

KMM-VIN Newsletter

Issue 1, December 2009



This issue of KMM-VIN Newsletter at the year's end is also an opportunity to wish our Members and all the Readers a Merry Christmas and successful New Year 2010.

Josef Eberhardsteiner

Chairman of the General Assembly and the Governing Council

Michal Basista

Chief Executive Officer

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EDITORIAL

A year ago the FP6 Network of Excellence project "Knowledge-based Multicomponent Materials for Durable and Safe Performance" (KMM-NoE) was completed. For us it was an interesting and instructive experience. The European Commission assessed KMM-NoE as a successful project. We found with pleasure that in the recently published "Guide to the 2008 annual activity report of the European Commission's Directorate-General for Research" among the 14 Networks of Excellence within the NMP priority only two NoEs were explicitly mentioned, one of them being KMM-NoE. Also the *European Research Headlines* of 25th May 2009 ("INNOVATION - KMM-NoE fuels research and competitiveness in Europe") emphasises the achievements of KMM-NoE consortium.

The European Virtual Institute on Knowledge-based Multifunctional Materials (**KMM-VIN**) emerged from the Network KMM-NoE as a durable integration structure with a legal status. It was established as an **international non-profit association** under Belgian law (**AISBL**) on 13th March 2007. It is now composed of 33 core institutional members as well as a number of associated members and individual participants from 14 European countries.

This Newsletter providing a periodic selection of internal/external news in the KMM domain is targeted at KMM-VIN members but also at current and future collaborators and clients from industry and academia interested in advanced structural and functional materials.

The first issue of the Newsletter covers events and results starting with the annual General Assembly 2009 until now. The highlights of KMM-VIN activities in 2009 together with information on events that KMM-VIN members were/are involved in are presented in the column "**Latest News**".

The main part of this issue is composed of the columns "**What's new in Working Groups?**" announcing recent news and events in the specific domains of WG1: Intermetallics, WG2: Metal Ceramic Composites, WG3: Functionally Graded Materials, WG4: Functional Materials.

The columns "**KMM Projects**" are devoted to research, coordination, mobility and educational projects where KMM-VIN is involved directly or through several its members. We briefly present the EU FP7 projects: "MATRANS", iNTeg-Risk", "MUST" and "KomCerMet" - a Polish key project funded from the EU Structural Funds.

In the column "**Cooperation**" the KMM-VIN's involvement in other international initiatives is presented. Special attention is given to the European Technology Platform on Advanced Engineering Materials and Technologies (EuMaT), where KMM-VIN coordinates Working Group 4: Knowledge-based Structural and Functional Materials and is also responsible for the EuMaT main Secretariat.

Results of the 1st call for fellowships offered by KMM-VIN in 2009 for young researchers & PhD students from member institutions are reported in "**Research Fellowships**".

Addresses of the KMM-VIN main office in Brussels and the remote office in Warsaw are given in the bottom imprint. For viewing the registration documents, description of KMM-VIN members and information on current events you are kindly invited to visit our webpage www.kmm-vin.eu.

We hope you will find this 1st issue of the Newsletter interesting. We are open to any suggestions you may have to make it a true source of information for Partnership and all interested in the KMM-VIN activities and/or services.

Marek Janas, Editor

LATEST NEWS

Instituto de Tecnología Cerámica (ITC), Castellon, Spain celebrates its 40th Anniversary with a series of conferences and presentations. We sincerely congratulate our member on this occasion.

The FP7 project MATTRANS coordinated by KMM-VIN and involving 9 members will start 1 Feb. 2010. Possibly it is the first project in the Materials Unit (G3) of the NMP theme to be coordinated by a virtual institute that emerged from an FP6 NoE.

On 4 Dec. 2009 a kick-off meeting of the FP7-SME-2008-1 project "Innovative simulation tool for bone and bone biomaterials, based on enhanced CT-data exploitation" (BIO-CT-EXPLOIT) was held in Vienna. BIO-CT-EXPLOIT is coordinated by Ch. Hellmich and involves three KMM-VIN members.

The 3rd International Congress on "Solutions for competing based in the innovation, research and technology" in Alcoy (Spain), 28-29 October 2009 was co-organized by AITEX.

