P5 is composed of four teams P5a, P5b, P5c and P5d head by Prof M. Fladung, PrJ. Puls, Dr U. Schmitt and Dr D. Meier respectively. M Fladung is ensuring the coordination within P5.

P5a (vTI a, Germany): Matthias FLADUNG, Dr

Email mfladung@uni-hamburg.de or matthias.fladung@vti.bund.de

Born 24th May 1958 at Erfurt, Germany

Current Position: Research Director and Professor, Deputy Head of Institute for Forest Genetics

Johann Heinrich von Thuenen Institute (vTI), Institute for Forest Genetics, Sieker Landstr. 2,

D-22927 Grosshansdorf, Germany – Tel +49 4102 696107 / Fax +49 4102 696200.

Academic Qualifications: 1998 Habilitation Degree (HDR) in Botany at University of Hamburg, 1987 PhD Thesis in Pant Physiology at University of Cologne, Diploma 1983 in Zoology at University of Kiel, all Germany.

Appointments: Since 1998 Associate Professor at University of Hamburg, Germany. Deputy Head and Head of the Section “Genome Research”, Institute for Forest Genetics, Johann Heinrich von Thuenen-Institute (vTI).

Research Projects

Matthias Fladung (MF) has over 24 years experience in plant physiology, including 21 years in molecular genetics and gene transfer methods. He has now also 17 years experience in forest genetics. He is or was PI in more than 15 national and international projects, coordinator in 1 national project, including “Construction and application of a multifunctional and saturated genetic map for forest species (UHD map)” EU QLRT-1999-01159 (2000-2004), “EVOLTREE (EVOLution of TREEs as drivers of terrestrial biodiversity)”, EU NoE 016322 (2006-2010). MF was responsible for two field trials with genetically modified trees in Germany.

His publication list contains more than 50 reviewed publications in scientific journals and editions of two books. Outstanding papers have been published in Nature, Trends in Plant Science, and Plant Journal. MF has supervised 4 PhD theses and 3 Ms theses excluding several co-supervisions. He is member of the Editorial Board of Landbauforschung vTI

Agriculture and Forestry Research, member of IUFRO-Task-Force “GMO of trees”, German society for plant breeding (since 1990), information panel “gene technology” of the Bundesverband der Pflanzenzüchter (since 1999), Wissenschaftlerkreis Grüne Gentechnik (since 2000). MF acts as referee for Plant Journal, New Phytologist, FEBS-Letters, Plant Science, Biotechniques, Theoretical and Applied Genetics, Journal of Plant Physiology, Plant Cell Reports, Molecular Breeding and many others. He is member of the scientific committee of the 2011 IUFRO meeting in Brazil.

List of 6 publications relevant to the proposal

Fladung, M., Schenk, T.M.H., Polak, O., and Becker D. (2010) Elimination of marker genes and targeted integration via FLP/FRT-recombination system from yeast in hybrid aspen (Populus tremula L. x P. tremuloides Michx.). Tree Genes Genomes 6(2), 205-217. DOI 10.1007/s11295-009-0241-x

Fladung M., Buschbom J. (2009) Identification of Single Nucleotide Polymorphisms (SNPs) in different *Populus* species. Trees – Structure and Function 23, 1199-1212.

Pakull, B., Groppe, K., Meyer, M., Markussen, T., **Fladung M**. (2009) Genetic Linkage Mapping in Aspen (*Populus tremula* L. and *P. tremuloides* Michx.). Tree Genetics Genomes 5, 505-515.

Flachowsky, H., Hanke, M.-V., Peil, A., Strauss, S.H., **Fladung M**. (2009) A review on transgenic approaches to accelerate breeding of woody plants. Plant Breeding 128, 217-226.

Fladung M., Kaufmann, H., Markussen, T., Hönicka, H. (2008) Construction of a *Populus tremuloides* Michx. BAC library. Silvae Genetica 57, 65-69

Dünisch, O., Funada, R., Nakaba, S., **Fladung, M**. (2006) Influence of overexpression of a gibberellin 20-oxidase gene on the kinetics of xylem cell development in hybrid poplar (*Populus tremula* L. x *P. tremuloides* Michx.). Holzforschung 60, 608-617.

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P5b (vTI b, Germany): Juergen Puls, Dr. E-mail : juergen.puls@vti.bund.de

Born 27th July 1946 in Hamburg (Germany), German

Current Position: Director & Professor, Deputy Director Institute of Wood Technology and Biology,

von Thünen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, 21031 Hamburg, Leuschnerstr. 91, Germany – Tel +49 40 73962-500 / Fax +49-40-73962 599

Research Interests

- Enzymology of lignocellulose degradation
- Pretreatment processes for lignocellulosic materials
- Optimization of component separation processes
- Characterization of wood and lignified annual plants
- Characterization of cellulose derivatives
- Lignocellulose biorefineries
- Enzyme-aided bleaching of pulps
- Enzyme-aided recycling of newsprint
- Lignin utilization

Juergen Puls' group is member of EPNOE (European Polysaccharide Network of Excellence). The group is partner of the two highly-rated national research projects "Lignocellulose Biorefinery" and "Biorefinery 2021 – Energy from Biomass – New pathway for an integrated biorefinery".

