

INSTITUTUL DE CHIMIE MACROMOLECULARA “Petru Poni”

- oferta de colaborare -

Aleea Grigore Ghica Voda, 41A
700487 Iasi, Romania
Tel.: +40-232-217454; Fax: +40-232-211299

Valeria HARABAGIU
e-mail: hvaleria@icmpp.ro



*Oportunitati de dezvoltare a mediului de afaceri.
Solutii de iesire din criza*

Roman, 22 ianuarie 2009

ICMPP: resurse

Personal

- ❖ numar total : 284
 - cercetatori: 110
 - doctoranzi: peste 50
- ❖ personal cu studii superioare: 175
- ❖ conducatori de doctorat: 9

Finantare

- ❖ Academia Romana (finantare directa) – 40 %
- ❖ Proiecte nationale – 31 %
- ❖ Proiecte europene – 25 %
- ❖ Transfer tehnologic, microproductie – 4 %

Infrastructura

- ❖ 3000 m² cladiri
- ❖ sala de conferinte
- ❖ biblioteca
- ❖ spatii pentru expozitii
- ❖ retea de calculatoare

Facilitati pentru cercetare

- ❖ laboratoare si echipamente
(sinteza organica si
macromoleculara)
- ❖ instalatii pilot (sinteza polimeri,
preparare materiale polimere)

*Oportunitati de dezvoltare a mediului de afaceri.
Solutii de iesire din criza*

Roman, 22 ianuarie 2009

ICMPP: misiune / indicatori de performanta

Cecetare fundamentala in stiinta polimerilor

- ❖ peste 200 articole stiintifice, carti, capitole in carti / an
- ❖ peste 150 prezentari in manifestari stiintifice / an
- ❖ organizare de manifestri stiintifice internationale
(Seminarul Franco-Roman de Polimeri – a 8-a editie in 2007)

Cercetare aplicativa, transfer tehnologic, microproductie

- ❖ tehnologii industriale pentru
 - siliconi (uleiuri, elastomeri, rasini, adezivi, lubrifianti)
 - adezivi
 - poliuretani (piele sintetica, adezivi, unsori de blocare)
 - schimbatori de ioni

Educatie prin cercetare

- ❖ peste 45 de teze elaborate in institut in perioada 2001-2008

Servicii

- ❖ consultanta in sinteza si caracterizarea polimerilor si materialelor polimere
- ❖ activitati de transfer de cunostinte
- ❖ *certificare de materiale polimere*

*Oportunitati de dezvoltare a mediului de afaceri.
Solutii de iesire din criza*

Roman, 22 ianuarie 2009

Reteaua de colaborare a ICMPP

● *A. Cooperare la nivel national*

in Iasi: Universitatea Tehnica Gh. Asachi”, Universitatea “Al. I. Cuza”, INCD Fizica Tehnica, USAMV, UMF etc.

in alte centre: Universitatea Politehnica Bucuresti, Universitate Transilvania Brasov, Universitatea Tehnica Timisoara, Universitatea Ovidius Constanta, INCD Micro/Nanotehnologie Bucuresti, ICPE CA Bucuresti etc.

peste 70 IMM-uri si companii romanesti

● *B. Cooperare internationala*

Peste 50 centre de cercetare / invatamant

in Europa (Franta, Germania, Elvetia, Finlanda, Grecia, Italia, Marea Britanie, Portugalia, Republica Ceha, Rusia, Slovenia, Suedia, Ucraina, Ungaria)

in Turcia, Japonia, China, SUA si Canada

Cca 20 vizitatori straini / an prezinta conferinte in ICMPP

Participarea ICMPP in proiecte europene

- **FP3 - partener in 3 proiecte (COST-PECO, PECO ERBIC IPDCT, INCO - COPERNICUS -ERBIC)**
- **FP5 - partener in 5 proiecte (2 INTAS, 1 CRAFT, 2 GROWTH)**
- **FP6 - *proiecte in derulare* (peste 60 parteneri si un buget total de peste 1.2 mil. €)**
Apeluri 2003: partener in 3 NoE, 1 IP, 1 Marie Curie ToK;
Apeluri 2004: coordonator al proiectului RAINS; partener in 1 IP
- **FP7 – proiecte in contractare: partener in 1 Marie Curie, 2 IP**
- **COST – manager national in 6 Actiuni COST**

*Oportunitati de dezvoltare a mediului de afaceri.
Solutii de iesire din criza*

Roman, 22 ianuarie 2009

Domenii de interes

➤ materiale polimere multifunctionale
(polimeri inteligenti, polimeri electro/fotoactivi,
filme subtiri, micro/nanoparticule)

➤ polimeri termostabili

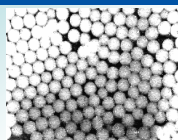
➤ polimeri bioactivi / biocompatibili (naturali si
sintetici)