A meeting of the coordinators of three virtual institutes that emerged from the FP6 Networks of Excellence: MIND, METAMORPHOSE and KMM-NoE was held on 20 Oct. 2009 at IPPT in Warsaw. This informal grouping applied to EuMaT ETP for creation of a new Working Group (WG6) on Materials for Information and Communication Technologies. WG6 was approved by EuMaT Steering Committee.

On 1 Oct. 2009 the kick-off meeting of the Spanish project 'Development of photocatalytic surfaces using readily scalable techniques for use in industry' (FOTOCER) was held at ITC, Castellon.

The 3rd Research Workshop of the project KomCerMet was held in Warsaw, Sept. 28-29, 2009

The 1st iNTeg-Risk Conference was held in Stuttgart, June 2-4, 2009 with more than 250 participants and 44 papers presented

GENERAL ASSEMBLY

The 4th KMM-VIN General Assembly Meeting (Annual GA Meeting 2009) was held on 24 February 2009 in Brussels, convened by the KMM-VIN Chairman J. Eberhardsteiner. Representatives of 25 out of 38 core members were present.

The Annual Report of the Board of Directors on KMM-VIN activities in 2008 (by M. Basista, CEO) as well as reports from the Working Groups (by A. Chrysanthou, P. Egizabal, Ch. Hellmich, Ph. Imgrund) were presented. The General Assembly approved the 2008 accounts and the 2009 budget.

The KMM-VIN Annual General Assembly **2010** will be held in Brussels on **23 Feb. 2010**.

WHAT'S NEW IN WORKING GROUPS?

NEWS FROM WG1: INTERMETALLICS

The main research activity in the Intermetallics work-package has been within the JOINING task which is concerned with the development of joining methods between different classes of materials (mainly metallic materials to ceramics). The investigating partners are POLITO, UH and AGH. POLITO have developed and patented a new glass-ceramic that can be used as a sealant for solid-oxide fuel cells (SOFCs). Specifically this aims to hermetically seal the Crofer 22 interconnect and yttria-stabilised zirconia (YSZ) which acts as the anode-supported electrolyte (ASE). Considering that SOFCs operate at up to about 800°C, the task is quite challenging. The sealant composition that was developed by POLITO ranges between 53-58 mol% SiO₂, 16-18 mol% Al₂O₃, 24-26 mol% CaO and 10-12 mol% Na₂O. The investigation has focused on the thermal cyclic and continuous heating behaviour of the sealant for up to 3000 hours. The heat-treatments were carried out at UH, while characterisation work was conducted by the three collaborating partners.

The investigation has shown that even after about 3000 hours of constant or thermal cyclic behaviour, the sealant retains an adherent bond with Crofer 22 and the ASE.

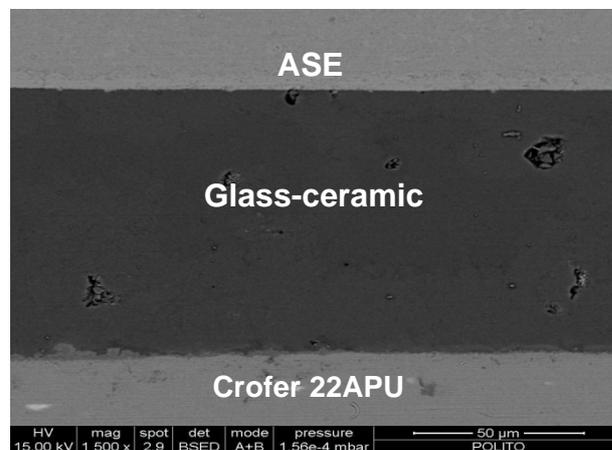


Fig. 1. SEM micrograph showing good adhesion at the interface between the glass-ceramic and Crofer 22APU and YSZ ASE after 500 hours of continuous thermal treatment at 800°C (UH).

At the Crofer 22-glass ceramic interface, a small amount of diffusion of chromium and manganese into the glass-ceramic was observed. At the same time, sodium diffused away from the interface effectively preventing an adverse reaction that could form the volatile $\text{Na}_2\text{Cr}_2\text{O}_7$. The samples were further characterised by means of TEM and STEM-EDS by AGH and POLITO respectively to examine the phase changes that took place within the glass-ceramic. In addition, Federico Smeacetto (POLITO) visited AGH for one week to conduct characterisation work with Tomasz Moskalewicz (AGH). Some of the work was published in the Journal of Power Sources, **190** (2009) 402-407, while a new paper is under preparation. In addition, there will be a presentation at the 34th International Conference and Exposition on Advanced Ceramics and Composites at Daytona Beach, Florida, 24-29 January 2010.

