Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP PFR Group

New materials made of pure and recycled cellulose fibers - research, innovation and development as a part of Polish-Norwegian cooperation

CELLMAT4EVER

Bartłomiej Mazela, Waldemar Perdoch, Wojciech Grześkowiak, Iza Siemińska, Anna Szulc, Karolina Tomkowiak

Poznań University of Life Sciences

Faculty of Forestry and Wood Technology

PARTNERS:

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu

NIBIO NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants | Norway grants

Innovation Norway

PARP Grupa PFR

AGENDA

1). History of Pol-Nor cooperation

2). Research issues carried out as part of joint projects

3). Mutual Benefits

4). AoB

PARTNERS

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu
Poznań University of Life Sciences

NIBIO
NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP Grupa PFR

DURAWOOD

Presentations at the conf[illegible] IRG Annual Meeting [illegible]

The Durawood project report and [illegible] obtain[illegible] were presented during the 46th IRG Annual Meeting Viña del Mar, Chile 10-14 May 2015 as articles in Proceedings IRG Annual Meeting and as oral p[illegible]

IRG/WP 15-30676

IRG/WP 15-30677

The [illegible]ject report at the conference "Advances in modified and functional bio-based surfaces", Th[illegible]loniki, Greece, 5-7 April 2015

[illegible] first Durawood project report was presented at the conference Final COST FP1006 meeting "Advances in modified and functional bio-based surfaces" at the Aristotle University of Thessaloniki, Thessaloniki, Greece, 7-9 April 2015.

Abctract

The first meeting and workshop "Superior bio-friendly systems for enhanced wood durability"

initiation

HYG[illegible]THERMAL PERFORMANCE OF BUILDINGS AND THEIR MATERIALS

[illegible] conference: COST Action FP 1303 „Performance bio-based building materials" &DURAWOOD Project „Superior bio-friendly systems for enhanced wood durability"

COST FP1303 Performance of bio-based building materials

30-31 August 2016, Poznan, Poland

DURAWOOD

POZNAN

A cosy and also a vibrant city on the Warta river in west central Poland, with a population reaching 550 000 people, Poznan is an academic, scientific and cultural centre. 5 universities train about 130 thousand students. The city is also an important centre for an industry, trade, logistics and tourism. Being the home of The Poznan International Fair - the largest and the oldest exhibition in Poland it is also one of the most „green cities" in Europe - the green areas cover more than 26% of all Poznan. The biggest tourist attractions are the historic buildings and churches of the Old Town and the Cathedral Island (where the symbolic tomb of the first Polish ruler Mieszko I and the first king of Poland Boleslaw the Brave can be seen) as well as the botanical garden, Palm House and the Zoo (117ha). The most famous cultural event in the city is the Malta Festival.

CONFERENCE SCOPE

The Conference will address the following themes:

- Wood physics
- Hygrothermal properties of wood
- Building materials
- Bio-friendly wood protection

A special joint session with COST 1404: Future fire safety design of wood products – actual challenges

LOCAL ORGANISER

Faculty of Wood Technology
Poznan University of Life Sciences
Wojska Pols[illegible]
60-631 Poznan

ORGANISER

cost

CONFERENCE VENUE

Poznan University of Life Sciences
Kolegium Rungego
Wojska Polskiego 52 street
60-637 Poznan

Hygrotherm[illegible] performance of buildings and their materials - 30-31 August 2016 , Poznan, Poland

1303poznan@gmail.com **www.costfp1303.com/en/Sidor/default.aspx** **www.durawood.up.poznan.pl/conference**

ATTENDANCE is open to anyone, though there will be no additional reimbursements available through COST. Anyone wishing to attend must register by completing the registration form on website.

Conference fee – 50 EUR

IMPORTANT DATES

17-06-2016 - Deadline for submission of abstracts

CALL FOR ABSTRACTS - An extended abstract (1-2 pages) relevant to the topics of the conference should be submitted by email to the Local Organizer (1303poznan@gmail.com) no later than 17th of June, 2016. Abstracts must be written according to the template given on the action website. The abstracts will be published in the "book of abstracts" and will be ready for distribution on the first day of the conference.