P5 is organizer of the 11th European Workshop on Lignocellulosics and Pulp in Hamburg/Germany August 16-19, 2010 (http://ewlp-2010.org/content/index.php)

List of 5 publications relevant to the proposal

- Wilför, S., Pranovich, A., Tamminen, T., Puls, J. et al. (2009): Carbohydrate analysis of plant materials with uronic acid-containing polysaccharides – A comparison between different hydrolysis and subsequent analytical techniques. Ind. Crops Prod. 29, 571-580
- Busch, R.,Hirth T., Liese, A., Nordhoff, S., Puls, J., Pulz, O., Sell, D., Syldatk, C., Ulber R. (2006): Use of sustainable raw materials in industrial substance production. Chemie Ingenieur Technik 78, 219-228
- Bauch, J.; Puls, J.; Klupsch, R.; Vogel, C. (2004): Biological and chemical characteristics of "included sapwood" of *Juniperus virginiana* L.. *Holzforschung* 58, 74-81
- Puls, J. (1993): Substrate analysis of forest and agricultural wastes. In: J. N. Saddler (ed) Bioconversion of Forest and Agricultural Plant Residues. CAB International, Wallingford, UK, pp. 13-32.
- Puls, J. (1990): Chemical composition of wood from different poplar clones. In: Biomass

for Energy and Industry. 5th E.C. Conference (G. Grassi, G. Gosse and G. Dos Santos (eds.) Elsevier Applied Science Publishers Ltd. London. pp. 2.921 - 2.927

@font-face { font-family: "Arial"; }@font-face { font-family: "Courier New"; }@font-face { font-family: "Wingdings"; }p.MsoNormal, li.MsoNormal, div.MsoNormal { margin: 0cm 0cm 0.0001pt; font-size: 12pt; font-family: "Times New Roman"; }h1 { margin: 12pt 0cm 3pt; page-break-after: avoid; font-size: 16pt; font-family: Arial; }p.MsoTitle, li.MsoTitle, div.MsoTitle { margin: 0cm 0cm 0.0001pt; text-align: center; font-size: 10pt; font-family: "Times New Roman"; font-weight: bold; }p.MsoBodyText, li.MsoBodyText, div.MsoBodyText { margin: 0cm 0cm 0.0001pt; font-size: 11pt; font-family: Arial; font-weight: bold; font-style: italic; }a:link, span.MsoHyperlink { color: blue; text-decoration: underline; }a:visited, span.MsoHyperlinkFollowed { color: purple; text-decoration: underline; }span.Titre1Car { font-family: Arial; font-weight: bold; }span.CorpsdetexteCar { font-family: Arial; font-weight: bold; font-style: italic; }span.TitreCar { font-weight: bold; }div.Section1 { page: Section1; }ol { margin-bottom: 0cm; }ul { margin-bottom: 0cm; }

P5c (vTI c): **Uwe Schmitt**, Dr. - E-mail : uwe.schmitt@vti.bund.de

Born 24th April 1954 in Wiesbaden (Germany), Nationality: German

Current Position: Research Director, Team Leader Biology, Institute of Wood Technology and Biology, von Thünen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, 21031 Hamburg, Leuschnerstr. 91, Germany – Tel +49 40 73962-400 / Fax +49-40-73962 499

Research Interests:

- Electron microscopic studies of wood, bark and wood composites.
- Localization of cell wall components.
- Growth periodicity of European and tropical tree species with special regard to climate response.
- Wound reactions of the xylem of native and tropical wood species.
- The course of delignification in wood during pulping.
- Fine structure of monocots (bamboo, rattan palms).

P5c is:

·□□□□□□ Organizer of the Workshop "Wood Structure/Function Relationships" of the EU COST-Action FP0802 October 5-8,□2010 in Hamburg, Germany (http://cost-fp0802.tuwien.ac.at/events/workshop-hamburg-october-2010.html).

- Member of the International Association of Wood Anatomists (IAWA).
- Elected Fellow of the International Academy of Wood Science (IAWS); member of the Executive Committee, since 2002.

- Consultant to projects in bilateral and multilateral aid projects of Technical Cooperation (South America, New Zealand, South Korea).
- National delegate to the management committee of the EU-COST Action FP0802 (Experimental and Computational Micro-Characterization Techniques in Wood Mechanics), 2009-2014.

List of 5 publications relevant to the proposal

1. Schmitt, U.; Koch, G. (2009). Characterisation of wound reaction compounds in the xylem of *Tilia americana* L. by electron microscopy and cellular UV-microspectrophotometry. New Zealand J. For. Sci. **39**: 233-241.