Some work also continued on the NiTiBiT task where IMPER and IFAM successfully produced NiTi by injection moulding. An investigation has also been conducted by IPSUA and UH on the effect of pulse current treatment on the corrosion behaviour of injection moulded NiTi. IPSUA and UH have conducted a number of studies on the effects of this promising technique on steel and aluminium alloys and the investigations have resulted in one journal paper in Strength of Materials **41** (2009) 387-391, while more publications are being planned. IPSUA and UH have also applied for a Marie Curie grant which has passed the thresholds in the refereeing process and are now awaiting for news as to whether the proposal will be funded or not.

Andreas Chrysanthou, WG1 Coordinator

NEWS FROM WG2: METAL-CERAMIC COMPOSITES

The project on ceramic-metal nanocomposite coatings outlined below was started in the framework of the NANOCERMET Research Task within KMM-NoE and will be further developed by the Instituto de Tecnología Cerámica (ITC) in cooperation with two other Spanish partners: University of Valencia and the Polytechnic University of Valencia as a project funded by the Spanish Government.

In atmospheric plasma spraying (APS), the starting powder is heated in a high-temperature gas stream to a semi-fused state, while it is simultaneously accelerated towards the substrate to be coated. When this hits the substrate, small splats are formed with a diameter of about 20 μm and a thickness of 5 μm from the semi-fused state. These splats solidify quickly at cooling rates of about 100 K/s. Coatings can be produced with thicknesses of about 200-300 μm by increasing the number of spray gun passes. These coatings display numerous defects: micro- and macrocracks, unmelted particles, pores, limited contact area between splats (20-50%), etc. For this

reason, it is of enormous scientific and technological interest to obtain coatings with much smaller sized splats (sizes for example of 0.5-3 μm) and many fewer microcracks than in spraying with conventional (micrometric) powders, as well as small pore sizes (in the range of 1 μm). Unfortunately, in plasma spraying it is impossible to spray particles smaller than 5 μm because of their small mass.

A first solution proposed in the literature, which was addressed in the NANOCERMET Task of KMM-NoE project was the spraying of reconstituted (agglomerated) powders, formed by sprayable granules of 30-90 μm made up of nanoparticles. The key consists of finding appropriate spraying conditions in which the agglomerates are partly (superficially) fused, this fused part acts as a cement that captures the unfused nanoparticles. Numerous articles have been published on this solution, which fundamentally include ceramic oxides like Al_2O_3 , TiO_2 , and ZrO_2 , while important improvements have been made in the mechanical and tribological properties of many of the resulting coatings. These improved properties are assignable to the bimodal character of the coating in which they unfused nanostructured agglomerates coexist with a fused matrix, which is often recrystallised. In this same line of action, interesting results were also obtained in the project mentioned that have been the subject of publications. Although the results of this research line have been highly satisfactory, it has the great disadvantage of needing to reconstitute the starting powder, which at least requires performing atomisation processes of concentrated suspensions and subsequent thermal treatment of the atomised powder before it is sprayed. In addition, the margin of action in regard to the plasma spraying conditions or variables for achieving the partial fusion of the nanostructured powder agglomerates is usually very limited.

A project recently approved by the Spanish Government (MAT2009-14144-C03) proposes an alternative solution to the foregoing one. The solution consists of introducing the material to be sprayed in liquid form, which may be a solution (saturated or not) or a concentrated suspension of nanoparticles or mixtures of nano and microparticles. In both cases, the first step consists of atomising the liquid that is to be sprayed. Once the liquid has been injected (pulverised) into the plasma flame, the products that form are directed towards the substrate by means of the carrying gas, as occurs in a conventional plasma thermal spray process. At the moment the liquid is injected into the plasma by means of two systems: pneumatic atomisation and injection. Both systems have been used indistinctly for solutions or suspensions, and different configurations designed by the different research groups that work in this subject coexist at the moment. However, before this variety of configurations, there are no studies in which a joint optimisation has been developed of the rheological characteristics of the solution or

suspension (density, viscosity, and surface tension) and of the injection system, which are fundamental issues when it comes to assuring a uniform and constant drop size distribution during the injection time.

