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A SCHOOL WORKSHOP
a reference
international center
for Non Destructive Testing and Evaluation Training
Welcome to the ECND Academy

Le Mans Université and its partners boosted the creation of a school workshop, the ECND Academy, in the field of the Non Destructive Testing and Evaluation, an international reference centre as regards the development of partnerships for training and employment, in order to consolidate an excellence industrial field.

The ECND Academy strives after the maintaining of industrial competitiveness at a national and international level.

The role of the training in new technologies for the future talents is essential. The vision of the ECND Academy tightly integrates the technological challenges to which the companies in the industrial sector must face. The ECND Academy wishes to articulate its strategy of mobilization and development of skills. Pedagogical innovation and technological innovation are at the core of its methods.

The wish of the ECND Academy is to mark an important step of cooperation among public services and communities, industrial actors, professional organizations and actors of training, favoring the creation and application of a unique and on a grand scale pedagogical tool.

The ECND Academy aims at creating a new training offer adapted to the industrial expectations and at inspiring an anticipating dynamic of needs as regards the professionalization and the qualification in the service of the employment and competitiveness in companies.

The objective of the ECND Academy is to count on NDT&E research activities in order to create new training programs. Indeed, it is not possible any longer to separate the initial training from the continuing education training and the research to the advantage of employment.
The University offers exceptional conditions that contribute to the well-being and success of its students:

- diversified training sessions
- innovative pedagogical methods
- a personalised educational support
- a sports cultural voluntary vitality
- a modern and functional equipment.

With its 3 faculties, 2 IUT and 1 Engineering School (University Institute of Technology), it offers training sessions and an expertise research activity internationally recognized in Sciences and Technology but also in Letters and Languages, Law, Economy, Management, Human and Social Sciences. Le Mans Université has 15 Mixed Units of Research out of which 6 are associated to the CNRS.

In wishing to train throughout life, Le Mans Université welcomes both students in initial training and all public willing to return to school in continuing training.

Created in 1977 and situated at 200 kms of Paris, the University of Le Mans is a multidisciplinary establishment of 11,000 students, in two campuses, Le Mans and Laval.

KEY FIGURES
Le Mans Université

- 11,000 students
- 3,150 national diplomas delivered a year
- 15 laboratories
- 3 Faculties, 2 IUT, and 1 Engineering school
- 640 Professionals and Teachers - Researchers
- 3,000 internship a year
- 280 PhD students
To acquire necessary basics for NDT&E fields

- Materials properties
- Mathematics, Physics, Chemistry related to NDT&E fields
- Materials and structures evolution
- Inspection Instructions
- To use quality assurance and metrology procedures in companies
- To control the applicability and limitations of NDT&E methods

To use NDT&E methods

- Ultrasonic Testing - UT
- Radiography Testing - RT
- Liquid Penetrant Testing - PT
- Magnetic Particle Testing - MT
- Eddy Currents Testing - ET
- Infrared Testing - IT
- Shearography - ST

To ensure a technological watch
To increase adaptability to new NDT&E technologies

- Optoacoustics
- Time Of Flight Diffraction
- Aire Coupled Ultrasound
- Radiography testing - Ionizing radiation
- Nonlinear acoustics
- Transducers
- Guided waves
- EMATs - ElectroMagnetic Acoustical transducers
- Signal processing for Acoustic emission

Blended & Digital Learning

Virtual and Augmented Reality

High-tech Equipments

Short Training à la carte

To get better skills with ECND Academy
### A SKILL BASED, MODULABLE OR À LA CARTE TRAINING