2. Lehringer, C.; Daniel, G.; Schmitt, U. (2009). TEM/FESEM studies on tension wood fibres of *Acer* spp., *Fagus sylvatica* L. and *Quercus robur* L.. Wood Sci. Technol. **43**: 691-702.

3. Wagner, A.; Donaldson, L.; Ralph, J.; Kim, H.; Phillips, L.; Flint, H.; Steward, D.; Torr, K.; Koch, G.; Schmitt, U.; Ralph, J. (2009). Suppression of 4-coumarate-CoA ligase in the coniferous gymnosperm *Pinus radiata*. Plant Physiology **149**: 370-383.

4. Prislan, P.; Koch, G.; ?ufar, K.; Gri?ar, J.; Schmitt, U. (2009). Topochemical investigations of cell walls in developing xylem of beech (*Fagus sylvatica* L.). Holzforschung **63**: 482-490.

5. Schmitt, U.; Singh, A.; Frankenstein, C.; Möller, R. (2006). Cell wall modifications in woody stems induced by mechanical stress. New Zealand J. For. Sci. **36**: 72-86.

@font-face { font-family: "Arial"; }@font-face { font-family: "Courier New"; }@font-face { font-family: "Wingdings"; }@font-face { font-family: "Cambria"; }p.MsoNormal, li.MsoNormal, div.MsoNormal { margin: 0cm 0cm 0.0001pt; font-size: 12pt; font-family: "Times New Roman"; }p.MsoTitle, li.MsoTitle, div.MsoTitle { margin: 0cm 0cm 0.0001pt; text-align: center; font-size: 10pt; font-family: "Times New Roman"; font-weight: bold; }p.MsoBodyText, li.MsoBodyText, div.MsoBodyText { margin: 0cm 0cm 0.0001pt; font-size: 11pt; font-family: Arial; font-weight: bold; font-style: italic; }span.CorpsdetexteCar { font-family: Arial; font-weight: bold; font-style: italic; }span.TitreCar { font-weight: bold; }div.Section1 { page: Section1; }ol { margin-bottom: 0cm; }ul { margin-bottom: 0cm; }

P5d (vTI d, Germany): Dietrich Meier, Dr. E-mail : dietrich.meier@vti.bund.de

Born 18th November 1950 in Göttingen (Germany), German

Current Position: Scientific Director, Team leader in the Institute of Wood Technology and Biology, von Thünen-Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, 21031 Hamburg, Leuschnerstr. 91, Germany – Tel +49 40 73962-500 / Fax +49-40-73962 599

Working areas

- Lignin characterisation and utilisation
- Technical pyrolysis of lignocellulosic biomass for bio-oil in fluidized bed and ablative reactors
- Hydrocracking of biomass and lignin
- Analytical pyrolysis
- Instrumental analysis (gas chromatography, mass spectrometry, liquid chromatography)
- Thermal and chemical utilisation of bio-oil
- Separation techniques for bio-oils
- Development of advanced methods for bio-oil analysis
- Biorefineries, bioenergy (pyrolysis and gasification)

Memberships

- Member of Pyrolysis Network Europe (PyNE)
- German task leader of International Energy Agency (IEA) Task 34 (biomass pyrolysis)
- Member of the German Scientific Society for Coal, Natural Gas and Petroleum

Dietrich Meier has been active in several EU projects since 1986, both as coordinator and as research partner: (AFP, RENURESIN, FERTILIZER, BIOTOX, DETAR, BIOCOUP). He is co-inventor of the patented Biomass to Oil (BTO) process and the patented “bioliq”-process

(BTL).

List of 5 publications relevant to the proposal

Azeez, A. M.; Meier, D.; Odermatt, J.; Willner, T. Fast Pyrolysis of African and European Lignocellulosic Biomasses Using Py-GC/MS and Fluidized Bed Reactor. *Energy & Fuels* **2010,** *24*
, (3), 2078-2085.

Windt, M.; Meier, D.; Marsman, J. H.; Heeres, H. J.; de Koning, S. Micro-pyrolysis of technical lignins in a new modular rig and product analysis by GC-MS/FID and GCxGC-TOFMS/FID. *Jour nal of Analytical and Applied Pyrolysis*
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, (1-2), 38-46.

Bayerbach, R.; Meier, D. Characterization of the water-insoluble fraction from fast pyrolysis

liquids (pyrolytic lignin) Part IV. Structure elucidation of oligomeric molecules *J. Anal. Appl. Pyrolysis* **2008,** *85* , 98-107.

Meier, D.; Fortmann, I.; Odermatt, J.; Faix, O. Discrimination of genetically modified poplar clones by analytical pyrolysis-gas chromatography and principal component analysis. *J. Anal. Appl. Pyrolysis* **2005,** *74* , 129-137.

Meier, D. Pyrolyse. In *Energie aus Biomasse*; 2nd ed.; Kaltschmitt, M.; Hartmann, H.; Hofbauer, H., Eds. Springer: Dordrecht, 2009; pp 671-690.