



## Participating organization

ROMANIA



UNIVERSITATEA  
TEHNICĂ IAȘI

**Universitatea Tehnică  
“Gh. Asachi” din Iași (UTI)**

**Departamentul de Ingineria și  
Tehnologia Hârtiei**

**Facultatea de Inginerie  
Chimică**

**Bld. D.Mangeron Nr.71 Iași  
RO-700050**

**“Gh. Asachi” Technical  
University of Iasi (TUI)**

**Department of Paper  
Engineering and Technology**

**Faculty of Chemical  
Engineering**

**Bld. D.Mangeron No.71 Iasi  
RO-700050**

**<http://www.tuiasi.ro>**



## Organisation's details

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**„Gh. Asachi“ Technical  
Faculty of Chemical Engineering**

**University of Iasi  
Department of Paper Engineering**

**Services/Products:**

**Education, Training and Research**

**Total number of employees:**

**1540**

**Employees in department :**

**8**

**Number of students in department:**

**38 ( 12 PhD students)**

**Research focus:**

- **Role of additives in alkaline pulping**
- **Biodegradable composite materials**
- **Bio-additives in papermaking**
- **Improving recycling potential of cellulose fibres**

**Ownership structure:**

**State owned**



## E48 representative's presentation (I)

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### Elena Bobu

#### Professor

Bld. D. Mangeron, No. 71, Iasi  
RO-700050, Tel: + 40-232 278683  
Fax: +40-232-271311; elbo@ch.tuiasi.ro

#### Academic background:

- Chemical Engineer (TU Iasi, 1969)
- PhD in Paper Chemistry (TU Iasi, 1986)
- Production manager (Paper Mill Calarasi, 1969-80)
- Assistant / associated professor (TU Iasi, 1980-97)
- Professor (TU Iasi, from 1997)

#### Areas of expertise:

- Paper technology
- Wet end chemistry
- Waste paper processing

#### Function in COST E48:

MC member  
WG 1 member





## E48 representative's presentation (II)

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### Most relevant publications in the field of E48 :

- **Elena Bobu, V.I.Popa and Tudorita Moraru**  
“Control of colloidal material in papermaking systems with high level of secondary fibres”, Published in *Wochenblatt f. Papierfabrikation*, 1999, (English)
- **Elena Bobu**  
“Reduction of Municipal Solid Waste by Recycling, A Guide for Local Governments Business and Public Institutions”, *Iasi – 2001 (EcoLinks Project)*
- **Elena Bobu, F.Ciolacu**  
Chemical modification of recycled fibers for efficient use in producing fluting  
Published in *Celuloza si Hartie*, 2003 (Romanian)
- **Elena Bobu, Tudorita Moraru and V.I.Popa**  
Papermaking potential improvement of secondary fibers by enzyme treatment”,  
*Cellulose Chemistry and Technology* , 2003 (English)
- **Tudorita Moraru, Elena Bobu, D.Belosinschi**  
Effects of enzymatic treatments on recycling potential of kraft fibers  
*Celuloza si Hartie*,2004 (Romanian)



## Own expectations in E48

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- To gain knowledge on:
  - Recycling potential of primary fibres – evaluation methods
  - Solutions for improving papermaking potential of secondary fibers
  - Fiber engineering as emerging technology to enhance and control fiber quality
  - Handling residuals from wastepaper processing
- To gain Information about the efficiency of different strategies for wastepaper recovering
- To collaborate in developing European projects addressing to the environmental and economic aspects of paper recycling



## Own contributions to E48

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### Finished or current projects in the area of E48:

- Project 1: Native starch as strength additive in producing paper and board from 100% wastepaper (1998- 2000)
- Project 2 : Reducing municipal solid waste by recycling (2000 -01)
- Project 3 : Neutral deinking of office wastepaper (2004...)