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| **Non Destructive Testing Agent** | • To participate to the preparation of controls and proceed to controls  
• To identify non-conformities when they arise  
• To set-up and verify the effective functioning of instruments  
• To adjust and control the operating of measuring instruments controls  
• To ensure the good operating conditions of instruments | Bachelor degree               | Additional mention Non Destructive Testing Agent |
| **NDT&E Technician**             | • To implement a chain of measurements  
• To prepare tests and control the conformity of production  
• To determine the points at which corrective measures are necessary  
• To set equipments and operate controls  
• To interprete and value inspected items for agreement or refusal | Bachelor degree +2            | University Degree NDT&E Technician |
| **Measurements Technician**      | • To apply non destructive techniques related to ultrasound, X-Rays, Eddy current, Thermography, etc.  
• To control the conformity of operating of NDT&E instruments / equipment / products/ consumables.  
• To identify the non-conformities when they arise and realize technical adjustments  
• To realize NDT&E tests and analyse technical options, identify and define equipments and materials depending on the regulation, the environment, and cost  
• To organize and manage NDT&E measurements | Bachelor degree +3            | Technological University Degree Physical Measurements |
| **NDT&E Superior Technician**    | • To master the NDT&E methods applied in an industrial environment.  
• To perform tests and essays, analyzes datas and determine the product and procedure  
• To analyze the choices and define technical orientations  
• To manage and co-ordinate NTD&E projects  
• To lead technical expertise  
• To carry out a technical expertize  
• To Coordinate and manage projects | Bachelor degree +5            | Master Degree in Engineering school |
| **NDT&E Engineer**               | • To conceive and develop reserach in NDT&E fields  
• To develop scientific products and communication tools in NDT&E  
• To transmit knowledge and know-how through research  
• To teach in NDT&E | Bachelor degree +8            | PhD |

**COFREND recognition** according to the targeted certification level (1,2 or 3).
**Blended learning**

The **NDTE** agent prepares and organizes the tests that allow to control products without causing damage. He watches over the formalization of the operation and ensures the maintenance of the control devices (Magnetic Particle Testing, Radiography Testing and Ultrasonic Testing). He must organize his control station and respect the security instructions. The additional distinction of Agent in Non Destructive Testing aims is to get professional experience to be employed directly after training.

**Methods and learning tools**

Block release training that favorises theoretical learning and its implementation, the learner benefits from an educational support and from a training guidance.

**Ways of validation**

Writing tests and assessment during training course.

**Instructors**

Teachers - Researchers and Professionals.

**Contact**

ecnd.academy@univ-lemans.fr

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**Public**

The traineeship is accessible to candidates aged from 16 to 30 in a **contract of traineeship**.

**Prerequisite**

The candidate must be in possession of a General, Technological or Professional Bachelor degree.

**Teaching objectives**

At the end of the traineeship, the owner of the additional Mention will be able to prepare and organize a non destructive testing on an industrial site, observing the security instructions. He will be offered the possibility to obtain the certification COFREND, level 1, and to continue his studies in Bachelor degree+2 in Le Mans Université.

**Content**

Traineeship duration: 12 months

**General learning**: French, Mathematics

**Professional Learning**: Metalworking Industry, Technology on the non destructive testing (Learning of 5 NDT&E : Ultrasound, Eddy Currents Testing, X-rays, Magnetic Particle Testing, Penetrant Testing), realization of different NDT&E controls.

**Skills Targeted**

- Participate to the preparation of controls and proceed to controls
- Identify non-conformities when they arise
- Set-up and verify the effective functioning of instruments
- Adjust and control the operating of measuring instruments controls
- Ensure the good operating conditions of instruments

**Fees**

Information on website Le Mans Université: http://www.univ-lemans.fr

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For any request, fill the contact form on our website ecnd-academy.com.
The university degree of expert in Non Destructive Testing and Evaluation aims at training employees or unemployed people to the job of Technician in Non Destructive Testing.

**Public**
All public - initial or continuing training.

**Prerequisite**
Be the owner of a degree level IV (Bachelor Degree, Scientific or Technological, Professional, a Professional Diploma in Mechanics, Sheet Metalwork, Metrology or physics measures)
Justify a professional experience of one year minimum.
Tests and positioning interviews linked to the preliminary requested knowledge.
Admission: Recruitment file + Interview

**Teaching objectives**
At the end of the traineeship, the trainees will be able to:
- Completely know the domain of usual application and limits of the NDT&E: penetrant testing, radiography testing, magnetic particle testing, infrared light thermography, Eddy Currents Testing and Ultrasonic Testing
- Test the conformity of the fabrication of the products, of the pieces, subsections, sections
- Follow and control the conformity of the applications of the rules, procedures and quality instructions
- Identify non conformities, disparities, apply the preventive and corrective measures
- Get the skills and knowledge to fix the equipment, execute the tests
- Interpret and assess for acceptation or refusal, the inspected products
- Establish documents of control of uniformity, traceability and quality.