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP Grupa PFR

PULS FWT building

NIBIO building

duration: 2013 - 2016

funds: c.a. 3,7 mln PLN

Uniwersytet Przyrodniczy w Poznaniu

Facultas Technologiae UAM Poznań

skog+landskap

UAM Uniwersytet im. Adama Mickiewicza w Poznaniu

Narodowe Centrum Badań i Rozwoju

norway grants

Polish-Norwegian Research Programme

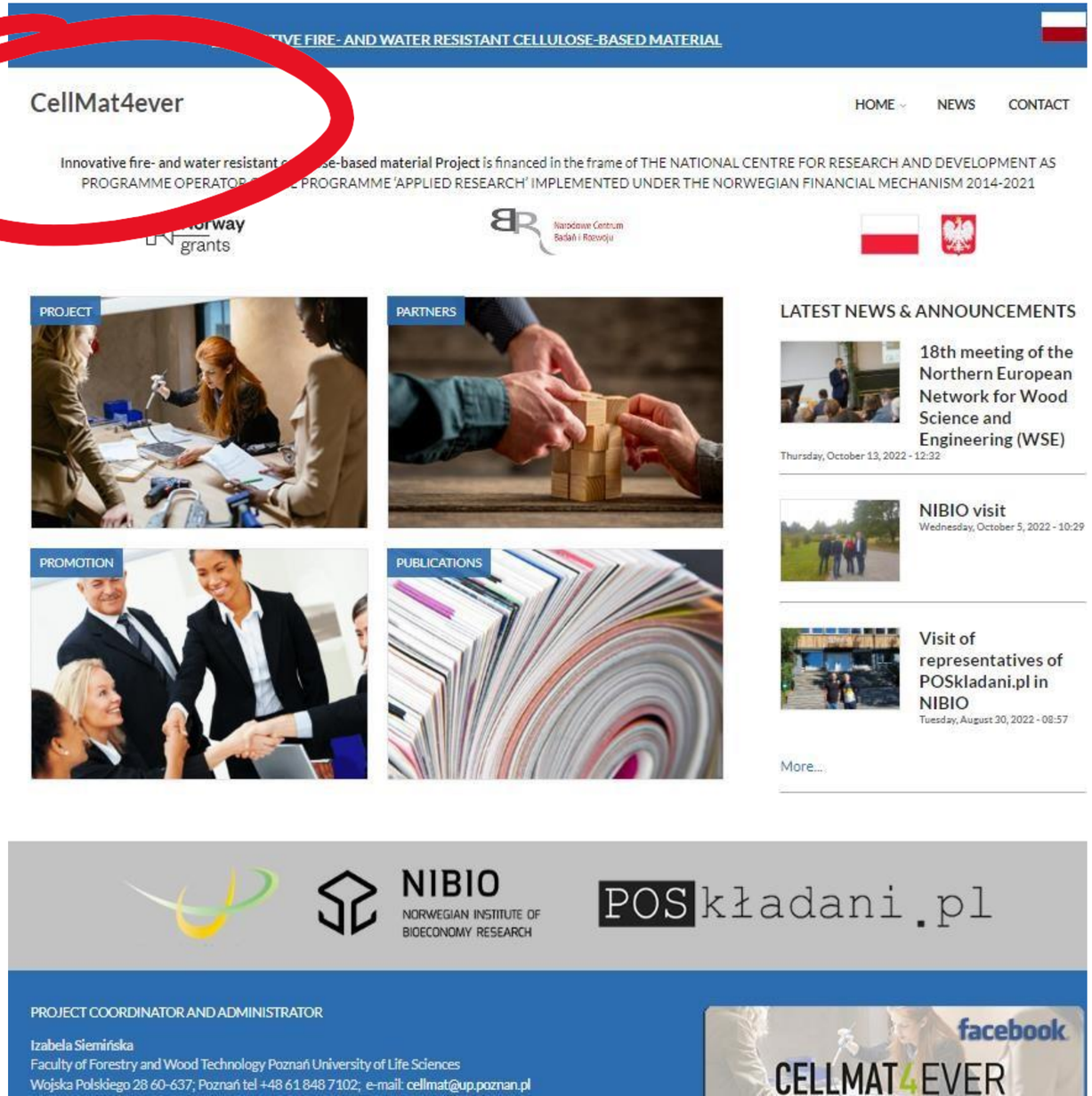
PARTNERS: Narodowe Centrum Badań i Rozwoju; Uniwersytet Przyrodniczy w Poznaniu; NIBIO Norwegian Institute of Bioeconomy Research

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP Grupa PFR



PARTNERS:

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu

NIBIO NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants | Norway grants

Innovation Norway

PARP PFR Group

Innovative fire- and water resistant cellulose-based material

Innowacyjny ognioodporny i wodoodporny materiał na bazie celulozy

CellMat4ever

- Project leader:

  Poznan University of Life Sciences (PULS)

- Project partners:

  Norwegian Institute of Bioeconomy Research (NIBIO),

  Poskładani.pl

- Duration of the project:

  1.11.2020 – 31.10.2023

- Total project cost:

  4 389 010,00 PLN

- Amount of funding:

  4 225 010,00 PLN

Poznań University of Life Sciences
Uniwersytet Przyrodniczy w Poznaniu

NIBIO
NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

CELLMAT4EVER

PARTNERS:

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu

NIBIO NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP PFR Group

Aim of the project

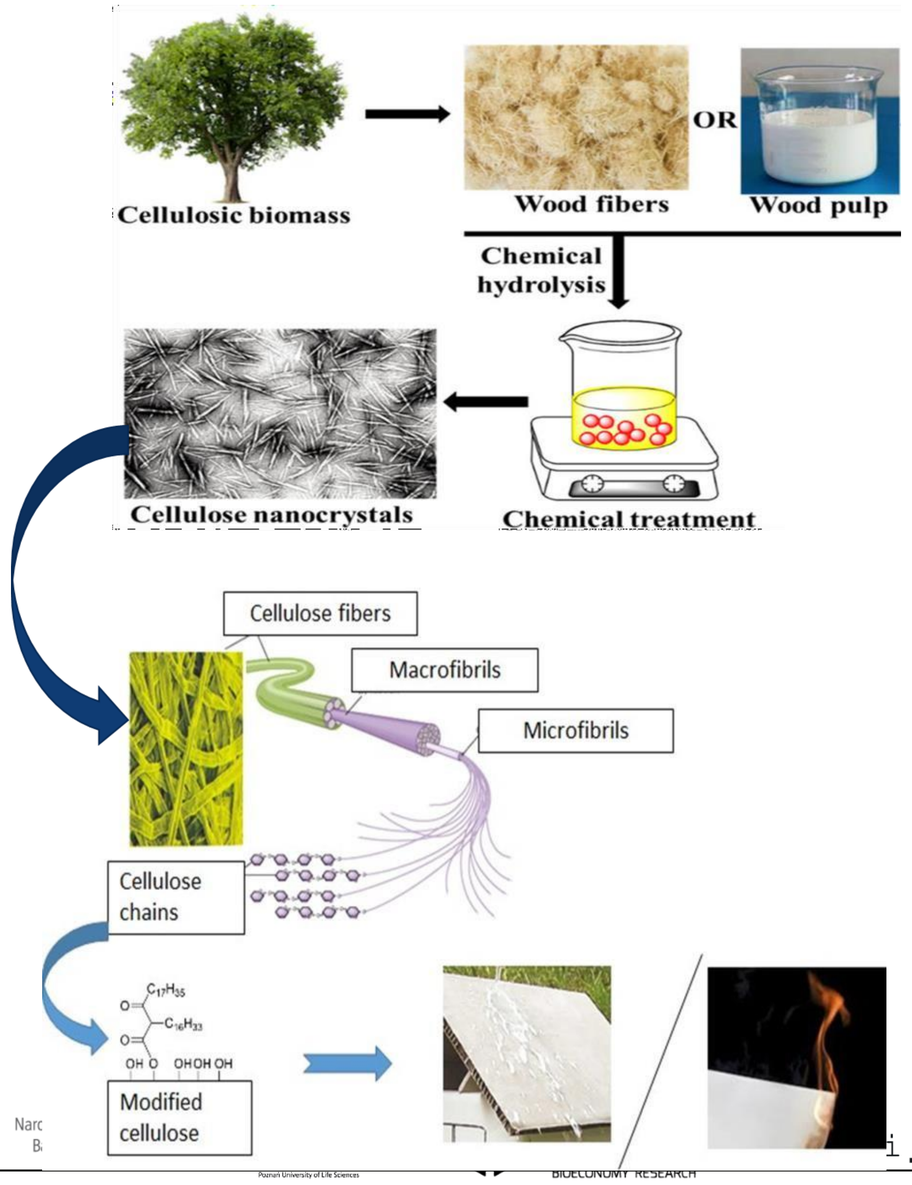
Innovative fire- and water resistant cellulose-based material

- **Chemical functionalisation of cellulose fibres => protection against water**
  Silanisation
- **Chemical functionalisation of cellulose fibres => protection against fire**
  Cellulose incrustation with carbon particles
- **Multifunctional properties of lignocellulose composite**
  Durability versus biodegradability.

Experience exchange between reserach units and industry

Extend the cooperation with industrial partners

Make use of CIITT suport ?