The project will be carried out by ITC in cooperation with other two Spanish research groups who belonged to the former External Research Network of KMM-NoE: the Nanomaterials Group of the Instituto de Ciencia de Materiales of the University of Valencia (ICMUV) and the Metallurgy and Composite Materials Research Group of the Instituto de Tecnología de Materiales of the Polytechnic University of Valencia (ITM). The project will also be undertaken with the collaboration of Prof. A. R. Boccaccini (University of Erlangen-Nuremberg, Germany, formerly at Imperial College London, UK).

Aldo R. Boccaccini, WG2 Coordinator

NEWS FROM WG3: FUNCTIONALLY GRADED MATERIALS

WG3 of KMM-VIN evolved from the former WPR3 Work Package of KMM-NoE. This highly successful NoE has indeed triggered off new transnational cooperation which turned out to be sustainable, even after KMM-NoE itself. However, continuation of these cooperation without KMM-NoE funding is a very challenging task. There are notable examples of recent research results from such cooperation, and they are the topic of the present news column. Right now, cooperation is performed mainly at a bi-lateral basis. Having learned from KMM-NoE that travel funds for short and medium terms missions of researchers at partner institutions are an exceptionally good tool for nurturing cooperative research, several partners of WG3 have been recently able to maintain the tradition of exchange of personnel: E.g. Warsaw University of Technology (WUT) and Vienna University of Technology (TUW) have been successful in receiving a grant co-sponsored by the Polish Ministry of Science and Higher Education and the Austrian Research Exchange Office, which provides, for a period of two years, funding for journeys between Warsaw and Vienna, and for research stays up to several months.

This has enabled two research stays in summer 2009: Tomasz Brynk from the Faculty of Materials Science of Warsaw University of Technology spent several weeks at the Institute for Mechanics of Materials and Structures of TU Wien. During this time, he documented, in the form of scientific paper with several authors from TU Wien, a series of poromechanical tests on cancellous bone, which he performed at his earlier KMM-NoE-sponsored research stays at TU Wien. These tests were the first of their kind ever performed, and they showed the significance of Terzaghi's effective stress concept for trabecular bone. With these new findings, data from any strength tests of bone can readily be used to

describe the behaviour of the same bone samples under internal pores pressures, as they are experience under impact due to downfall, of these nature-made FGMs. These results will be, in a short while, submitted to a scientific journal. In addition, Tomasz Brynk performed, together with the team at TU Wien, poromechanical tests on polymer-based biomaterials which were processed at Warsaw University of Technology. As "vice-versa" complement to Tomasz Brynk's stay at TU Wien, Alexander Dejaco, a student at TU Wien, spent several weeks in Warsaw, working on micro and nanoCT imaging of bone biomaterials, aiming, in the end, at resolution-error clearing of images, as a basis for micromechanics-based Finite Element analysis of tissue engineering scaffolds. The latter topic as such was, so to speak, "invented" within the former WPR3-BIO-FGM group of KMM-NoE, having lead to an important paper in *Biomaterials*.

