



vito

vision on technology

Analytical tools

In relation to COST Action FP0901

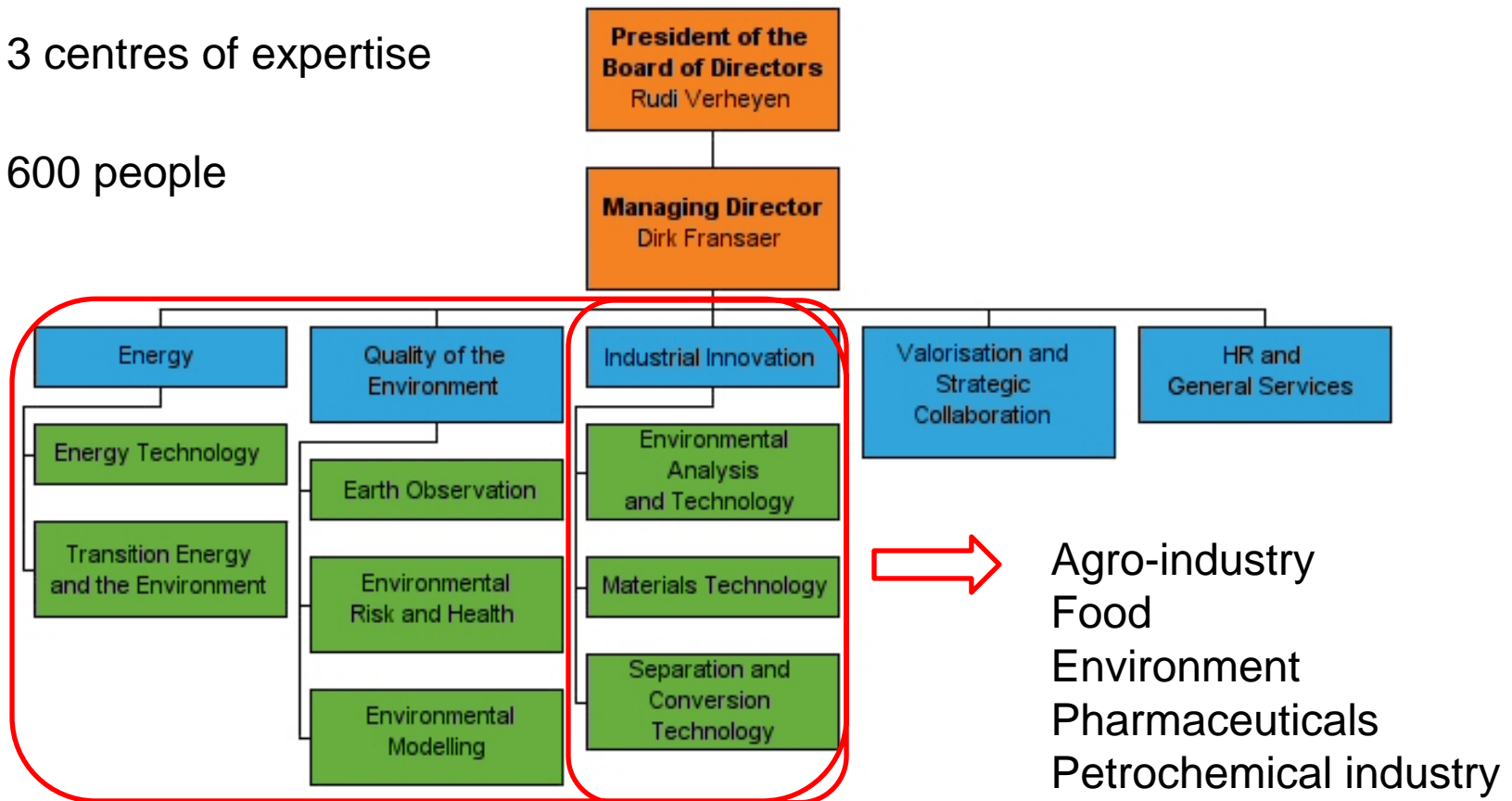
Stefan Voorspoels



vito facts and figures

vision on technology

- » Independent and customer-driven research organisation that provides innovating, technological solutions and scientifically based advice and support.
- » 3 centres of expertise
- » 600 people



ANALYTICAL TOOLS

Sample preparation

organic

- on- & off-line-solid phase extraction (SPE)
- solid phase microextraction (SPME)
- high pressure liquid extraction
- thermal desorption
- automated gelpermeation chromatography (GPC)
- automated carbon column clean-up
- preparative liquid chromatography (prep-LC), etc.