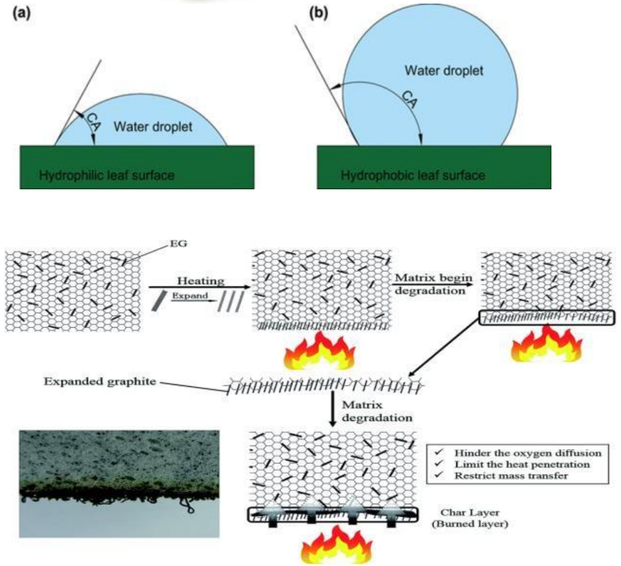
Iceland Liechtenstein Norway grants | Norway grants

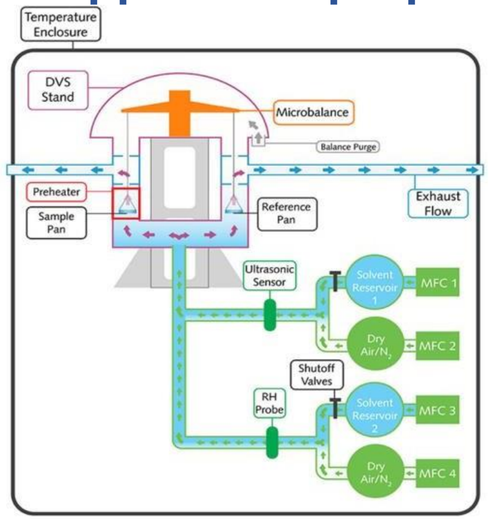
Innovation Norway

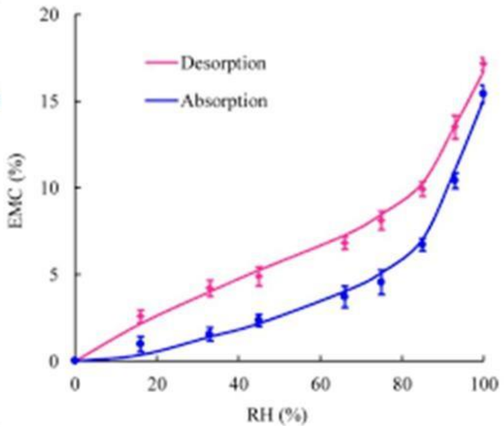
PARP PFR Group

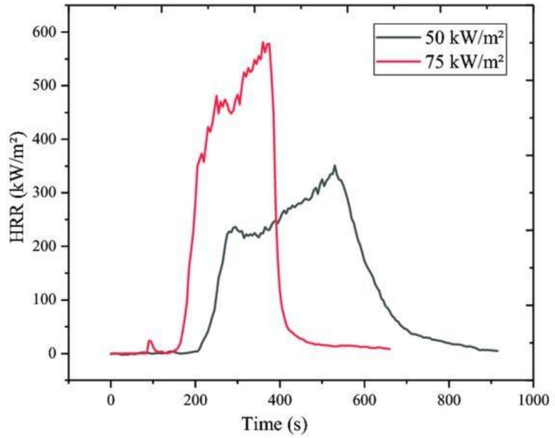
Research methods / scientific goals

Innovative cellulose-based materials manufacture and their application properties determination

