



NL Agency  
Ministry of Economic Affairs

## Autumn Session PINNL 2012

Funded by NL Agency; hosted by Zeton B.V.

# Welcome!





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Ministry of Economic Affairs

# Intro Autumn Session PINNL 2012



1. Developments @ PINNL
2. New Service: PI Technology Update Reports
3. Programme



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## 1. Developments @ PINNL

Objective *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 / CO<sub>2</sub> footprint
- Improving Energy Efficiency
- Improving feedstock to product yield



## 1. Developments @ PINNL

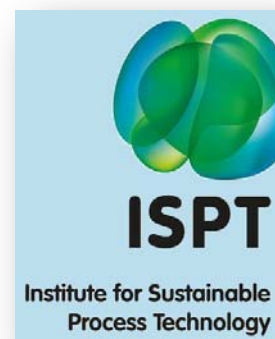
### Achievements 2012

#### 1. Development of **Value Proposition** for members (Thinktank PINNL)

- Transferring knowledge
- Stimulating speed of Technology Implementation
- Scouting PI Technologies
- Coordinating Thinktank output

Frank Smeets  
Frank van der Pas  
Hans Feenstra  
Henk van den Berg  
Jeffrey Felix  
Marten Japenga  
Henk Pelt  
Henk Akse

#### 2. Migration of PINNL network from NL Agency to ISPT as of 1-1-2013



<http://ispt.eu/>



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## 2. New Service: PI Technology Update Reports

- 4 updates/year
- Brief updates on requested PI Technologies
- Distribution via email
- Kick off today: you can indicate your interests in questionnaire



- 50 MIP
- 51 Monolith reactors
- 52 Moving bed electrolyser
- 53 MPP
- 54 Multistream heat exchangers
- 55 Nano filtration
- 56 Other structured catalytic reactors (KATAPAK's, parallel passage etc.)
- 57 Pervaporation assisted Reactive distillation
- 58 Photochemical reactors
- 61 Pulsed combustion drying
- 62 Pulsed compression reactor
- 63 Pulsing operation of multiphase reactors
- 64 Reactive absorption
- 65 Reactive comminution
- 66 Reactive condensation
- 67 Reactive crystallization / precipitation
- 68 Reactive distillation
- 69 Reactive extraction
- 70 Reactive extrusion
- 71 Reactor / stripper / extractor
- 72 Reverse flow reactors
- 73 Rotating Annular Chromatographic Reactor
- 74 Rotating Packed Beds
- 75 Rotor-stator mixers
- 76 Smart solvents
- 77 SMBR
- 78 Solvent change
- 79 Sonochemical reactors
- 80 Spinning Disc Reactors (SDRs)

- 81 Static mixers
- 82 Static mixers-heat exchangers
- 83 Static mixers-reactors
- 84 Structured internals for mass transfer operations
- 85 Supercritical reactions
- 86 Supercritical separation
- 87 Supersonic gas-liquid reactors
- 88 Supersonic gas-solid reactors
- 89 Ultrasound-enhanced crystallization
- 90 Ultrasound-enhanced phase dispersion / mass transfer
- 91 Viscous heating



# Intro Autumn Session PINNL 2012

## 3. Programme

Time	Presentation	Who?	Company / Institute
10.30 - 11.15	Intensification by flow reactors	Ir. G. Van der Zanden	Chemtrix
11.15 - 12.00	Resin Screening for Solvent Impregnated Resins in Industrial Wastewater Treatment Applications	Ir. J. Bokhove	Technical University Eindhoven NL
12.15 - 13.00	Visit to Construction Hall of Zeton BV	Zeton representative	Zeton BV
13.00 - 13.45	Lunch		
13.45 - 14.30	Continuous reacting of high viscosity media without use of solvents	Dr. Georgios Rauzeos	Buss – SMS – Canzler GmbH Switzerland
14.30 - 15.15	Trends in Process Intensification from a UK point of view	Prof.dr. A. Harvey	Newcastle university UK
15.15 - 15.30	Teabreak		
15.30 - 16.15	Compact heat exchange from off shore to on shore?	Dr. R. Le Pierres	Heatric / Meggitt, UK
16.15 - 17.00	Intensification in pilot plants	Mr. H. Bottenberg	Zeton BV
17.00 - 17.30	Reception / drinks	All	