

Friday, 20th July

NANOMATERIALS IN AEROSPACE INDUSTRY I

09:00 h.: **Plenary Lecture VII. "Aerospatial materials and their influence on human beings"**
Professor: D. JOSÉ MARÍA GARCÍA MERAYO
National Space Institute, Denmark. Technical University of Denmark.

NANOMATERIALS IN HEALTH & LIFE SCIENCES

10:00 h.: **"Nanoparticles as multifunctional nanoplatforms for biomedicine"**
Dr. ÁNGEL MILLÁN ESCOLANO
ICMA-CSIC. University of Zaragoza. Spain

10:40 h.: **"Nano-architecture of "living" things"**
Dr. SANTIAGO CUESTA LÓPEZ
University of Burgos. Spain

NANOMATERIALS IN AEROSPACE INDUSTRY II

11:30 h.: **Plenary Lecture VIII "The space environment and its impact on the development of materials for space missions"**
Professor: D. JOSÉ MARÍA GARCÍA MERAYO
National Space Institute, Denmark. Technical University of Denmark.

12:30 h.: **Closing Act. Awards Ceremony for the best student research work (poster)**
Prof. Dr. ALFREDO BOL ARREBA
(Dir. Course. Vice-Chancellor of Professorate. University of Burgos. Spain)
Dr. SANTIAGO CUESTA LÓPEZ
(Dir. Course. University of Burgos. Spain)
Prof. D. ROBERTO IGLESIAS PASTRANA
(Dir. Course. University of Oviedo. Spain)
Prof. Dra. ÁNGELES CERDEIRA GARCÍA
(Dir. Course. University of Oviedo. Spain)
Government of JCyL. Ay. Burgos

THE COURSE WILL BE HELD AT

UNIVERSIDAD DE BURGOS
Facultad de Ciencias Económicas y Empresariales
Pza. Infanta Doña Elena, s/n^a
09001 – BURGOS
Tlfn: 947 258950

ACCOMMODATION IN BURGOS

Residencia San Agustín. <http://www.rusanagustin.com>
Price TVA included: Double room PC: 28 €/day.
MP: 25 €/day. 4 people shared room PC: 25 €/day. MP: 23 €/day
Residencia Universitaria Camino de Santiago.
<http://www.ubu.es/es/rucaminosantiago>
Price TVA included: Double room PC: 27 €/day (person).
AD: 22 €/day (person). Single room PC: 33 €/day. AD: 28 €/day

GENERAL INFORMATION FOR SPANISH STUDENTS

Se reconocerá **1 crédito** para los alumnos matriculados en los **Títulos Oficiales adaptados al Espacio Europeo de Educación Superior (Grados)** así como **3 créditos de libre elección** a los alumnos matriculados en **planes antiguos**. En ambos casos, los alumnos deberán someterse al proceso de evaluación que será comunicado por los Directores del curso en la presentación del mismo.

(sigue...)

(continúa...)

Así mismo todos los asistentes recibirán un certificado de asistencia siempre y cuando se justifique el 85% de ésta.

La Universidad se reserva la posibilidad de modificar o anular las condiciones o el desarrollo del curso hasta 48 horas antes del comienzo del mismo. La comunicación a los alumnos matriculados, en el caso de anulación, se realizará mediante correo electrónico. Para ello será imprescindible que se facilite una dirección del mismo. De no poderse facilitar, la Universidad estará eximida de responsabilidad.

Este curso ha sido aceptado inicialmente para su reconocimiento por la Dirección Provincial de Educación para Profesores de enseñanzas no universitarias.

