative Campus' awards; among those honoured was the University of Valenciennes for its project on sustainable transport.

> **AN IRT RAILENIUM TECHNICAL RESEARCH INSTITUTE**
Our University is investing its research skills in IRT Railenium, a driving force for company innovation, as it brings together the best researchers from the public and industrial sectors in France and Europe to improve rail transport and optimise infrastructures, as well as their maintenance and management.

Also at stake is the safety and reliability of rail and urban transport to:

- create intelligent rails that can detect their own weak spots
- identify the defects of a goods train before it damages the rail
- identify trains that make too much noise…

Railenium disposes of a budget of more than 500 million euros, as well as facilities and research platforms that are unique in Europe: a 5km track for railway testing, a tramway testing track, fatigue test circuits, dynamic test benches, a tertiary hub, as well as a campus of excellence. The principal site will be set up in Valenciennes and Aulnoye-Bachant.

Railenium is one of eight projects selected by the French state within the framework of the IRT (Technical Research Institutes) for the Investments for the Future Programme (Big Loan). The aim of these projects is to endow France with a level of excellence and competitive economic industries in upcoming sectors.

1 *The CISIT distinguishes itself as the showcase for technological advances in transport and sustainable mobility.*

2 *The Transalley technology park will be present on the campus and collaborate with the University and its research laboratories.*

3 *Researchers in the Valenciennes area benefit from large-scale and original testing means, notably with C3T -Valutec, a subsidiary of the University.*

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A SUSTAINABLE TRANSPORT AND MOBILITY TECHNOLOGY PARK ON THE VALENCIENNES CAMPUS

Ideally located opposite the university campus, Transalley Technology Park aims to bring together research and training centres, innovative young companies, experienced companies and institutions in the transport sector:

- A cluster area bringing together professional hubs and operators in innovation (I-Trans, automotive hub, AIF, etc.)
- Business centres
- An incubator and development hub grouping young and innovative companies
- Mutualised facilities and sites: an amphitheatre, meeting rooms, a showroom, a resource centre, etc.
- Extensive land available to develop large-capacity buildings
- A wide choice of real-estate from 15 to 10,000m²

www.transalley.com

FACILITIES OF EXCELLENCE WITH C3T

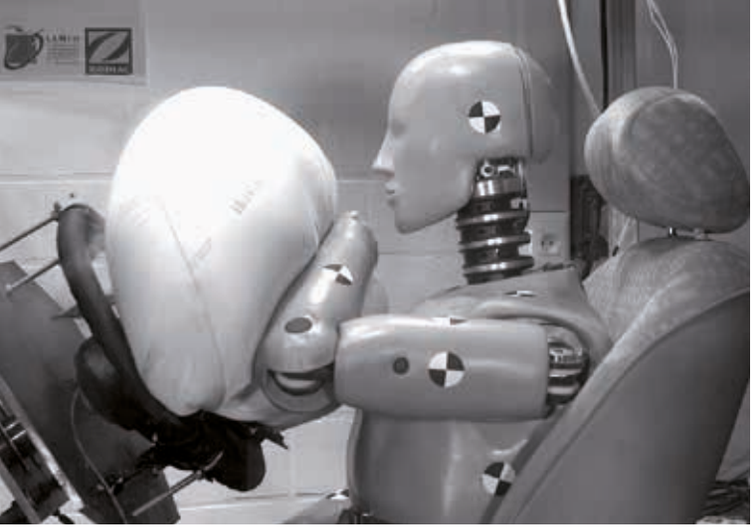
A SUBSIDIARY DEDICATED TO THE 'VALUTEC' TECHNOLOGY TRANSFER

A REGION, WORLD LEADER IN THE RAILWAY AND AUTOMOTIVE SECTORS

With 300 companies and 60,000 professionals, the region welcomes large international groups as well as a dense and structured network of SMEs, sub-contractors and companies providing specialised services.
On the research front, its ambition is to provide a very clear and effective package, in synergy with industrialists, transport operators, competitiveness clusters, centres of excellence, CISIT and IRT Railenium, and in line with the future innovation needs of subsidiaries.

A NEW 'TRANSPORT AND MOBILITY' TRAINING PROGRAMME FOR OUR UNIVERSITY'

The transport sector is experiencing a revolution on a global scale; it is entering the era of multimodality, economical and eco-friendly vehicles, innovative mobility services… Our University has constructed a range of training programmes entirely dedicated to the automotive, railway and mobility sectors for the start of the 2015 school year, to prepare and train specialists in future professions. The programme will involve all the courses and training levels at the University: DUT technology diploma, professional certificate (1-year diploma), degree, engineering diploma, graduate degree and master's programme.