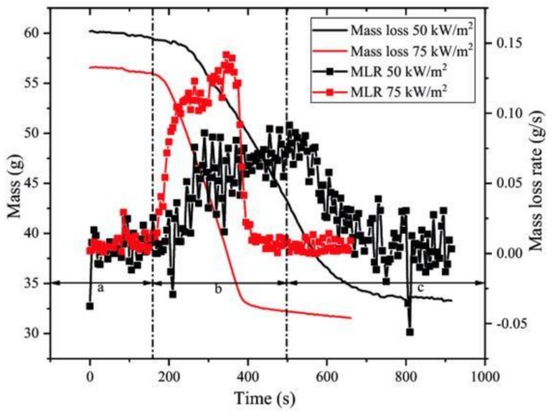








(a) Heat release rate



(b) Mass loss and mass loss rate

Results as planned

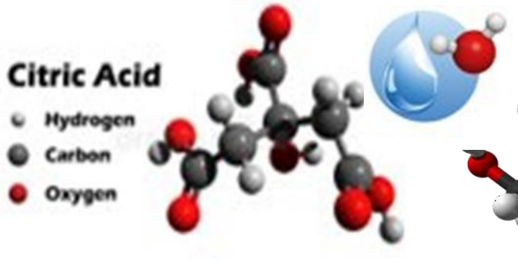
Iceland Liechtenstein Norway grants

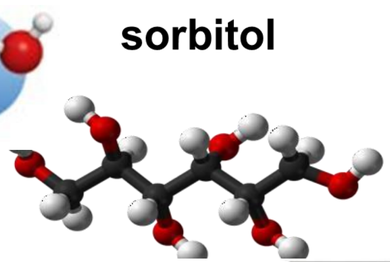
Norway grants

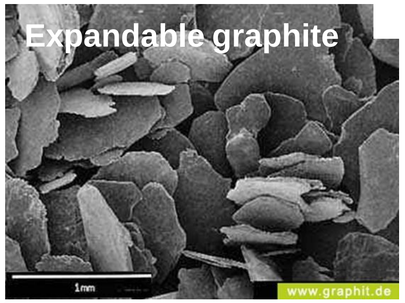
Innovation Norway

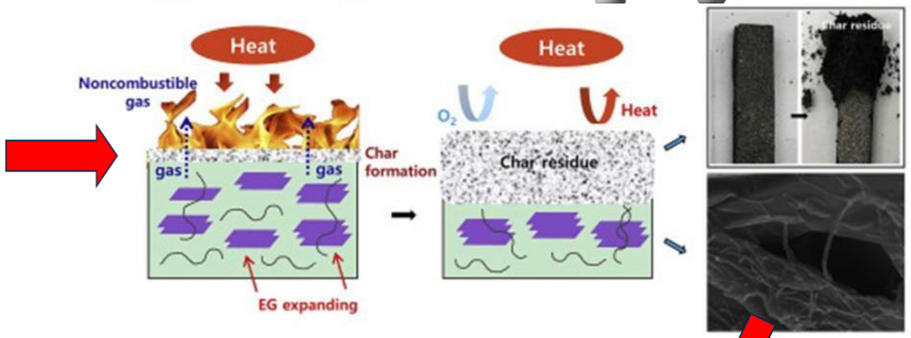
PARP PFR Group

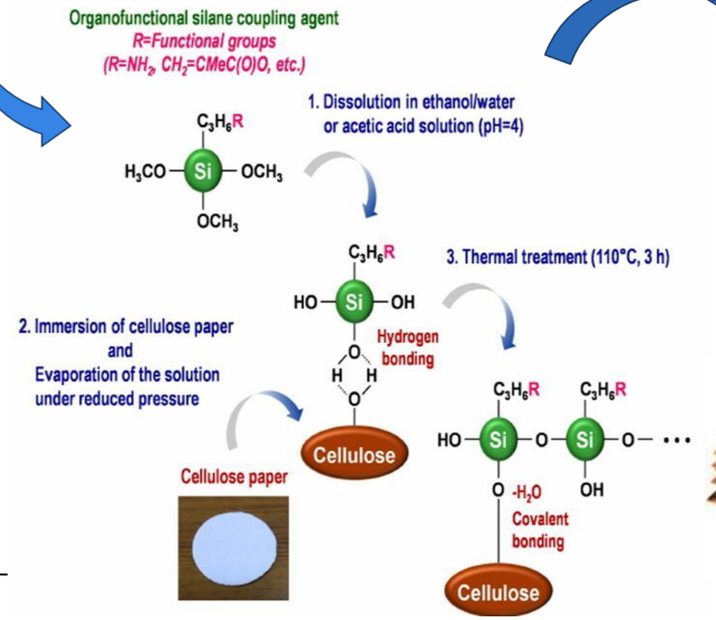
Cellulosic biomass

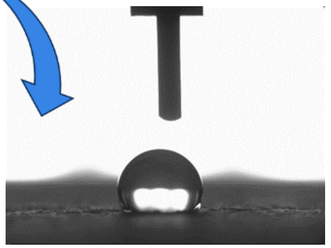