### Projects submitted or planned during the duration of E48:

- Valorization secondary fibres in biodegradable composites
- Developing a recycling center in university

### Specific tools (equipment/software) relevant for E48 objectives:

- Lab equipments for: pulping, screening, flotation column, bleaching
- Lab devices for: fiber characterization, chemical analyses, pulp and paper testing



## Brief description of own finished or ongoing research projects in the area

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### Project 1: Native starch as strength additive in producing paper and board from 100% wastepaper

- **Background:** native starch is most cheaper additive for improving dry strength of paper based on recycled fibres, but its wet end application is limited due very low retention.
- **Objectives:** to find out a cost-effective additive system for native starch retention
- **Means:** screening different additive systems for their performance on the retention and drainage, evaluation their cost as a function of the basic objective - dry strength improvement.
- **Results:** a complex additive system consisting of coagulant, flocculant and microparticle proved to be most efficiently: starch retention increasing up to 85%; drainage improving; white water loading reducing, especially for CDM; dry strength (NCR- normal compression resistance) was improved not only due to the amount of starch retained but also due to better retention and distribution of fines in z-direction.



## Brief description of own finished or ongoing research projects in the area

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### Project 2: Reducing municipal solid waste by paper recycling

- **Background:** paper and board account for about 30% of municipal solid waste in Iasi, the third largest city of Romania
- **Objectives:** to demonstrate that a market-driven system for reduction of the municipal solid waste by paper recycling would indeed be both economical and environmentally beneficial.
- **Means:** study sources of wastepaper generation in Iasi and create a solid waste survey; developing a strategy for reduction of the solid waste by separation of wastepaper; conducting a public awareness campaign on recycling
- **Results:** developing and implementation a pilot program for wastepaper collection and commercialization, which have shown that there are possibilities to increase collection rate of wastepaper in Iasi from 35% to more than 55%; elaborating and editing a guide on reduction of solid waste by recycling.



## Brief description of own finished or ongoing research projects in the area

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### Project 3: Neutral deinking of office wastepaper

- **Background:** Conventional alkaline deinking requires large quantities of chemicals that results in high COD and salts loading of the wastewater, and generally is less effective in processing digital printed papers.
- **Objectives:** To evaluate different neutral conditions for deinking of mixed office wastepaper and to find out optimum ratio between brightness increase and flotation losses.
- **Means:** Preparing sample of digital printed papers and deinking under different chemical and/or biochemical conditions; evaluation flotation yield and wastewater loading; evaluation pulp properties (brightness, specks number, fines content, strength characteristics)
- **Results:** First part of this project was carried out on Xerox printed paper. The results have shown that a combination of nonionic surfactant and cellulase enzyme under neutral pH leads to consistent improvements over conventional deinking.



## Organisation of E48 events

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**My organisation has the personal and logistic facilities to organise major E48 events and would particularly be prepared to host**



**specific (separate) MC or WG meetings**



**parallel or consecutive meetings of both MC and WGs**



**a workshop (up to 50 participants)**



**an international conference (more than 50 participants)**



## External contributions to E48

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I believe that the following external organisations or experts could make valuable contributions to E48 events:

Name	Organisation	Expertise
N.N.	CEPI	Statistic reports, Environmental legislation
N.N.	CPI	UK – data base on paper recycling
N.N.	Metso	Equipments, sensors, simulation
N.N.	Buckman Laboratories	Stickies control (chemicals, enzymes, and evaluation methods)
N.N.	AVEBE GmbH	Special starch products for recycled stocks



## Expectations and offers concerning STSMs

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**My organisation is prepared to host young academics from foreign organisations in the frame of STSMs. We could offer collaboration in**

- **Modification of fiber by enzyme and / or chemical treatments**
- **Chemical analyses of fiber**
- **Use of secondary fibers in biodegradable composites**

**My organisation is interested in sending young academics to foreign research organisations in the frame of STSMs.**

**We would particularly be interested in learning more about**

- **Stickies evaluation and control....**
- **Strategies for wastepaper collection and supporting legislation**
- **Fiber cycle simulation.....**