A FEW EXAMPLES
OF OUR RESEARCH PROJECTS IN THE TRANSPORT SECTOR

STRUCTURES THAT ARE ABLE TO ABSORB SHOCK MORE EFFECTIVELY

Our research teams are working on vehicle structure to make it as shock absorbent as possible while remaining lightweight to reduce fuel consumption. Looking for materials to make vehicles lighter without reducing the level of safety attained over the last few years is a new challenge.
The research teams have large-scale and original testing means at their disposal on site, to identify material properties and test the structures.
They work particularly closely with C3T-Valutec, a subsidiary of the University.

TRANSPORT MEANS THAT POLLUTE LESS

Preserving the environment is another main line of research in the transport sector. As part of an industrial partnership, a research team is working on lubricants that cause less pollution during the sheet metal forming of vehicle bodies. This product could be in use by car manufacturers within the next few years. The researchers are also optimising the principles to control fuel injection for a hybrid heat engine that consumes less fuel and gives off fewer pollutants.

PREDICTING THE RISK OF INJURY IN THE EVENT OF A CRASH

Researchers are also interested in risk prediction concerning injury to vehicle occupants and vulnerable road users, pedestrians and drivers of two-wheel vehicles. They are looking to create a virtual model of a human being. Many countries are collaborating, with each country concentrating on a part of the body. Valenciennes is looking into the bone structures of the head, thorax and upper limbs.

ACCESSIBLE TRANSPORT FOR PEOPLE WITH REDUCED MOBILITY AND THE DISABLED

How to turn a steering wheel when we have some problems of shoulder or elbow? How to stand up and to move with safety when we are hemiplegic? The researchers work with JTEKT, Japanese world leader, on the development of a new generation of power steering adapted to the capacities of the driver, and with ADM Concept and BA Systems to develop a new device of verticalization and movement.

CUTTING-EDGE SKILLS
IN IMAGE AND DIGITAL CREATION

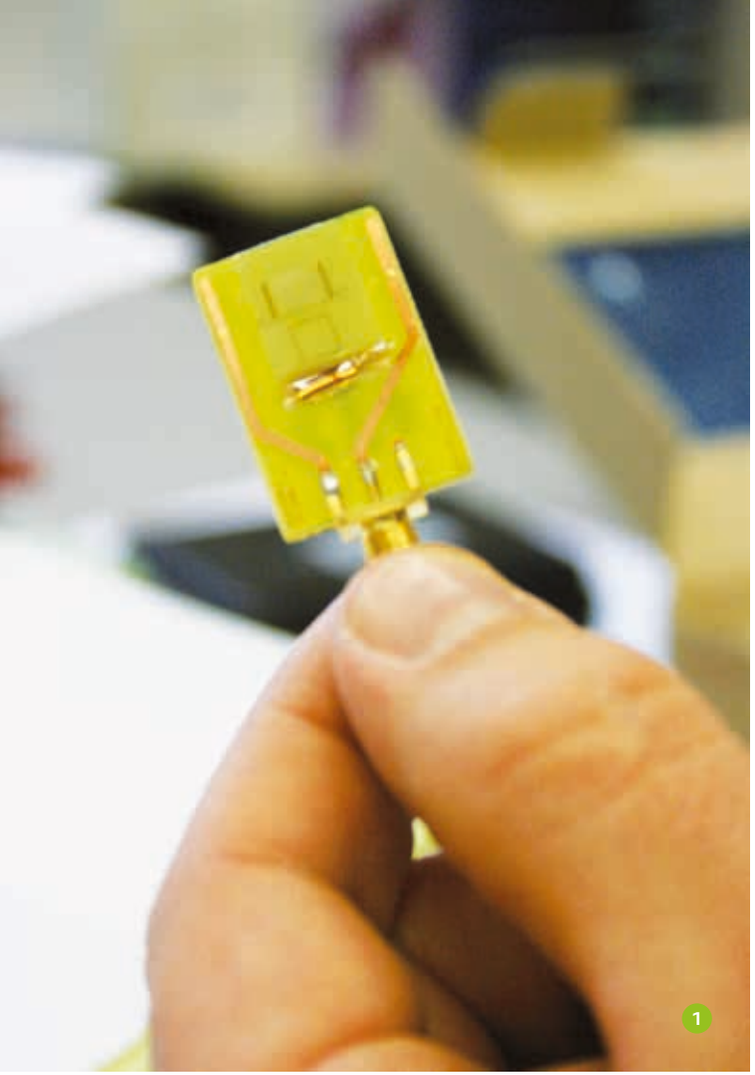
On the location of the former Arenberg mine, the University and Porte du Hainaut Agglomeration Community have created a site dedicated to research and innovation for the cinema, audiovisual and digital medias, with:

- a research centre (DeVisu laboratory)
- an incubator for innovative companies
- film sets
- a cultural centre for science, technology and industry aimed at the general public

1 *From 2015, the research centre will operate on an exceptional site: the former Arenberg coal pit.*

2 *A concentration of 'grey matter': researchers, technological platforms and talented young entrepreneurs.*

3 *The site will also include an incubator for innovative start-ups, film sets and a cultural centre for science, technology and industry open to the general public.*



RESEARCH MAKES ITS **INNOVATIONS AVAILABLE TO INDUSTRIALISTS**

Publications are not the only way the University proclaims the results of its research. The laboratories also develop partnership research in the form of project bids and public/private sector bilateral contracts.

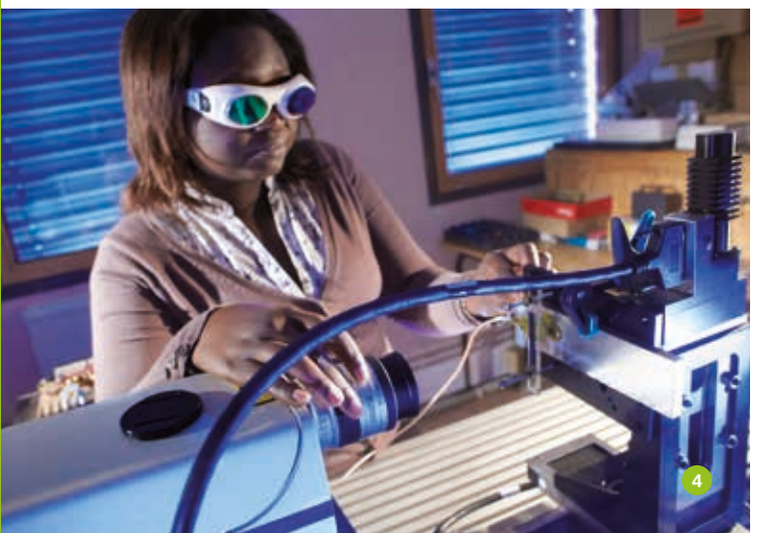
TWO EXAMPLES OF INNOVATIONS MADE AVAILABLE TO INDUSTRIALISTS

ULTRASONIC WAVES TO CONTROL THE QUALITY OF PLATING

Finding out how the plating on a plane is ageing, or the thickness of the paint on a car is possible. A team of researchers at the IEMN laboratory has developed an ultrasonic sensor that sends out waves at the surface of materials. It enables faults in the plating to be detected, to find out its resistance to distortion or its adherence capacity without being damaged. Other than its ability to adapt to new materials, this technology is low cost and enables wave frequency to be harmonised so that the same sensor can answer to several uses.

RECOVERING ENERGY FROM VIBRATIONS

We hear a lot about wind or solar energy. Another source of free and renewable energy is being explored by researchers at the University: vibratory energy. A team at the LMCPA laboratory has invented a new form of piezoelectric ceramic material in the shape of a spiral that recovers the electrical energy in vibrating structures such as machinery, vehicles, human movement and draughts.



APPRENTICE-RESEARCHERS FOR INNOVATION IN SMES

The TEMPO and LAMIH research laboratories are taking on apprentice, via Valutec, to accompany innovation projects in SMEs.
This is a unique and pioneering action that the University has set up with support from the Union of Metal Manufacturing, Mining, Engineering, Electrical and Metal Equipment and Allied Industries (UIMM). The idea is simple, though it has never been implemented: to facilitate the access of SMEs to research, the UVHC university makes research apprentices available to company directors whose interests are in relation with the subjects of research carried out in its laboratories.