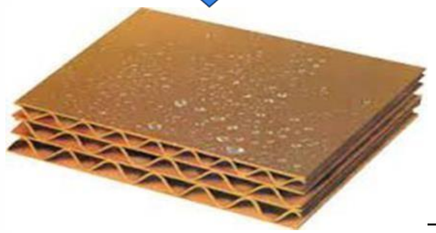


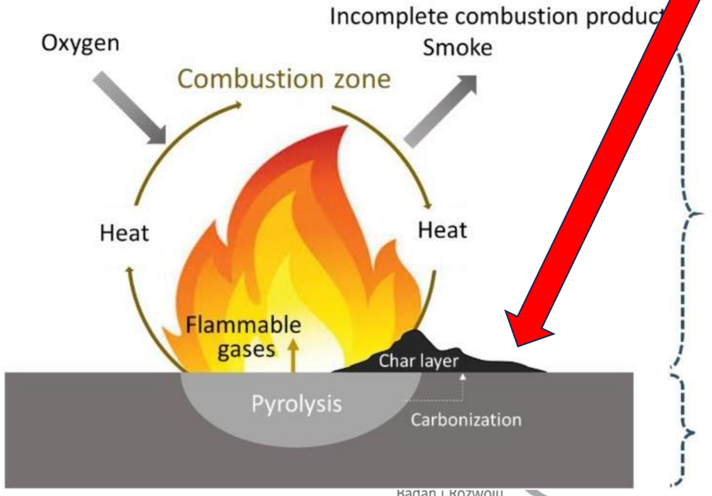


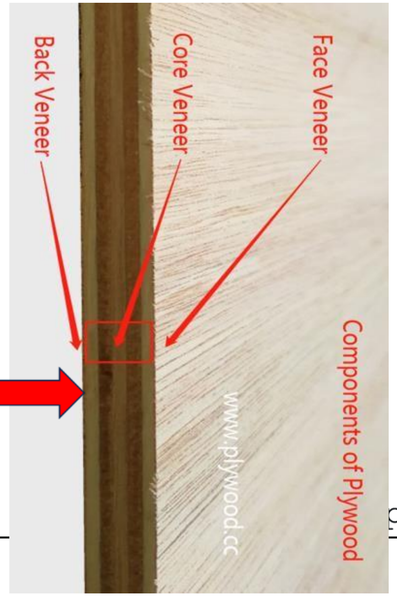










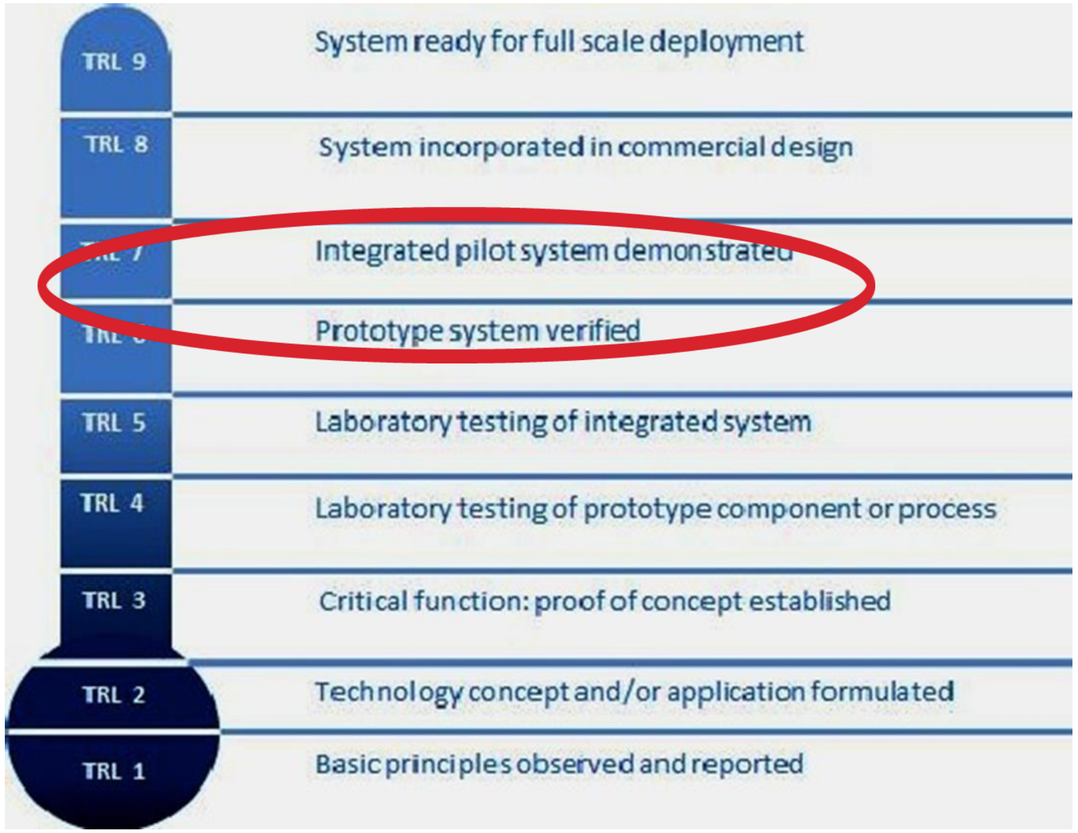


Iceland Liechtenstein Norway grants | Norway grants

Innovation Norway

PARP PFR Group

Long-term results as planned



Europäisches Patentamt
European Patent Office
Office européen des brevets

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu
Poznań University of Life Sciences