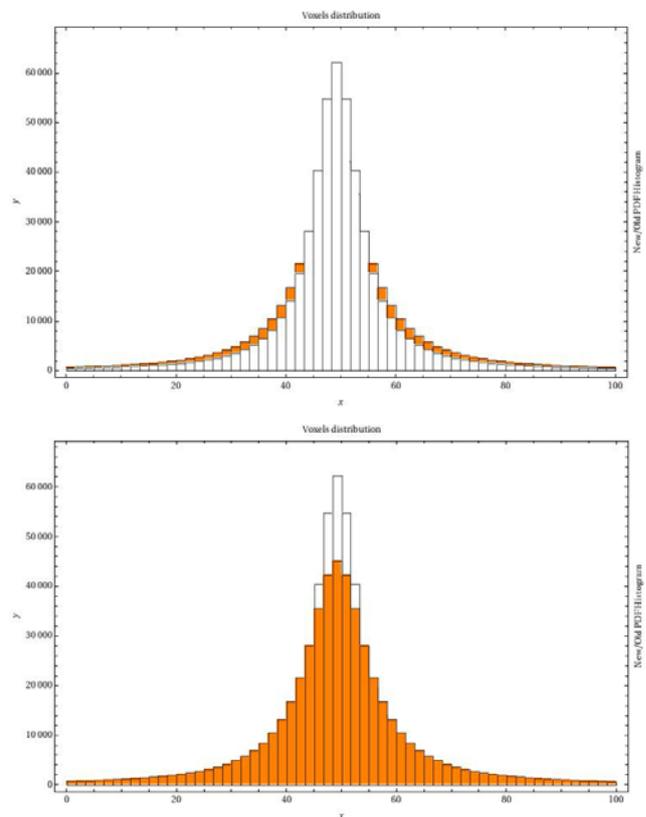


Fig. 2 Histogram-based correction of CT data from resolution errors. x-axis: normalized attenuation coefficients, y-axis: number of voxels (result of KMM-VIN Research Fellowship: V. Calbucci)

Related quantitative evaluation of Computer Tomographs seems to show a great potential for improved understanding of FGMs, so that WG3 invested more personnel power into this topic, by sending, through a KMM-VIN scholarship, Vittorio Calbucci from Università Politecnica delle Marche, to TU Wien, for further improving the error clearing method, in cooperation with colleagues from the latter two universities. He improved resolution error clearing strategies through highly efficient Fourier transform-based methods. Incorporation of these theoretical physics tools into bioengineering

problems holds great potential for the future – this is currently being documented for later publication.

In addition to the former news, there exist intensive cooperation between AGH and POLITO – they will be highlighted in the next issue of this newsletter.

Christian Hellmich, WG3 Coordinator

NEWS FROM WG4: FUNCTIONAL MATERIALS

As the group has been newly installed in with the implementation KMM-VIN, the first task in 2009 was to gather interest from the KMM-VIN consortium for enhanced activities in the field of functional materials. In fact impressive interest and expertise became evident when putting the core group together. Thus the working group now consists of eight partners: Fraunhofer IFAM, Cidetec, IPM, Politecnico di Torino, Imperial College, Aitex, Centro Ricerche FIAT, AGH and ITC. The main offerings that can be made to are summarised in the following:

One field of activities in the field of functional materials in KMM-VIN is oriented towards the development of advanced materials and processes based on **electrochemical techniques**. In this sense, current interests are in many aspects of surface science, including multifunctional coatings with aesthetic and functional properties, metal based composite coatings, sol-gel coatings, nanostructured metal and alloy coatings, functional graded materials, anodised materials and ceramic coatings. These materials find application in automotive, aeronautics, electronics, machine-tools sector, domestic appliances, etc. Above this, we can provide expertise in corrosion phenomena, industrial electrochemical processes, including innovative techniques such as pulse plating, and the development of new environmentally benign processes.

Related to **functional polymers**, synthesis and functionalization of speciality polymers such as electroactive polymers, polymeric ionic liquids and block copolymers; the functionalization of nanoobjects such as carbon nanotubes, fullerenes and metal nanoparticles, and the application by printing technologies of these functional materials creating flexible electrochemical devices as batteries, fuel cells, sensors and biosensors, actuators, electrochromic devices and solar cells, are addressed.

In the field of **biomaterials**, KMM-VIN has its main competencies in processing and characterisation. A broad range of powder based technologies can be offered for processing of metals and ceramics for medical devices, scaffolds and implants. Powder pressing, powder injection moulding and also printing technologies tailored towards manufacturing of

biomedical components can be provided. Also, metal, ceramic and polymer surfaces can be modified regarding their surface roughness or by applying regular micro patterns, so that implants providing improved bioactivity and cell performance can be obtained. Development and characterisation of bioactive glasses, glass-ceramics and composites, as coatings or bulk or porous materials can be provided. In terms of processing, new surface treatments to enhance bioactivity of metallic materials are tackled.



Fig. 3. Hydroxyapatite / PLA composite with different grades of porosity (increasing from 0% over 20% to 50% from left to right) for potential application as bone replacement material (IFAM).

The development of functional materials is closely linked with the optimization and modification of **production routes** and the study of the mechanisms that control their structure and properties. KMM-VIN equipment includes facilities for production and characterization of functional materials in different institutions. For the development of novel nanostructured metallic or ceramic materials, Spark Plasma Sintering (SPS), self-propagating high-temperature synthesis (SHS) equipment as well as vacuum melting and casting machines are available in the KMM-VIN institutions.