**Content**
- Sciences of materials
- First Methods: Radiography Testing / Ultrasonic Testing
- Second Methods: Magnetic Particle Testing / Eddy Currents Testing / Penetrant Testing
- Instruction of testing
- Tools for the experimental quality and methodology
- Intermediate level in Technical English

**Methods and learning tools**
Alternation between theoretical support and application during practical work and seminars.
The training is delivered by both Professors of the University of Le Mans and professionals.

**Ways of accreditation**
The University Degree (UD) of Technician in NDT is a training level III. The assessment of the UD is done through tests passed during the training year.
Cofrend recognition level 2 for the access to the Cofrend certification.

**Instructors**
Teachers - Researchers and Professionals.

**Contact**
sfc@univ-lemans.fr

**SKILLS TARGETED**
- Implement a chain of measurements
- Prepare tests and control the conformity of production
- Determine the points at which corrective measures are necessary
- Set equipments and operate controls
- Interprete and value inspected items for agreement or refusal

**Fees**
Information on website Le Mans Université:

For any request, fill the contact form on our website ecnd-academy.com
The Technological University Degree Physical Measurement aims at training for a period of two years, skillful superior technicians that realize and exploit measures: these imply a large spectre of knowledge in the fields of physics, chemistry, materials, electronics and informatics as well as skills concentrated on instrumentation (tests, research and development...), industrial testing and metrology. These diplomas are easily used in all the industrial sectors, research and services.

Public
All public - initial and continuing training.

Prerequisite
Be owner of a diploma level IV, a Bachelor degree: Scientific, Science of Engineering, Science and Laboratory Technology in the field of Laboratory Science Physics and Chemistry, Science and Technology in Industry and Sustainable Development or all other equivalent of a diploma giving access to higher education.

Teaching objectives
The Technological University Degree Physical Measurement aims at training Technicians of measuring in the following domains: quality, metrology, instrumentation, tests, production in enterprises of various industrial, automotive, aeronautics, electronics, materials, environment, optical sectors.

Content
The training of Physical Measurement takes place during 4 academic semesters and stands on 5 big teaching poles:
- **Physics Pole**, to understand the phenomena involved as regards captors and interpret results.
- **Chemistry Pole**, chemical analyses and environmental analyses to understand and master the techniques of chemical analysis and interpret the results.
- **Science of Materials Pole**, additional NDT&E unit during the 2nd year: to understand specific properties of big classes of materials and master the main techniques of characteristics and control of materials.
- **Metrology Pole** to understand the fundamental rules of measuring.
- **Instrumentation Pole** with the set of disciplines necessary to the conception and applying of a chain of measuring.

A transversal teaching in language, communication, mathematics, scientific informatics, expertise in a company, completes it.

Work placement (in France or abroad) of 10 weeks minimum, completes the academic teaching and allows to realize an important mission complying to technical, technological and interpersonal skills, expected from the owner or a Technological University Degree in Physical Measurement.

Methods and teaching tools
The classes are done under the form of lectures, seminars, practical work and tutored projects that aim at:
- a basic scientific teaching allowing the acquisition of a well assimilated fundamental knowledge.
- an applied teaching, solidly rooted in the professional practice, leading to a solid know-how.
- a progressive training in order to become autonomous and responsible leading to the development of interpersonal skills.

Ways of accreditation
The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test. The University Technological Diploma (DUT) is a national degree of the academic cursus leading to the obtaining of 120 European credits, 30 European credits by semester if validated.

Instructors
Teachers - Researchers and Professionals.

Contact
iut-mpi@univ-lemans.fr

SKILLS TARGETED
- Implement a chain of measurements
- Prepare tests and control the conformity of production
- Determine the points at which corrective measures are necessary
- Set equipments and operate controls
- Interpret and value inspected items for agreement or refusal

For any request, fill the contact form on our website ecnd-academy.com

Training Catalog • 2018-2019 • ECND Academy • Le Mans Université
Blended learning

The Professional Degree in NDTE aims at training Superior Technician in NDT&E, able to apply the most used Non destructive Testing & Evaluation methods in industry and services.

Public
All public - initial & continuing training - part-time training (apprenticeship and professional training contract)

Prerequisite
Level: Bachelor degree + 2 years in a scientific section or by accreditation of prior experiential learning.

Admission on the bases of the candidates’ file and interview.

