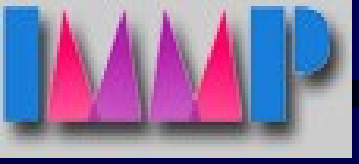

Instituto Multidisciplinar de Materiais Poliméricos (IMMP)

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Institutions

IFSC- USP: Instituto de Física de São Carlos-USP
Poli-USP: Escola Politécnica-USP
IQ-USP: Instituto de Química-USP
IF-USP: Instituto de Física-USP
FFCLRP-USP: Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto
IQ-UNICAMP: Instituto de Química-UNICAMP
IF-UNICAMP: Instituto de Física Gleb Wataghin
IGCE-UNESP- Instituto de Geociências e Ciências Exatas – UNESP/Rio Claro
FEIS-UNESP: Faculdade de Engenharia de Ilha Solteira-UNESP
FCT-UNESP: Faculdade de Ciência e Tecnologia – UNESP/Pres. Prudente
DEMA-UFSCar: Departamento de Engenharia de Materiais-UFSCar
DQ-UFPR: Departamento de Química - UFPR
DF-UFMT: Departamento de Física - UFMT
DEQ-UFRN: Departamento de Engenharia Química - UFRN
DF-UPI: Departamento de Física-UFPI
LACTEC: Laboratório de Tecnologia-Curitiba
UFAM: Instituto de Ciências Exatas - Manaus
UFU: Departamento de Física - Uberlândia


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Goals vs. Results

- **Establishment of the network**
- **Building infrastructure for emerging groups**
- **Strengthening of existing collaborations and forging new ones**
- **Considerable integration of emerging groups**
- **Technology transfer**

- Work on the whole cycle of fabrication of luminescent devices – from chemical synthesis, theoretical modeling to prototypes
- Discovery of the active protein in the natural rubber latex for angiogenesis (technology transferred already!)
- First evidence of a non-biological lock-key system
- Design of polymers using genetic algorithms

Achievements

- **Sensors and biosensors – i) detection of low-dose ionizing radiation using conjugated polymers. ii) electronic tongue. iii) immobilized enzymes in nanostructured polymer films. iv) chitosan-based sensors**

- **Optical storage – 2D and 3D using azopolymers**

- **Molecular control of a number of electrical and optical properties of ultrathin polymer films**

Achievements

- **Theoretical modeling of electronic structure of luminescent polymers, consistent with NMR spectroscopy**
- **Alignment of liquid crystals – command surfaces and use of surface-relief gratings**
- **Polymer circuits with ink-jet technology – toward "cheap" electronics**
- **Studies of ageing of polymers (including elastomers) for the electricity distribution industry**

Achievements

In numbers (2002-2004):

- ~ 200 Papers in refereed journals
- 10 Books and book chapters
- ~ 70 PhD and MSc dissertations
- 5 Patents
- 4 Prizes

Broader Impacts

- **Teaching and training – exchange of students, with sharing of experiments and expertise**
- **New post-graduate program in Materials Science of Unesp**
- **Collaboration between consolidated (level 7) and emerging Programs. Procad with UFPI and UFRN**

Broader Impacts

- **Infrastructure – a completely new laboratory for the synthesis of luminescent polymers – LAPPS – in Curitiba**
- **New research groups in Presidente Prudente and Uberlândia**
- **Considerable improvement in facilities of emerging groups (priority in distributing the financial resources for equipment)**
- **In well-established groups – multiuser facilities for multidisciplinary work**

Extending cooperation

- **IMMP members have extended their National and International networks**
- **Cooperation with CEPIDs – Multidisciplinary Centers supported by FAPESP**
- **Publications with partners from ~ 15 countries**
- **Active role in Nanotechnology networks**
- **Workshop with CGEE and MCT (at FIESP) for opportunities in the advanced polymers industry**

Present Focus

- **Functionalized polymers - semiconducting, luminescent, non-linear optical**
- **Biopolymers**
- **Polymers in nanostructured films**

Optical and electrical properties of polymers

Research on devices

Synthesis and chemical characterization

Planning the future

- **Optimize management and enhance dissemination to wider audiences**
- **Attract new partners from industry and enhance technology transfer**
- **Include new groups, particularly those interested in organic nanostructures**