CELLMAT4EVER

NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

www.Cellmat.up.poznan.pl

Research results so far

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP

coatings MDPI

Article

Strength and Moisture-Related Properties of Filter Paper Coated with Nanocellulose

Bartłomiej Mazela [1,*], Karolina Tomkowiak [1] and Dennis Jones [2,3]

1 Faculty of Forestry and Wood Technology, Poznań University of Life Sciences, Wojska Polskiego 28, 60637 Poznań, Poland
2 Department Wood Science and Engineering, Luleå University of Technology, Forskargatan 1, 93197 Skellefteå, Sweden
3 Department of Wood Processing and Biomaterials, Faculty of Forestry and Wood Sciences, Czech University of Life Sciences Prague, Kamýcká 1176, Praha 6-Suchdol, 16521 Prague, Czech Republic
* Correspondence: bartlomiej.mazela@up.poznan.pl

Abstract The aim of this study was to assess selected properties of coatings incorporating nanocellulose, with the potential of being applied as a surface modification for cellulosic and lignocellulosic materials, particularly for applications within biodegradable packaging. Cellulose nanocrystal (CNC) and cellulose nanofibril (CNF) coatings were produced and applied on both sides of pure cellulose

Open Access Article

Influence of Nanocellulose Structure on Paper Reinforcement

by Waldemar Perdoch, Zhuoran Cao, Patryk Florczak, Roksana Markiewicz, Marcin Jarek, Konrad Olejnik and Bartłomiej Mazela

Molecules 2022, *27*(15), 4696; https://doi.org/10.3390/molecules27154696 - 22 Jul 2022

Viewed by 370

Abstract This article describes how crystalline or fibrous nanocellulose influences the mechanical properties of paper substrate. In this context, we used commercially available cellulose nanocrystals, mechanically prepared cellulose nanofibers dispersed in water or ethanol, and carboxy cellulose nanofibers. Selective reinforcement of the paper treated [...] Read more.

(This article belongs to the Special Issue **Green Molecules and Green Materials for Sustainable Life**)

Open Access Article

Starch-Silane Structure and Its Influence on the Hydrophobic Properties of Paper

by Tomasz Nowak, Bartłomiej Mazela, Konrad Olejnik, Barbara Peplińska and Waldemar Perdoch

Molecules 2022, *27*(10), 3136; https://doi.org/10.3390/molecules27103136 - 13 May 2022

Viewed by 644

Abstract Starch is an inexpensive, easily accessible, and widespread natural polymer. Due to its properties and availability, this polysaccharide is an attractive precursor for sustainable products. Considering its exploitation in adhesives and coatings, the major drawback of starch is its high affinity towards water. [...] Read more.

(This article belongs to the Special Issue **Sustainable Development and Application of Renewable Chemicals from Biomass and Waste**)

Open Access Article

The Impact of Vinylotrimethoxysilane-Modified Linseed Oil on Selected Properties of Impregnated Wood

by Waldemar Perdoch, Ewelina Depczyńska, Karolina Tomkowiak, Monika Furgał, Mariola Kurczak and Bartłomiej Mazela

Forests 2022, *13*(8), 1265; https://doi.org/10.3390/f13081265 - 10 Aug 2022

Viewed by 474

Abstract This study aimed to examine the effect of organosilicon compounds-modified linseed oil parameters on wood utility properties. Linseed oil silylation with an organosilicon compound containing a vinyl group (vinyltrimethoxysilane) has made it possible to synthesize products characterized by high stability in storage. The [...] Read more.

(This article belongs to the Special Issue **Advanced Technologies in Physical and Mechanical Wood Modification**)

forests MDPI

Review

Expandable Graphite as a Fire Retardant for Cellulosic Materials—A Review

Bartłomiej Mazela *, Anyelkis Batista and Wojciech Grześkowiak

Faculty of Wood Technology, Poznan University of Life Sciences, ul. Wojska Polskiego 28, 60-637 Poznan, Poland; anielkis.batista@up.poznan.pl (A.B.); wojciech.grzeskowiak@up.poznan.pl (W.G.)
* Correspondence: bartlomiej.mazela@up.poznan.pl

Received: 22 May 2020; Accepted: 7 July 2020; Published: 13 July 2020

check for updates

materials MDPI

Article

Influence of Chemical Pre-Treatments and Ultrasonication on the Dimensions and Appearance of Cellulose Fibers

Bartłomiej Mazela [1,*], Waldemar Perdoch [1], Barbara Peplińska [2] and Mikołaj Zieliński [1]