Joining technologies play a particularly important role in the development of functional material systems. KMM-VIN can provide development and testing services for custom joints, new joining technologies, joints for extreme applications and energy production, like Solid Oxide Fuel Cell and nuclear applications; protective coatings and sealant materials. A wide range of characterization techniques are available, together with the necessary expertise to discuss results and to propose solutions. Problem solving applied to materials can be provided to companies and SME.

Philipp Imgrund, WG4 Coordinator

KMM PROJECTS

MATRANS (FP7)

“**Micro and Nanocrystalline Functionally Graded Materials for Transport Applications**”, starts 1 Feb. 2010, duration 3 years. The consortium consists of 10 Beneficiaries and 6 third parties in the so-called KMM-VIN grouping (IPPT, IMIM, ITME, TUD, UNIVPM, POLITO – all KMM-VIN core members). The project coordinator is KMM-VIN (M. Basista). Among the project Beneficiaries there are also 3 other KMM-VIN members: CRF, FHG (IFAM-DD) and R-TECH. The total EC funding of the project is 3.6 M€ with the KMM-VIN share of 2.38 M€ (coordinator + 9 KMM-VIN members).

www.kmm-vi.eu/Projects/Matrans

iNTeg-Risk (FP7)

“**Early Recognition, Monitoring and Integrated Management of Emerging, New Technologies Related, Risks.**” A large 4.5 year project started in December 2008, coordinated by the European Virtual Institute for Integrated Risk Management (A. Jovanovic). KMM-VIN grouping comprising itself and IPPT, IMRSAS, IMIM, MCL is a project partner. Another KMM-VIN member (MERL) is also involved in the project beyond KMM-VIN grouping. The total share of KMM-VIN grouping (4 members) in the EC funding is 185.5 k€. <http://integrisk.eu-vri.eu>

BIO-CT-EXPLOIT (FP7)

“**Innovative simulation tool for bone and bone biomaterials based on enhanced CT-data exploitation**”.

Project started 1 Dec. 2009. Coordinator Vienna University of Technology (Ch. Hellmich), EC funding 900 K€. This project will enhance the competitiveness of four SMEs active in the markets of biomedical engineering and biomaterials design, through outsourcing of research activities to four RTD partners, including the KMM-VIN members: TUV, WUT and UNIVPM.

www.bio-ct-exploit.imws.tuwien.ac.at.

MUST (FP7)

“**Multi Level Protection of Materials for Vehicles by Smart Nanocontainers**”

Large cooperative project (2008-2012) coordinated by EADS Germany (Th. Hack); consortium of 20 partners including a small KMM-VIN grouping (KMM-VIN itself and BioIRC). The KMM-VIN grouping (2 members) share in the EC funding of the project is 85.2 K€. <http://www.sintef.no/Projectweb/MUST>.

KomCerMet (Poland; EU Structural Funds)

“**Metal-Ceramic Composites and Nanocomposites for Aerospace and Automotive Industry**” One of the so-called Polish key projects supported by the EU Structural Funds. Started 1 October 2008, duration 4 years. Coordinated by IPPT (M. Basista), consortium of 12 partners including 5 KMM-VIN members (IPPT, ITME, IMIM, WUT, AGH). The total project budget is 6.3 M€, of which the KMM-VIN members' share is 4.4 M€.

<http://www.komcermet.ippt.gov.pl>

OTHER PROJECTS

HANCOC (MNT-ERANet)

“**Hard NanoComposite Coatings**”. The main aim of the project is the development and optimization of a novel technology of thin nanocrystalline, composite superhard coatings. In HANCOC participate two KMM-VIN core members: IMRSAS and AGH. Duration 3 years, coordinator J. Dusza (IMRSAS)

MPPE COMET-K2 (Austria)

COMET K2 Competence Center „Integrated Research in Materials, Processing and Product Engineering” (MPPE), coordinated by R. Ebner (MCL).