- **The apprentice, a young 'affordable' researcher for SMEs**
- **The University is a training instructor just like any other**
- **The laboratory becomes the centre of R&D for the company**

Contact: xavier.delcorte@univ-valenciennes.fr

1 *The sensor is made using technology originating from micro-electronics.*

2 *These new sensors are less likely to break, as well as being more compact and lightweight.*

3 *An apprentice trained through research is a real vector for the transfer of technology in an SME.*

4 *This scheme will include up to 12 apprentices in training for an engineering diploma or graduate degree, present within the University's LAMIH and TEMPO laboratories.*

UNDERTAKING YOUR THESIS IN A COMPANY IS POSSIBLE! WITH THE INDUSTRIAL AGREEMENTS FOR TRAINING THROUGH RESEARCH (CIFRE)

This scheme financially backs any company governed by French law that employs a PhD student to work on a research partnership with a public laboratory. The work leads to the presentation of a thesis after three years.
The scheme, financed entirely by the Research Ministry, has become increasingly popular and aims to contribute to the process of company innovation and competitiveness.
It promotes exchange between public research laboratories and private companies, whether large or small.

OUR RESEARCH TRAINING PROGRAMMES

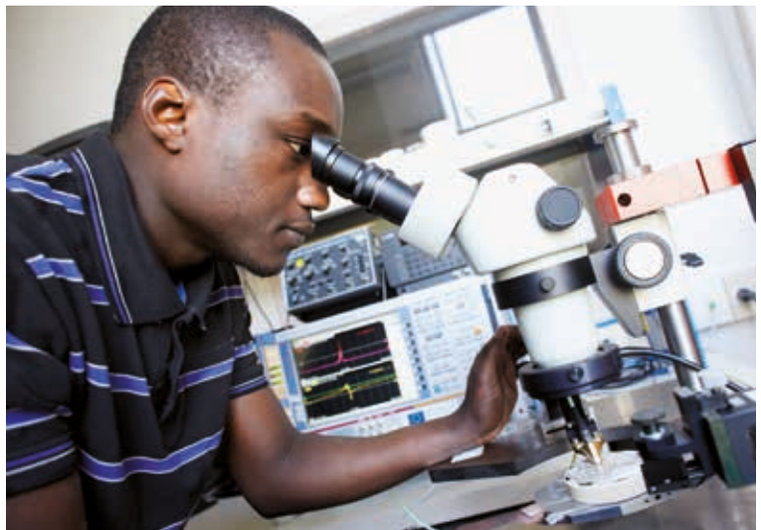
- Arts: aesthetics, practice and theory
- History, civilisation, archaeology and history of art in ancient and medieval cultures
- History, civilisation and history of art in modern and contemporary cultures
- English and Anglo-Saxon languages and literature
- French languages and literature
- Germanic and Scandinavian languages and literature
- Ancient languages and literature
- Comparative literature
- Clinical, social and cognitive psychology
- Information and communication sciences
- Private law and criminal science
- Public law
- Management sciences
- Economic sciences
- Acoustics and telecommunications
- Automation control and computer engineering
- Biomechanics
- Energy and materials
- Civil engineering
- Electrical engineering
- Computing
- Applied mathematics
- Pure mathematics
- Mechanics
- Micro and nanotechnology
- Signal and image processing

DOCTORAL STUDIES OFFICE IN VALENCIENNES

Student services - campus Mont Houy

- **Coordinator:** marc.gazalet@univ-valenciennes.fr
- **Administrative manager:** marie-helene.frappart@univ-valenciennes.fr

Tel: +33 (0)3 27 51 14 01



BEING A PHD STUDENT IN VALENCIENNES MEANS GUARANTEED:

- scientific guidance and support from recognised research units and teams
- useful training in conducting the research project and development of the professional project
- access to international perspectives
- the opportunity to train in a professional environment
- ongoing support during integration into the workplace

A SERVICE PACKAGE **DEDICATED TO COMPANIES AND RESEARCHERS**

- **ASSISTANCE IN ORGANISING RESEARCH PARTNERSHIP PROJECTS** (confidentiality agreement, research contract, service contract, framework agreement, license, register and assignment of patents, etc.)
- **SUPPORT FOR COMPANIES,** notably with the Transalley cluster to develop technological skills: structuring research projects, identifying scientific know-how, accessing technology platforms, etc.
- **INCUBATION FOR INNOVATIVE PROJECTS** leading to the creation of companies, the University and Transalley provide initial support during the project organisation and pre-creation promotion in the incubator, and for young companies, there is the development hub.
- **INFORMING AND MAKING RESEARCHERS AND PHD STUDENTS AWARE** of the need to protect their inventions and the commercialisation of their research with regard to industrialists.