Teaching objectives
At the end of the training, the student or the trainee in continuing education will be able to:

• Apply the most used techniques of non destructive tests (Radiography Testing and Ultrasonic Testing, Thermography with infra red lights and Interferometry, Holography) in industrial maintenance, production, quality services or market-research companies;
• Realize NDTE tests and analyze the given results
• Ensure the responsibility of a team of NDTE operators

Content
Tools for the Experimental Quality and Methodology
Materials: Mechanic and structural features
NDT electromagnetic and acoustic Methods
NDT procedures by X-VIS-IR rays
Socio-professional and communication practices

Teaching methods and tools
Alternation between theoretical support and application during practical work and seminars.
Practical work visits and use of installments outside, in professional environments.

Ways of validation
The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test.
The training allows one to apply for the certification level II delivered by COFRENDF.

Instructors
Teachers - Researchers and Professionals.

Contact
sco-sciences@univ-lemans.fr

SKILLS TARGETED

• Apply non destructive techniques related to ultrasound, X-Rays, Eddy current, Thermography, etc.
• Control the conformity of operating of NDTE instruments / equipment / products / consumables.
• Identify the non-conformities when they arise and realize technical adjustments
• Realize NDT&E tests and analyse technical options, identify and define equipments and materials depending on the regulation, the environment, and cost
• Organize and manage NDT measurements

Fees
Information on website Le Mans Université:
The ENSIM (National Academic School of Engineering in Le Mans) trains for 5 years (with previous a preparatory cycle) engineers in two fields with the target to create a chain of skills and complementary occupations.

Public
All public - initial training and continuing education.

Prerequisite
Be in possession of a Master I degree (level I) in the domains of physics, mechanics, mathematics, electronics, informatics and dispose of at least 3 year-experience in the sector or the specialty targeted after the accreditation of the prior experiential learning.

For the trainees in continuing education (getting back to school): registration in the fourth year (second year for the studies in engineering).

Personal file examination and interview after eligibility.

Teaching objectives
The specialty Vibrations, Acoustics, Sensors trains general engineers able of conceiving and managing a set of measure and modeling process logically embedded. The elements of the chain range from the capture of information to the treatment of the digital signal ans its confrontation to a model allowing to come up with a diagnosis, useful for the conceiver. It is declined in two options: Vibrations, Acoustics (VA) and Systems and Procedures for the Measuring and Instrumentalisation (SPMI).

Content
Vibrations, Acoustics (VA):
This ENSIM's course is conceived to deliver scientific expertise allowing the complete mastering of a conceptional approach in acoustics and vibratory engineering.
Acoustics metrology, vibratory and vibroacoustics, digital modeling and simulation, data offset, signature identification, diagnosis and decision making sizing of testing passive or active elements, evaluation and non destructive testing are key elements in the process of engineering in acoustics and vibrations.

Systems and procedures for the measuring and instrumentalisation (SPMI):
Enthusiastic trainees as regards the realization of micro systems will find as much satisfaction in the ENSIM program as these willing to discover phonics technics allowing non intrusive analysis of systems.
The SPMI option brings skills on the whole of actors of a measuring chain; from the physical process of data gathering, its conditioning, its treatment and until decision making. Everyone will be able to master the behavior of these realizations through innovative technologies.

Teaching methods and tools
The students-engineers work together, in a context of multi skills, profitable for everyone. Students find themselves in a collaborative work position no matter their activity: practical work, projects or transversal teaching modules (communication, company culture). Several work periods accompany the course of the student-engineer. They will be confronted to the job market through a training period as a worker or a technician, for six weeks, then by a training period for the end of his studies, for six months, in France or abroad.

Ways of validation
The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test.
A year is validated if the student-engineer validated the two semesters of the year (twice 30 credits ECTS). A teaching unit and the related credits (ECTS) are validated if the weighted average of the exams composing it is superior to 10/20.

Instructors
Teachers - Researchers and Professionals.

Contact
scolarite.ensim@univ-lemans.fr

SKILLS TARGETED
- Master the methods of evaluation and non destructive testing
- Perform tests, analyze data and determine the product and procedure
- Analyze the choices and define technical orientation
- Manage and co-ordinate projects in ECND

Fees
Information on website Le Mans Université: http://www.univ-lemans.fr
The Master Degree in Acoustics proposes a coherent set of classes linked to the main domains of applied and fundamental acoustics: physics acoustics, nonlinear acoustics and air acoustics, acoustics of the condensed matter, electroacoustics, vibroacoustics, musical acoustics and room acoustics, psychoacoustics, physiological acoustics, experimental methods in acoustics, digital methods in acoustics etc.