FOTOCER (Spain)

The project, entitled: ‘Development of photocatalytic surfaces using readily scalable techniques for use in industry’, is supported by the Spanish Ministry of Science and Innovation and is aimed at photocatalytic surfaces (i.e. surfaces that react to the ultraviolet light) with long-lasting, self-cleaning and bactericide properties. The project started in October 2009 and will last until 2011. Six Spanish research centres are involved including Instituto de Tecnología Cerámica (ITC) - coordinator and another KMM-VIN member – CIDETEC

RECAP (Spain)

The project with the financial support of the Spanish Ministry of Science and Innovation includes four Spanish research units: Nanomaterials Group and the Laser Applications Laboratory, both of the Institute of Materials Science of the University of Valencia (ICMUV), Metallurgy and Composite Materials Research Group of the Institute of Materials Technology (ITM) of the Polytechnic University of Valencia and the Ceramic Technology Institute (ITC). It is aimed at developing a line of high-performance nanostructured coatings with enhanced thermal, mechanical, and tribological properties. The ITC objective is focused at air plasma spraying techniques (APS), followed by high-energy laser treatment.

COOPERATION

EuMaT ETP

KMM-VIN is one of the key members of the "European Technology Platform on Advanced Engineering Materials and Technologies" (EuMaT). The scope of KMM-VIN research is represented across all Working Groups of EuMaT, one of them (WG4: Knowledge-based Structural and Functional Materials) being coordinated by the KMM-VIN Chief Executive Officer, who is also EuMaT Secretary General and a member of the Steering Committee.

Besides KMM-VIN, the core group of EuMaT WG4 includes seven KMM-VIN members: FHG-IFAM (Bremen and Dresden), INASMET, TUV, ITME, UH and CIDETEC.

Additionally, KMM-VIN is providing secretariat services for EuMaT and hosting many of EuMaT Steering Committee meetings in Brussels and Warsaw (for more details visit www.eumat.org)

EU-VRI

KMM-VIN is an associate member of the European Virtual Institute for Integrated Risk Management EU-VRI (EEIG). Reciprocally, EU-VRI is an associate member of KMM-VIN. Cooperation between KMM-VIN and EU-VRI has been so far carried out within the iNTeg-Risk project which is coordinated by the EU-VRI. More details on <http://www.eu-vri.eu>.

3 VI's Initiative

Recently, KMM-VIN took a leading role in the initiative with two other virtual institutes **Metamorphose VI** (Virtual Institute for Artificial Electromagnetic Materials and Metamaterials – an AISBL created by NoE METAMORPHOSE) and **Piezo Institute** (European Institute of Piezoelectric Materials and Devices that emerged from NoE MIND) to create a new Working Group within EuMaT.

An ad hoc meeting of the coordinators of Piezo Institute, METAMORPHOSE VI and KMM-VIN was held in Warsaw last October. The meeting resulted in a memorandum of understanding in which the 3 VI's apply to EuMaT Steering Committee for inclusion as a new Working Group - WG6: Materials for ICT. The EuMaT SC approved the new WG at the meeting in Brussels on 23 November, 2009

This WG6 of EuMaT, to be lead by Dr Wanda Wolny (Denmark) from the Piezo Institute, appears as a perfect partner for WG4: Functional Materials of KMM-VIN. Cooperation between KMM-VIN WG4 and EuMaT WG6 is strongly recommended.

An intention of the 3 VI's of writing common project proposals to FP7 in the future was also expressed during the Warsaw meeting.

RESEARCH FELLOWSHIPS

At the Annual General Assembly 2009 the KMM-VIN Research Fellowships were created as part of the KMM Mobility Programme (KMM MP). They are intended for PhD-students and early stage researchers from the KMM-VIN member institutions. More information at www.kmm-vin.eu/LatestNews

Results of the first call (May 2009)

Three fellowships of 2 months each were granted to:

- Lucia Hegedusova, Institute of Materials Research, Kosice (IMRSAS) - stay at Instituto de Tecnologia Ceramica (ITC), Castellon, Spain.

- Vittorio Calbucci, Università Politecnica delle Marche, Ancona (UNIVPM) – stay at Technische Universität Wien (TUV).
- Paulina J. Indyka, Institute of Metallurgy and Materials Science (IMIM) – stay at Centre for Electrochemical Technologies, Surface Finishing Department (CIDETEC), Donostia-San Sebastian, Spain.

In the meantime all three stays were successfully completed.