➤ materiale micro / nanostructurate

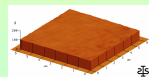
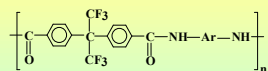
➤ sisteme polimere
multicomponente

➤ chimie supramoleculara

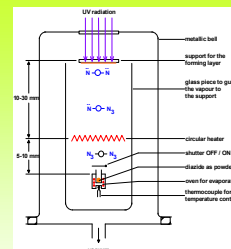
➤ chimie “verde”



Functional micro- and
nanoparticles based on
poly[(N-acylimino)ethylene]
bcsimion@icmpp.ro



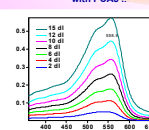
Thin films from fluorinated
heterocyclic polymers
mbruma@icmpp.ro



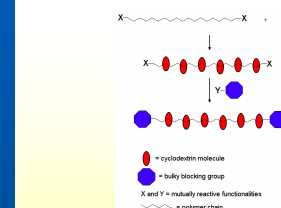
Films of conjugated
polymers by chemical
vapor polymerization
vbarboiu@icmpp.ro

RECENT ADVANCES IN THE MICRO/NANO TOPIC USING POLYMERS

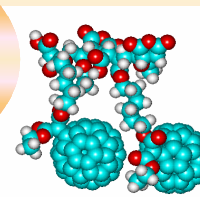
Spectral data
with PCA



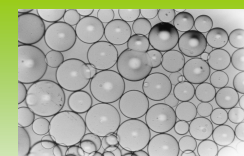
LBL deposition using
polyelectrolytes and dyes
sdragan@icmpp.ro



Hybrid supramolecular
structures
hvaleria@icmpp.ro



Water-soluble derivatives of
C[60] fullerene with maleic
polymers
chita@icmpp.ro



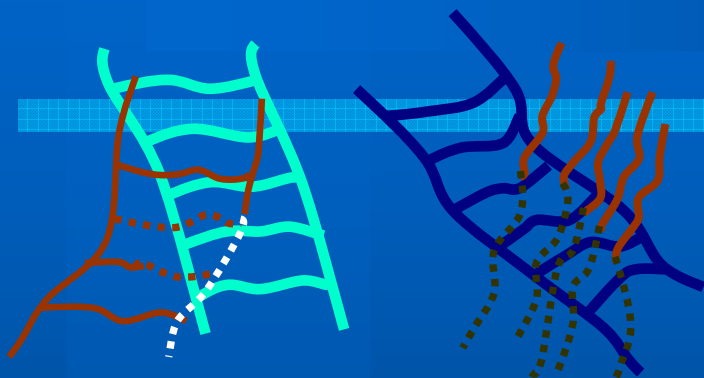
Polymeric micro- and
nanoparticles
ghefun@icmpp.ro



Photopolymers - organoclay
composites for optical
applications
emilbur@icmpp.ro

Contract CERES

Retele interpenetrante



full

semi

*Retele macromoleculare
interpenetrante: mecanisme, procese,
proprietati aplicatii (2003-2005)*

Proiect fundamental
2 parteneri romani
Valoare: 49.000 Eur

BLOCK SAVE

Proiect CRAFT
5 parteneri
Valoare: 80.000 Eur

SPONGE

Proiect GROWTH
6 parteneri
Valoare: 43.000 Eur

I-STONE

Proiect IP
28 parteneri
Valoare: 150.000 Eur

POLYSACCHARIDES

Proiect NoE
17 parteneri
Valoare: 150.000 Eur

SPONGES based on cellulose/poly(ethylene oxide – vinyl) semi-IPNs



Project: *New environmentally friendly technology for cellulose three dimensional objects/SPONGE*

Coordinator: SPONTEX, Paris, France

Partners: Lenzing (Austria), CEMEF (France),
CERTECH (Belgium), PPIMC (Romania)

↑
precipitation

Cellulose solution in N-methylmorpholine oxide

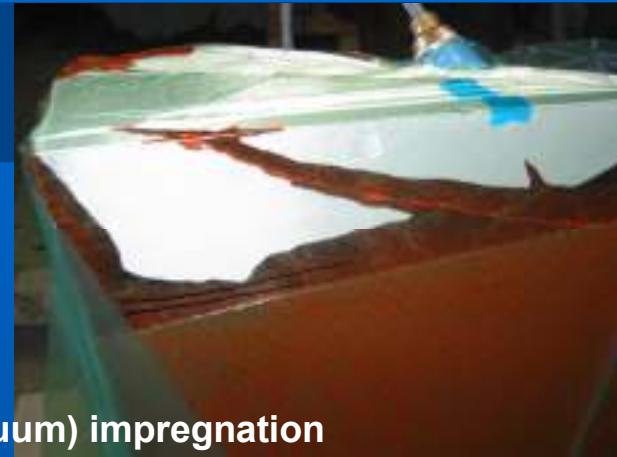
Objectives:

- ✓ to establish an ecological technology for cellulose-based sponges
- ✓ to increase the mechanical properties (tenacity) of cellulose sponges
- ✓ to diminish the shrinkage of cellulose sponges

Technical solution proposed by PPIMC:

- modification of cellulose through interpenetrating with a synthetic polymer

Full-IPNs for marble consolidation



(vacuum) impregnation

Low viscosity resin components

Project CRAFT: *A novel methodology for the safe handling and consolidation of dimensional stone blocks using a cost-effective combination of vacuum-based technology and highly penetrating resin formulations/Block Save*

Coordinator: d'Appolonia SpA, Genova, Italy

Partners: 10 partners from Italy (4), Spain (2), UK (2), Romania (2)

Objectives:

- ✓ to establish an ecological and effective technology for marble consolidation
- ✓ to define a resin of very low viscosity

Technical solution:

- ✓ vacuum impregnation
- ✓ modification of a classical epoxy resin

*Oportunitati de dezvoltare a mediului de afaceri.
Solutii de iesire din criza*

Roman, 22 ianuarie 2009

Echipamente

CHNS/O Analyzer Perkin Elmer 2400 Series II



APPLICATIONS: elemental analysis of C, H, N or C, H, N, S or O; suitable for low or high molecular weight organic materials
Contact: erusu@icmpp.ro

BRUKER AVANCE DRX 400 NMR SPECTROMETER

Fully digital, equipped with 9.4 Tesla (400 MHz) ultrashielded magnet, field gradients on the z-axis, one direct detection dual H/C probehead, one inverse detection multinuclear probehead, one four-nuclei (H/F/C/Si) probehead, variable temperature unit, and antivibration dumpers



APPLICATIONS

Investigation of polymer composition and microstructure, molecular interactions; chemical reactivity and kinetics.

Contact: vbarboiu@icmpp.ro

SCANNING PROBE MICROSCOPE, SOLVER PRO-M

Measuring Modes: Contact AFM, LFM, Resonant Mode AFM, PSM, FM&D curves, AFI, MFM, AFM/STM spectroscopy, NanoLithography & NanoManipulation, STM-Scanning Tunneling Microscopy



APPLICATIONS: Surface topography, electric, magnetic, mechanic, adhesion properties (on surface), properties changes vs. temperature.
Contact: dtimpu@icmpp.ro

Perkin Elmer Diamond Dynamical Mechanical Analyzer



APPLICATIONS: Measurement of the dynamic viscoelasticity, creep recovery and stress relaxation. Exploring the structure, processability and end use performance of polymeric materials and composites as a function of temperature, frequency and time
Contact: mcristea@icmpp.ro

Differential Scanning Calorimeter Perkin Elmer-Pyris Diamond

High sensitivity, step scan DSC (TM DSC), Hi speed DSC (up to 500°C/min), lower temperature operation (from LN2)



APPLICATIONS: thermal transitions in polymers, evaluation of different chemical and physical processes; study of natural polymers denaturation, complexation; kinetics of polymer crystallization and morphology studies
Contact: crgrig@icmpp.ro

APARATURA DISPONIBILA

Preparare si purificare/conditionare

Aparatura uzuala pentru sinteza polimeri si compusi organici

Instalatie pentru obtinere de filme subtiri prin depunere reactiva in stare de vapori sau "spin coating"

Aparate de liofilizare

Caracterizare de structura si microstructura

Spectrometre RMN (400 MHz)

Spectrometre FTIR

Microscop electronic de transmisie

Microscop electronic de baleiaj + EDAX

Microscop de forta atomica

Cromatografe in faza lichida si de gaze cuplate cu spectrometru de masa

Difractometru de raze X

Mase moleculare

Cromatograf de gel permeabil

Analiza dimensionala

Analizoare de dimensiuni in domeniu micro/nano pentru filme si particule(zetasizer, mastersizer, elipsometru)

Proprietati termice

Analiza termogravimetrica

Microcalorimetru diferential

Proprietati optice

Spectrometre UV-VIS

Spectrometru de fluorescenta

Refractometre

Proprietati electrice

Spectrometru dielectric

Electrometru

Proprietati reologice

Reometre

Viscozimetre automate

ICMPP si mediul de afaceri din Regiunea N-E: posibile activitati comune

- **Consultanta in domeniul materialelor polimere**
- **Analize de polimeri/materiale polimere, alimente, fluide biologice**
 1. Compozitie
 2. Proprietati mecanice si termice
- **Proiecte comune in domeniile de interes reciproc**
- **Consultanta in management de proiecte europene (inclusiv pentru cele finantate din fonduri structurale)**
- **Transfer de tehnologie**



**Intreaga echipa a ICMPP va invita la
discutii pe teme punctuale, pentru a
stabili proiectele comune.**

Va multumesc pentru atentie!