Public
All public - initial or continuing training.

Prerequisite
Admission in Master I: be in possession of an Engineering Sciences or acoustics degrees.

Admission in Master II: Be in possession of a Master I degree in Acoustics or joint specialty (mechanics, physics, electronics, applied mathematics) or School of Engineering with general courses in the same fields.

Teaching objectives
The objective is to form general and specialized acousticians able to take part in companies (research and development fields) and in big research organisms. The first year brings basic knowledge in acoustics and proposes a certain number of specific modules for different specialties. The second year is dedicated to specific data of the cursus and ends with a mandatory period of training, from 5 to 6 months in a laboratory, in a big organism or in a company.

Content
First year: a common program in order to bring basic knowledge in acoustics and specific modules for each specialty in acoustics.


More specific modules for each option:
1. Option « Fluids »: Acoustics of porous materials, Acoustics attribute in periodical environments, air coupled ultrasound;
2. Option « Solids » - NDT (60 hours): Optoaousticstics and applications, Non Destructive Testing by ultrasounds, Digital Methods for the NDT.

Teaching methods and tools
Theoretical classes/Practical work/Tutored projects
Traineeship period: from February to July.

Ways of accreditation
The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test.
The obtention of 120 ECTS allows one to validate the diploma.

Instructors
Teachers - Researchers and Professionals.

Contact
sco-sciences@univ-lemans.fr

SKILLS TARGETED
- Master the NDT&E methods applied in an industrial environment.
- Perform tests, analyzes datas and determine the product and procedure
- Analyze the choices and define technical orientation
- Manage and co-ordinate NTD projects
- Lead technical expertise
- Carry out a technical expertise
- Coordinate and manage projects

Fees
Information on website Le Mans Université:
The Master in “Mechanics” “Mechanic modelling and vibrations” aims at training research engineers. The graduates can continue with a Ph.D.

Public

All public - initial or continuing training.

Prerequisite

To be registered in the training sessions leading to the Master diploma, you must have:
• either a national diploma attesting a degree in a domain compatible with the Master national diploma
• either a prior accreditation of experiential learning.

Teaching objectives

• Identify the demand and realise the preliminary drafts, plans of parts, systems, subsections and sections
• Analyse the needs of the client, of the user and make the functional specification (specifications, extensions, costs...)
• Supervise and control the proceedings and the advancement of experiences and scientific observations
• Participate to the development and to the application of new products thanks to the digital tools.

Content

The Master presents a unique course in Master 1 and Master 2 with large links with the Masters in the domains of “Sciences and Techniques”.
Important class sharing (75% in M1 Semester 1, 56% in M1 Semester 2 and 25% in M2 Semester 3, Training session in M2 Semester 4) are to be done with the Master in Acoustics, Electro acoustics, Physics as well as with the trainings of schools engineer like ISMANS or ENSIM.

Methods and learning tools

Alternation of theory classes, seminars and practice.

Ways of accreditation

The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test.
The obtention of 120 ECTS allows to validate a diploma.
In Master II - Traineeship period: from February to July.

Instructors

Teachers - Researchers and Professionals.

Contact

sco-sciences@univ-lemans.fr

Fees

Information on website Le Mans Université:
The two training programs on the site of Le Mans is about two research expertise:

- Functional materials and Nanotechnologies - Physics and nanomaterials (PNANO).
- Innovative optical methods applied to studying materials - Advanced Optics of Materials (OAM).

**Content**

The PNANO course provides theoretical and experimental skills in Physics of materials to the nanometric and mesoscopic level, their structural proprieties and functions (electronic, optical and magnetic ones) and their applications in emerging technologies. The PNANO degree holders join academic research laboratories or important research institutes (CEA, INRA, ESRF) for doctoral studies or in industrial groups for positions in the engineering of materials and procedures.

The OAM program is dedicated to the advanced optical proprieties of materials among which there are the optical engineering of materials, micro-nanostructures, optical functionalities and ultrafast optical methods, linked to the local environment (Opto-acoustic group research of Le Mans Université). The job prospects concern the R&D field and the opening to academic studies is also possible through a doctoral training.