INFORMATION AND SECRETARY:

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2012

THE FUTURE OF ADVANCED NANOTECHNOLOGICAL MATERIALS IN SCIENCE AND INDUSTRY

Directores:

D. Santiago Cuesta López
D. Roberto Iglesias Pastrana
D. Ángeles Cerdeira García
D. Alfredo Bol Arreba

16 - 20th July
BURGOS (SPAIN)

SUMMARY

The University of Burgos and the University of Oviedo, under the Support of "Caja de Burgos", and the collaboration of Nuclenor, and Nanotec, are organizing the following summer course:

1ST International Summer Course on Advanced Nanotechnological Materials In Science And Industry

Advanced materials and new materials with a nanotechnological base, are main ingredients in the present industrial and technological revolution; A revolution that is expected to grow exponentially in this decade, originating deep changes both in our society and way of living.

With this course, we would like to give a vision of the challenges that materials science is facing in the main industrial areas. Present and future developments in different technological areas will be discussed always from the synergy of both scientific research and industrial applications.

Although a strong interaction science-industry is expected from this meeting, the course is also open to the public, trying to orient young generations to a very promising field of research.

Código Curso: 62B6

Monday, 16th July

09:00 h.: REGISTRATION

10:00 h.: OPENING SESSION

Prof. Dr. ALFREDO BOL ARREBA
(Dir. Course. Vice-Chancellor of Professorate.
University of Burgos. Spain)

Dr. SANTIAGO CUESTA LÓPEZ
(Dir. Course. University of Burgos. Spain)

Prof. Dr. ROBERTO IGLESIAS PASTRANA
(Dir. Course. University of Oviedo. Spain)

Prof. Dra. ÁNGELES CERDEIRA GARCÍA
(Dir. Course. University of Oviedo. Spain)
Government of JCYL. Ay. Burgos

10:45 h.: Inauguration. Opening event. "Nanomaterials in Medicine: a radical change in therapies for the 21st century"

Professor: D. JESÚS SANTAMARÍA
Subdirector Inst. Nanotechnology of Aragón – INA. Spain

ADVANCED MATERIALS

12:00 h.: "High performance polymers. Aromatic polyamides in automotive and aerospace, oil and gas, protection and defense, and telecom industries"

Professor: D. JOSÉ MIGUEL GARCÍA PÉREZ
University of Burgos. Spain

12:40 h.: "Experimental-numerical methodology to predict properties of injection moulded polymer products"

Dr. WILCO VERBEETEN
University of Burgos. Spain

13:20 h.: "Micro assays SPT over advanced Materials. Industrial applications"

Dr. IVÁN CUESTA SEGURA
University of Burgos. Spain

16:00 h.: 1st WORKSHOP: "The Art of Nanotechnology"

Dra. ÁNGELES CERDEIRA GARCÍA
Dir. Course. University of Oviedo
Professor: D. JOSÉ MARÍA GARCÍA MERAYO
DTU Space. Denmark. Technical University of Denmark

Tuesday, 17th July

SYNTHESIS AND CHARACTERIZATION OF NANO-MATERIALS I

09:30 h.: Plenary Lecture I. "Basics of Powder X-ray diffractometry: sample opeparation, instrument functions and structure refinement"

Professor: D. STEFANO ENZO
Università degli Studi di Sassari. Italy

10:15 h.: Plenary Lecture II. "The mechanochemical route to nanoscale"

Professor: D. FRANCESCO DELOGU
Università degli Studi di Cagliari. Italy

SYNTHESIS AND CHARACTERIZATION OF NANO-MATERIALS II

11:30 h.: "Characterization of Nano-materials by Scanning Force Microscopy"

Dra. AGUSTINA ASENJO BARAHONA
Institute of Materials Science. CSIC. Madrid. Spain

12:10 h.: "Techniques for the synthesis and structuring of nanomaterials"

Professor: Dr. ALFREDO GARCÍA ARRIBAS
University of Basque Country. Spain

12:50 h.: "Synchrotron radiation techniques for characterization of nanomaterials"

Professor: D^a. M^a LUISA FERNÁNDEZ-GUBIEDA RUIZ
University of Basque Country. Spain

SYNTHESIS AND CHARACTERIZATION OF NANO-MATERIALS III

15:20 h.: "Unraveling the atomic structure with Scanning Tunneling Microscopy"