RESEARCH ADMINISTRATION

- **Vice-president for research and doctoral studies:**
  Abdelhakim ARTIBA
- **Office:**
  Sophie BALLET - Tel: +33 (0)3 27 51 16 91

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- **Project organisation:**
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- **Legal/IP support:**
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  et Perrine CRAPET - Tel: +33 (0)3 27 51 11 08
- **Project management:**
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- **Human Resources:**
  Maureen COURBEZ: Tel: +33 (0)3 27 51 11 48
- **Technology Transfert:**
  Bénédicte FOUCRIER
- **Finance:**
  Karine COUSIN - Tel: +33 (0)3 27 51 17 33
- **Quality:**
  Laurence COURNOT - Tel: +33 (0)3 27 51 13 93

LABORATORIES

LAMIH - Automatic, Mechanic and Human IT

- **Director:** Thierry-Marie GUERRA
- **Finance Manager:**
  Véronique LANDRAIN - Tel: +33 (0)3 27 51 13 93
- **Contact CNRS:**
  Marie-Claude ROSSILOL - Tel: +33 (0)3 27 51 14 70
- **Office:** Isabelle OLIVEIRA - Tel: +33 (0)3 27 51 13 50
- **Under the supervision of:** UMR/CNRS UVHC
- **Status:** 8201 Department CNRS ST2I

TEMPO - Thermic, Flow, Mechanics and Production Runs

- **Director:** Laurent DUBAR
- **Office:** Sabine GUILAIN
  Tel: +33 (0)3 27 51 19 60 - Fax: +33 (0)3 27 51 19 61
- **Status:** EA 4542

IEMN/DOAE - Ultrasound, Telecommunication, Acoustic Microsystems and Electronics

- **Director:** Jamal ASSAAD
- **Office:** Françoise DESRUELLES - Tel: +33 (0)3 27 51 12 39
- **Under the supervision of:** UMR/CNRS UVHC
- **Status:** 8520 Department CNRS ST2I

LMCPA - Ceramic Materials and Associated Procedures

- **Director:** Anne LERICHE
- **Office:** Carole PETIT - Tel: +33 (0)3 27 53 16 76
- **Status:** EA 2443

LAMAV - Mathematics and Related Applications

- **Director:** Serge NICAISE
- **Office:** Nabila DAIFI - Tel: +33 (0)3 27 51 19 01
- **Status:** EA 4015

CALHISTE - Cultures, Arts, History, Literature, Linguistics and Environment

- **Director:** Corinne BECK
- **Office:** Régis DUTHILLEUL - Tel: +33 (0)3 27 51 16 22
- **Status:** EA 4343

DeVisu - Design, Visual and Urban

- **Director:** Sylvie MERVIEL
- **Office:** Louisette AVONTS - Tel: +33 (0)3 27 51 15 03
- **Status:** EA 2445

IDP - Development and Prospective Institute

- **Director:** Stéphane DE LA ROSA
- **Office:** Anais REBUCCINI - Tel: +33 (0)3 27 51 77 17
- **Status:** EA 1384

SUSTAINABLE TRANSPORTS AND MOBILITY CENTER

- **Director:** Eric MARKIEWICZ - Tel: +33 (0)3 27 51 14 11

TRANSALLEY

- **Director:** Stéphane MEURIC - Tel: +33 (0)3 27 51 11 60

KEY FIGURES

8 LABORATORIES, INCLUDING TWO UMR OF THE CNRS

1 CARNOT INSTITUTE ARTS

1 'SUSTAINABLE TRANSPORT AND MOBILITY' RESEARCH CENTRE

1 IRT RAILENIUM

475 EMPLOYEES ATTACHED TO THE LABORATORIES

40 GUEST PROFESSORS

1 SENIOR RESEARCH CHAIR ON 'EFFICIENT AND ROBUST OPTIMIZATION METHODS FOR RAILWAY INFRASTRUCTURE LOGISTICS AND MAINTENANCE'

1 JEAN MONNET GRANT DECISION FOR THE ACTION ENTITLED 'DROIT DE L'UNION EUROPÉENNE ET MUTATIONS DE L'INTÉGRATION ÉCONOMIQUE ET SOCIALE EUROPÉENNE'