**Teaching objectives**

The Master allows to develop the following skills:
- Determine and develop methods of research, gathering and analysis of data
- Present and explain scientific progress and research papers
- Study the project feasibility and elaborate technical and technological propositions
- Organize the technical, human and financial ways, necessary to the good development of a technical project
- Conceive and apply methods of synthesis of materials in massive, in thin organic layers, inorganic and composite ones or nanostructures for technological applications
- Analyze the non conformities of materials and provide corrective actions and control their application
- Perform tests and essays, analyse the data and determine the improving of the product, of the procedure.

**Methods and learning tools**

Alternation of theory classes, seminars and practice.

**Ways of accreditation**

The acquisition of knowledge and aptitudes is assessed by a continuous and scheduled test.

The obtention of 120 ECTS allows to validate a diploma; In Master II - Traineeship period: from February to July.

**Instructors**

Teachers - Researchers and Professionals.

**Contact**

sco-sciences@univ-lemans.fr

**Fees**

Information on website Le Mans Université:
The appearance of Doctoral Schools in the Universities Bretagne Loire, co-accredited and thematically redefined, was accompanied by the creation of a doctoral pole of the area in order to guarantee a transversal scientific animation on the scale of the university, particularly for the preparation to the professional insertion.

Each Doctoral School works with teams and laboratories of research recognized by the Ministry of Education or the CNRS.

The research groups of Le Mans Université have an average of 260 doctoral researchers. The legal preparation time for a doctoral thesis is of 3 years for the students benefiting special financing funds.

The Doctoral Schools in collaboration with the NDT&E

The training offer for doctoral studies in the University of Le Mans is focused on 10 interregional Doctoral Schools. Two of them are linked to NDT&E:
- **ED SPI** - Sciences for Engineers
- **ED 3M** - Molecules and Materials.

The Doctoral Pole of Le Mans

In coordination with the School of Doctors of the UBL, the Doctoral Pole of Le Mans:
- guarantees a transversal scientific animation on the scale of the establishment,
- facilitates proximity with the doctoral researchers, their directors and the research units,
- insures the coordination of the Doctoral Schools (ED) in the area.

It is provided with an administrative pole and with a Council where representatives of the Doctoral Schools, the laboratories and the doctoral researchers gather every month.

SKILLS TARGETED

- Conceive and develop research in NDT&E field
- Develop scientific products and communication tools in NDT&E
- Transmit knowledge and know-how through research
- Teach in NDT&E.

Its missions

- **Monitoring doctoral researchers and doctors** (registering, training, store and archiving of theses, monitoring the professional insertion).
- **Programs of transversal trainings** whose diversity allows every doctoral researcher to find an answer to his professional project.
- **Distribution of doctoral contracts**, recruitment of contractual doctoral researchers with a complementary activity.
- **Support for the national and international mobility** (doctoral researchers attendance to symposiums, doctoral researchers registered in cotutelage).
- **Organization of events** (Young Researcher Forum, the contest My thesis in 180 seconds, inter-ED events).

Instructors

Teachers - Researchers and Professionals.

Contact

poledoctoral@univ-lemans.fr

Fees

Information on website Le Mans Université:
Le Mans Université

International prestige

Polytech Montréal
U. McGill
U. Sherbrooke

MIT
CALTECH
HARVARD
Wash. State U.
Massachusetts U.
Los Alamos National labs
Penn State U.
U. Mexico
U. Montevideo
U. Santiago de Chile
U. Campinas

ISVR
KTH
ETH Zurich
U. Ostrava
U. Katowice
Paderborn U.
Trinity College Dublin
Manchester U.
U. Easter Finland
AMOLF
K.U. Leuven
U. Hambourg
U. Madrid
U. Politecnica de Valencia
Politecnico di Torino
CNR Italy

U. Kiev
U. Moscou
U. Nizhin-Nougorod
U. Athens
U. Beyrouth
U. Alger
U. Casablanca
U. Fès
U. Stax
U. Djamena
U. Douala
U. Cape Town

Nanjing U.
Hokkaido U.
U. T. Harbin
Hong Kong U.
U. Ho Chi Minh
UNSW Sydney
U. Auckland
Non Destructive Testing and Evaluation
with financial support from the Program of Investments for the future

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