Dr. CÉSAR GONZÁLEZ PASCUAL
University of Oviedo. Spain

DESIGN AND MODELLING OF MATERIALS I

16:00 h.: "The multiscale modelling approach: a new paradigm in materials design"

Dr. ROBERTO LUIS IGLESIAS PASTRANA
University of Oviedo. Spain

16:40 h.: Wonders of the world in modelling nanomaterials by means of HPC computing"

Dr. SANTIAGO CUESTA LÓPEZ
University of Burgos. Spain

17:00 h.: 2nd WORKSHOP: "Nanotechnology under the eye of a SPM/AFM microscopy"

NANOTEC

18:30 h.: "Characterization of Nano-Materials" Visit to I+D+I Facilities in the Science Park within the University of Burgos

Dr. SANTIAGO CUESTA LÓPEZ
University of Burgos. Spain

Wednesday, 18th July

09:00 h.: Plenary Lecture III. "A quick look at frontier challenges in nanoscience"

Dr. CARLO RICCI
Università degli Studi di Cagliari. Italy

DESIGN AND MODELLING OF MATERIALS II

09:45 h.: 3rd WORKSHOP: "Ab initio simulations: the starting point of multiscale simulations"

Dr. CÉSAR GONZÁLEZ PASCUAL
University of Oviedo. Spain
DARÍO FERNÁNDEZ-PELLO LOIS
University of Oviedo. Spain
EKHI ARROYO FERNÁNDEZ DE LECETA
University of Burgos. Spain

12:00 h.: Guided Visit to Burgos. City of Castilla. Cathedral of Burgos. St. James Path.

OPEN FORUM

16:00 h.: Open-Discussion. Round table between scientists and industry representatives and R&D directors.

"Present and Future of Nanotechnological materials in industry. Needs for today, solutions for tomorrow. Open problems to solve by the scientific community"

INNOVATION & POSTERS SESSION

17:30 h.: Gallery of posters. Discussions between professors/scientists and course participants.
"Decision/Contest for the prize for the best scientific work/idea (poster)"

Thursday, 19th July

09:45 h.: "Future applications: The need of new materials"

Dr. SANTIAGO CUESTA LÓPEZ
University of Burgos. Spain

NANOMATERIALS IN FUTURE NUCLEAR TECHNOLOGY

10:15 h.: Plenary Lecture V. "Nano-structured structural materials in Nuclear Technology"

Dr. MANUEL ALEXANDRE POUCHON
HT-MAT Deputy Director. Nuclear Energy and Safety Research Department, PSI-Switzerland

11:30 h.: "Advanced Nano-structured Materials in present and future Nuclear Fusion developments"

Dr. ROBERTO LUIS IGLESIAS PASTRANA
University of Oviedo. Spain

12:15 h.: Plenary Lecture VI. "Nano-grained nuclear fuels, and nano-features in fuels"

Dr. MANUEL ALEXANDRE POUCHON
HT-MAT Deputy Director. Nuclear Energy and Safety Research Department, PSI-Switzerland

15:40 h.: "Dissection of a crystal structure. New concepts to design innovative materials"

Dr. ANGEL VEGAS MOLINA
CSIC. University of Burgos. Spain

16:20 h.: "Superparamagnetism in nanoparticle systems: the physical limit of current magnetic storage technology"

Dr. JOSÉ ÁNGEL DE TORO SÁNCHEZ
University of Castilla la Mancha. Spain

DESIGN AND MODELLING OF MATERIALS III

17:00 h.: 4th WORKSHOP: "Modelling the jump from "nano" to "macro" scale"

Dr. SANTIAGO CUESTA LÓPEZ
University of Burgos. Spain
Dr. JORDI FRADERA FERNÁNDEZ
University of Burgos. Spain
EKHI ARROYO FERNÁNDEZ DE LECETA
University of Burgos. Spain