9 PATENTS

70 PUBLIC-PRIVATE PARTNERSHIPS

1 SUBSIDIARY DEDICATED TO COMMERCIALISATION ACTIVITIES: 'VALUTEC'

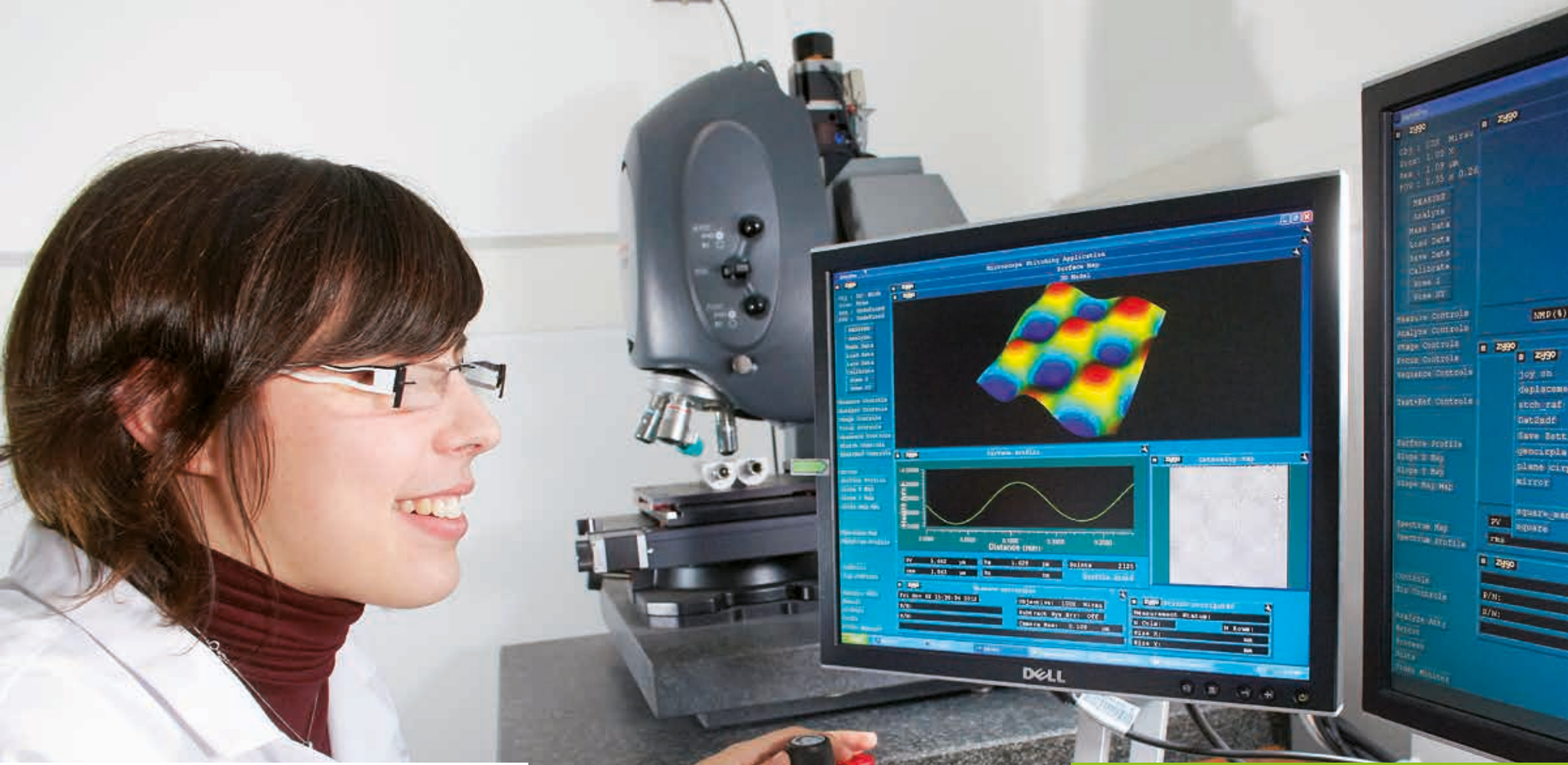
1 DOCTORAL SCHOOL OFFICE ATTACHED TO THE 4 DOCTORAL SCHOOLS IN LILLE

190 DOCTORATES

37 THESES DEFENDED PER YEAR

32 CURRENT THESES UNDER JOINT SUPERVISION

18 CIFRE THESES IN PROGRESS



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