PERSONALIA

Prof. Aldo R. Boccaccini (IMPER)

- has moved to Germany, appointed, on 1st October 2009, Head of the newly established Institute for Biomaterials in the Department of Materials Science and Engineering, University of Erlangen-Nuremberg. He was previously Professor of Materials Science and Engineering at Imperial College London, UK where he remains visiting professor.

- co-chaired the conference EUROMAT held in September 2009 in Glasgow, UK (EUROMATs are organized every two years under auspices of the Federation of European Materials Societies).
- has been named scientific international advisor to the Ministry of Science, Technology and Innovation of Argentina by official resolution of the government in Buenos Aires.

Prof. Jan Dusza (IMRSAS) was distinguished as the "Scientist of the year 2009" in Slovakia in the category "International collaboration"

Dr Andreas Fritsch (TUV), involved in WPR3 of KMM-NoE and WG3 of KMM-VIN, completed his Ph.D. under the joint-supervision of Prof. Christian Hellmich (TU Wien) and Prof. Luc Dormieux

(ParisTech Ecole des Ponts), in February 2009. In November of this year he received the Award of Excellence for the Ph.D. thesis from the Austrian Ministry for Science and Research.

Prof. Katarzyna Pietrzak (ITME) obtained also associate professorship at IPPT in Warsaw.

Abbreviations of KMM-VIN Members (Institutions)

CORE:

AGH	University of Science and Technology, Cracow, Poland
AITEX	Textile Research Institute, Alcoy-Alicante, Spain
BioIRC	Bioengineering Research and Developing Centre, Kragujevac, Serbia
CIDETEC	Fundacion CIDETEC (Centre for Electrochemical Technologies), Donostia/San Sebastián, Spain
CUT	Cracow University of Technology, Cracow, Poland
CUTL	Cyprus University of Technology, Limassol, Cyprus
EMINATE	eminate Ltd, Nottingham, UK
FGH	Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.:
FGH-IFAM	Fraunhofer Institute for Manufacturing and Advanced Materials, Bremen, Germany
FGH-IFAM-DD	Fraunhofer Institute for Manufacturing and Advanced Materials, Dresden, Germany
FGH-IWM	Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany
IOD	Foundry Research Institute, Cracow, Poland
IMBAS	Institute of Mechanics, Bulgarian Academy of Sciences, Sophia, Bulgaria
IMIM	Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Cracow, Poland
IMRSAS	Institute of Materials Research, Slovak Academy of Sciences, Kosice, Slovakia
IMZ	Institute for Ferrous Metallurgy, Gliwice, Poland
INASMET	Fundación Inasmet, Donostia-San Sebastian, Spain
IPPT	Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland
IPSUA	Institute for Problems of Strength, National Academy of Sciences, Kiev, Ukraine
ITC	Instituto de Tecnología Cerámica - AICE, Castellón, Spain
IPM	Institute of Physics of Materials, Brno, Czech Republic
ITME	Institute of Electronic Materials Technology, Warsaw, Poland
MCL	Werkstoff-Kompetenzzentrum-Leoben Forschungsgesellschaft m.b.H. (Materials Centre Leoben), Austria
MERL	Materials Engineering Research Laboratory Ltd, Hitchin, Hertfordshire, UK
NETCOM	NetComposites, Chesterfield, UK
ONERA	Office National d'Etudes et de Recherches Aéropatiales, Chatillon, France
POLIMI	Politecnico di Milano, Milan, Italy
POLITO	Politecnico di Torino, Italy
R-Tech	Steinbeis Advanced Risk Technologies GmbH, Stuttgart, Germany
TUD	Technische Universität Darmstadt, Germany
TUV	Vienna University of Technology, Vienna, Austria
UH	University of Hertfordshire, Hatfield, Herts, UK
UNIPAD	Università degli Studi di Padova, Italy
UNIVPM	Università Politecnica delle Marche, Ancona, Italy
WUT	Warsaw University of Technology, Warsaw, Poland

ASSOCIATE:

EU-VRi	European Virtual Institute for Integrated Risk Management, Stuttgart, Germany
Saar-Uni	Saarland University, Saarbrücken, Germany
ALENIA	Alenia Aeronautica S.P.A., Italy
CRF	Centro Ricerche FIAT, Orbassano, Italy
VG TU	Vilnius Gediminas Technical University, Vilnius, Lithuania
EMPA	Materials Science and Technology, Dübendorf, Switzerland

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