inorganic

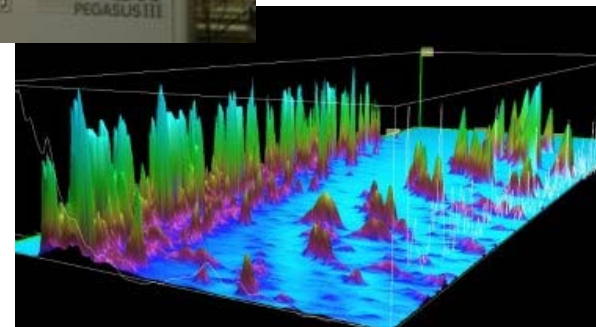
- mills
- fraction collectors
- mixers
- shakers
- tablet press
- microwave
- high pressure asher
- automatic bead machine
- bomb combustion

ANALYTICAL TOOLS

Chromatography

organic

- » GC-FID/ECD
- » GC- μ ECD
- » GC-MS (ion-trap and quadrupole)
- » HS-GC-MS
- » Comprehensive 2D-GC-FID
- » Comprehensive 2D-GC-MS (TOF)
- » GC-HRMS



Various peripheral options are available, which allows us to construct the optimal GC-system for each project:

e.g. thermal desorption unit, headspace unit, SPME, large volume injector (LV-OC with solvent vapour exit and PTV),...

ANALYTICAL TOOLS

Chromatography

organic

- » LC-UV
- » LC-MS/MS
- » UPLC-DAD
- » UPLC-MS/MS
- » UPLC-Accurate-Mass Spectrometer (Exactive™)
- » Direct Analysis in Real Time (DART®)
- » online-SPE-UPLC-MS/MS

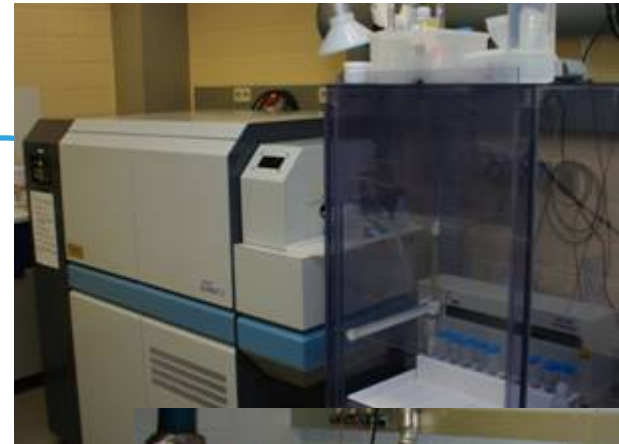


ANALYTICAL TOOLS

Elemental analysis

inorganic

- » **Inductive Coupled Plasma**
 - ICP-atomic emission spectrometry (AES)
 - IC-ICP-mass spectrometry (MS)
 - ICP-MS
 - High Resolution (HR)-ICP-MS
- » **mercury analysis**
 - Atomic Fluorescence Spectrometry (AFS) (*liquids*)
 - Thermal Decomposition-Amalgamation-Atomic Adsorption Spectrometry (AAS) (*solids*)
- » **XRF (screening)**
 - Energy Dispersive (ED)-XRF
 - Wavelength Dispersive (WD)-XRF
 - Micro (μ)-XRF
- » **metal-analysis (DP-ASV)**
 - Wavelength Differential pulse anodic stripping voltametry (DP-ASV)
- » **combustion elemental analysis (C, H, N, S)**



ANALYTICAL R&D FOCUS

- The aforementioned instruments and expertise are being used for:
 - » Method development and optimisation
 - » (Non)-routine analyses
 - » Independent method evaluation
 - » Scientific support of R&D-projects
 - » Training and consultancy
- Currently running related research project: Valorisation of waste streams of agro-industry, where characterisation is also a big challenge

- » **State-of-the-art analytical facilities**
- » **Expertise**
 - Quantification of organic residues in complex matrices
 - Trace level analysis
 - Speciation analysis
 - Multicomponent analysis
- » **Benefits from and for on-going research**
- » **Short-term Scientific Missions (STSM)**





vito looks forward to a successful
collaboration
vision on technology



vito
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DART™-accurate massa-MS

- » 'Direct Analysis in Real Time'
- » No or little sample preparation
- » In open air at ambient conditions
- » Very fast measurement (seconds)
- » If coupled to accurate mass spectrometer
 - high selectivity
 - identification of components

