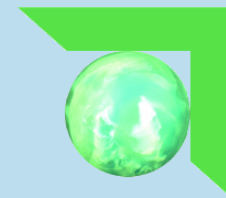




NL Agency
Ministry of Economic Affairs



Spring Session PINNL 2013
Funded by NL Agency; hosted by ISPT; April 10th 2013

Welcome!





Content



1. Welcome
2. Objective PINNL
3. Special presentation: PI Technoproject
4. Thinktank PINNL; *results*
5. PI Technology Updates; *stats & results*
6. Autumn Session 2013
 - a. *Election PINNL committee*
 - b. *Membership PINNL: services and fees*



2. Objective PINNL

Disseminate knowledge about Intensified Process Technologies to companies with the final aim of:

- Economical upgrading of process performance
- Reducing (revamp / grassroots) investment cost
- Reducing plant / CO₂ footprint
- Improving Energy Efficiency
- Improving feedstock to product yield



3. Special presentation: PI Technoproject results

In 2010 €50.000,- funding became available for PI Technoprojects ex Stichting Ketenefficiency; *PI earmarked*; managed by NLGUTS

Executed PI Technoprojects:

- Model based reactor control; *withdrawn*
- Method of pulp processing and liquid processing: MACT en Danvos
- Thermo power supply for wireless sensors; Micropelt
- Pulsed Electric Field conservation and enhancement of extraction; TOP

Project in Red
presented on this Session



4. Thinktank PINNL

Development of the **Value Proposition** for PINNL Members

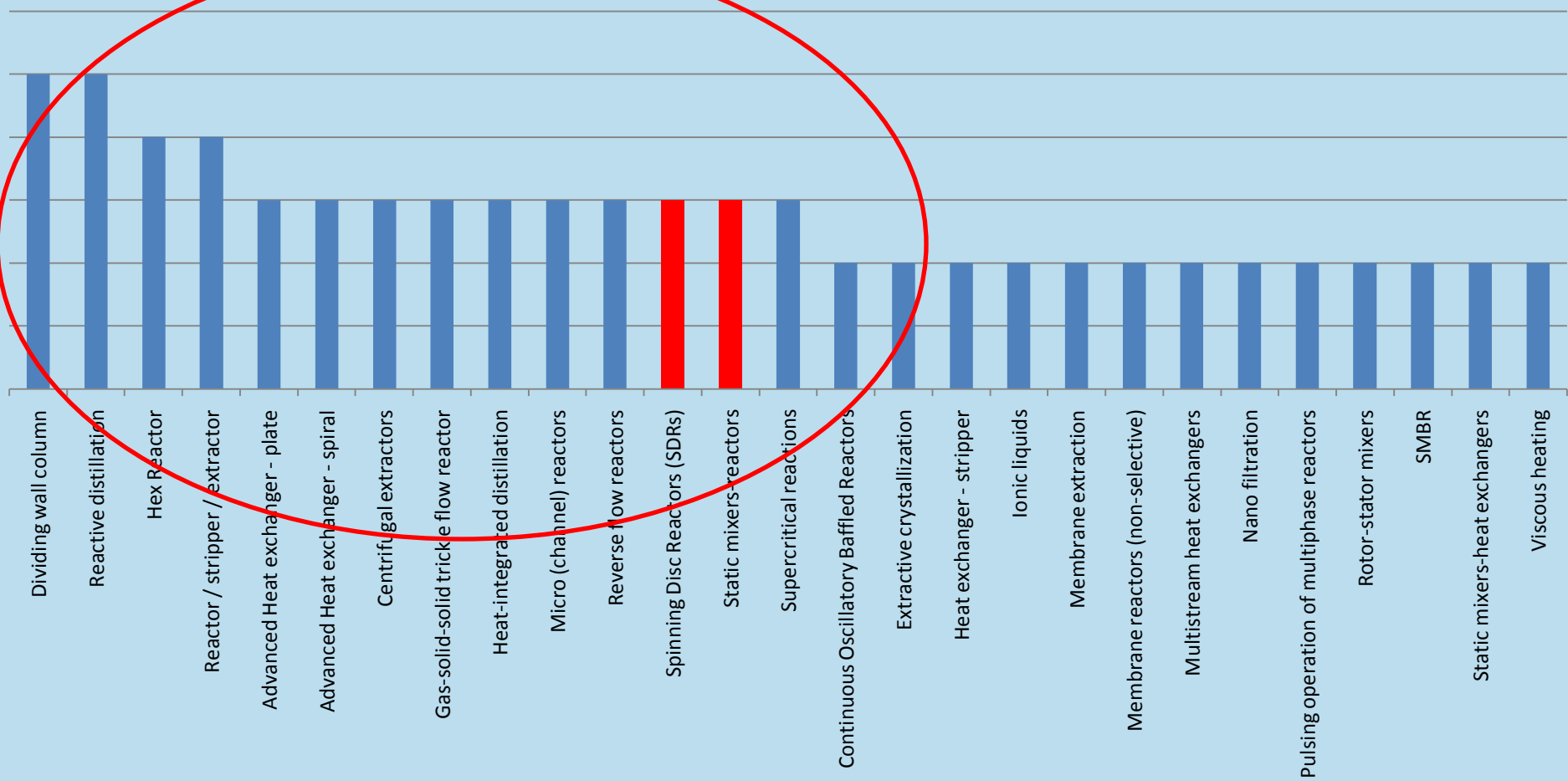
- Transferring knowledge
- Stimulating speed of Technology Implementation
- Scouting PI Technologies / PI Technology Updates
- Coordinating Thinktank output
- Advising on transfer PINNL to ISPT

Frank Smeets	House of Innovation
Frank van der Pas	NL Agency
Hans Feenstra	AkzoNobel
Melle Nieuwhof	AkzoNobel
?	DSM
?	Shell
Henk van den Berg	Twente University
Jeffrey Felix	Sulzer
Marten Japenga	Member of PINNL Committee
Henk Pelt	DOW Chemical Benelux
Henk Akse	Traxxys



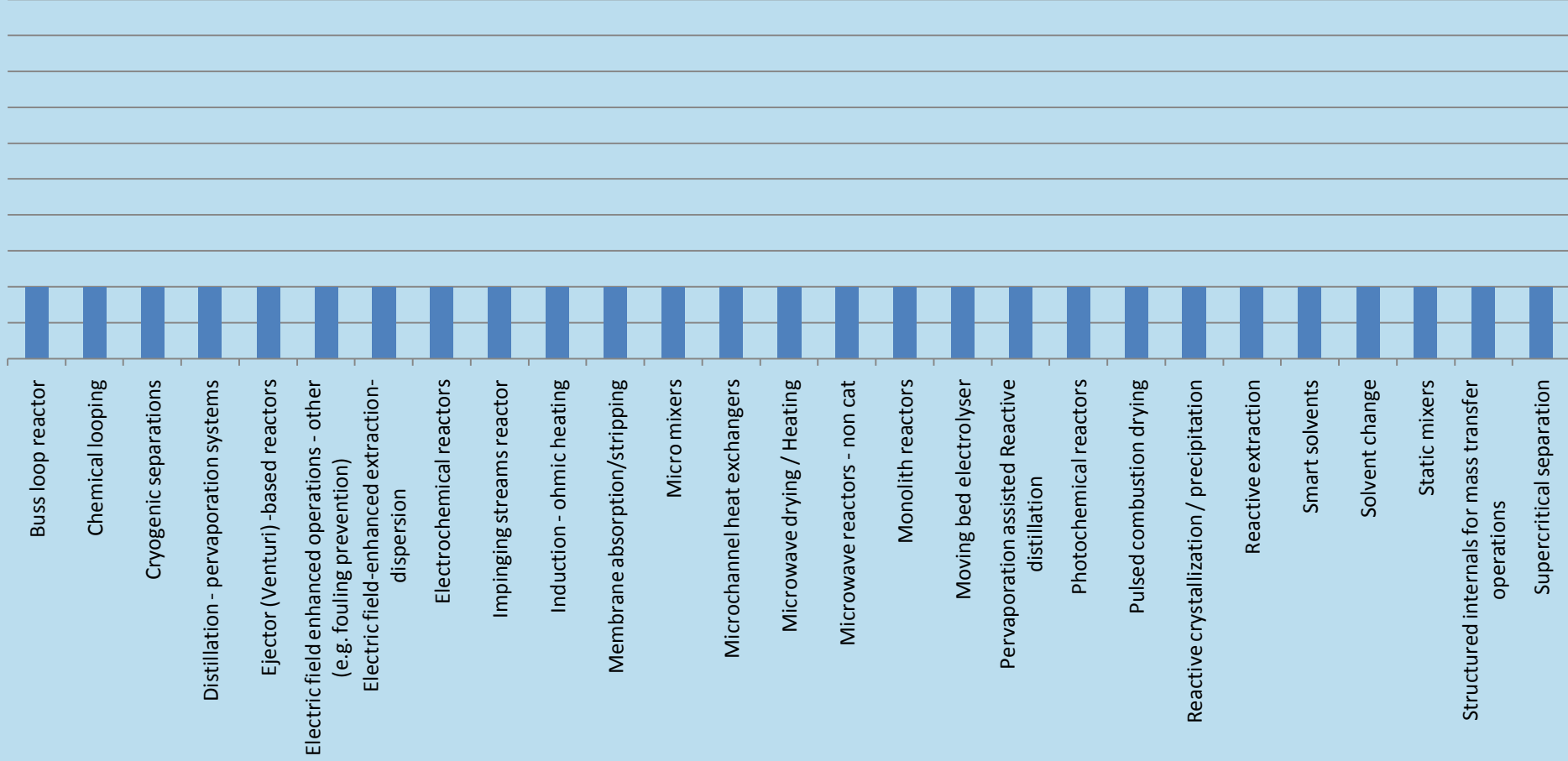
5a. PI Technology Updates: Results of questionnaire nov '12

Focus





5b. PI Technology Updates: Results of questionnaire *nov '12*





5b. PI Technology Updates: Top 14 PI technologies *ex questionnaire*



© Oxford Catalysts Group; UK
COMMERCIAL FT MICROCHANNEL REACTOR



© SPINID; Eindhoven, NL
COMMERCIAL SPINNING DISC EXTRACTOR

- 1 Dividing wall column
- 2 Reactive distillation
- 3 Hex Reactor
- 4 Reactor / stripper / extractor
- 5 Advanced Heat exchanger - plate
- 6 Advanced Heat exchanger - spiral
- 7 Centrifugal extractors
- 8 Gas-solid-solid trickle flow reactor
- 9 Heat-integrated distillation
- 10 **Micro (channel) reactors: *this Spring Session***
- 11 Reverse flow reactors
- 12 **Spinning Disc Reactors (SDRs): *this Spring Session***
- 13 Static mixers-reactors
- 14 Supercritical reactions

**Technology Updates in Red
are presented on this Session**



6. Autumn Session **2013** *Coming up*

- Election of PINNL Committee
 - PINNL Committee-*elect* will be presented to Members before Autumn Session
 - Vintage members will receive dedicated invitations for Members Meeting
 - Members Meeting will be held after the formal Session
- Membership of PINNL: services & fees
 - Members can nominate **now**; free of charge in 2013
 - As of 2014 PINNL will ask a modest Membership fee
 - Individual / Student / Company fees
 - Fees *COULD* be used for bying ISPT tickets to perform Technoprojects (needs discussing)



6. Autumn Session **2013**

Proposal differentiated fees

Type of member	Fee; [€/a]
One man company	100
Small company [< 25 employees]	250
Small to medium enterprise [$25 < \text{employees} < 250$]	500
Knowledge institute	250 (per R&D group)
Large enterprise	1500
Individual membership	50
Student	30