1 Faculty of Forestry and Wood Technology, Poznan University of Life Sciences, Wojska Polskiego 28, 60-637 Poznan, Poland; waldemar.perdoch@up.poznan.pl (W.P.); zielinski.mikolaj@vp.pl (M.Z.)
2 NanoBioMedical Centre, Adam Mickiewicz University, Umultowska 85, 61-614 Poznań, Poland; barp@amu.edu.pl
* Correspondence: bartlomiej.mazela@up.poznan.pl

Received: 21 October 2020; Accepted: 18 November 2020; Published: 21 November 2020

check for updates

materials MDPI

Review

Cellulose and Its Nano-Derivatives as a Water-Repellent and Fire-Resistant Surface: A Review

Mehrnoosh Tavakoli [1,2], Ali Ghasemian [1], Mohammad Reza Dehghani-Firouzabadi [1] and Bartłomiej Mazela [2,*]

1 Department of Pulp and Paper Technology, Gorgan University of Agricultural Sciences & Natural Resources, Gorgan 4913815739, Iran; m.tavakoli@gau.ac.ir or mehrnoosh.tavakoli@up.poznan.pl (M.T.); ghasemian@gau.ac.ir (A.G.); m_r_dehghani@mail.ru (M.R.D.-F.)
2 Faculty of Forestry and Wood Technology, Poznan University of Life Sciences, Wojska Polskiego 28, 60-637 Poznan, Poland
* Correspondence: bartlomiej.mazela@up.poznan.pl

materials MDPI

Article

Influence of Reaction Parameters on the Gelation of Silanised Linseed Oil

Ewelina Depczyńska *, Waldemar Perdoch and Bartłomiej Mazela

Faculty of Forestry and Wood Technology, Poznań University of Life Sciences, 60-637 Poznan, Poland; waldemar.perdoch@up.poznan.pl (W.P.); bartlomiej.mazela@up.poznan.pl (B.M.)
* Correspondence: ewelina.depczynska@paged.pl

Received: 19 October 2020; Accepted: 19 November 2020; Published: 26 November 2020

check for updates

DOI: 10.17344/acsi.2021.6853 *Acta Chim. Slov.* **2021**, *68*, 849–860

Scientific paper

Reactivity of Microcrystalline Cellulose with Methyltrimethoxysilane and 3-(2-Aminoethylamino) propyltrimethoxysilanes

Przemysław Pietras,[1,*] Hieronim Maciejewski[1,2] and Bartłomiej Mazela[3]

[1] *Adam Mickiewicz University Foundation, Poznań Science and Technology Park, Rubież 46, 61-612 Poznań, Poland*

[2] *Faculty of Chemistry, Adam Mickiewicz University, Uniwersytetu Poznańskiego 8, 61-614 Poznań, Poland*

[3] *Poznań University of Life Sciences, Institute of Wood Chemical Technology, Faculty of Wood Technology, Wojska Polskiego 28, 60-637 Poznań, Poland*

* *Corresponding author: E-mail: przemyslaw.pietras@ppnt.poznan.pl*

Received: 03-25-2021

Springer Link

International Scientific Conference on Woods & Fire Safety
↳ WFS 2020: **Wood & Fire Safety** pp 120–124 | Cite as

Expandable Graphite Flakes as an Additive for a New Fire Retardant Coating for Wood and Cellulose Materials – Comparison Analysis

Batista Anielkis, Grześkowiak Wojciech & Mazela Bartłomiej

Conference paper | First Online: 15 March 2020

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP PFR Group

PRZEDSIĘBIORSTWO WIELOBRANŻOWE

HOME ABOUT US ABOUT THE PROJECT OUR TEAM LATEST NEWS ENGLISH

Szybki kontakt

Iceland Liechtenstein Norway grants | Norway grants | LIDER | Innovation Norway | PARP PFR Group

Information about project:

Project number: **0119/L-12/2020**
Project title: **„Thermo-insulation materials for buildings made of biomass”**
Project leader: **Poznań University of Life Sciences**
Amount of funding: **1 275 375 zł**
Duration of the project: **36 miesięcy**

Thermo-insulation materials based on cellulose bonded with bioadhesives

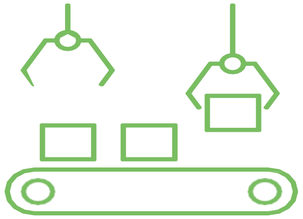
lignin- and polysacharides- based adhesives

Enzymatic bonding

Stage no.	Name of stage	Research method	Task contractor
1	Adhesive formulation	1.Wytworzenie spoiw naturalnych 2.Spajanie materiałów lignocelulozowych 3 3.Charakterystyka materiału	Fabrication of material (Perdoch, Budzyńska): a)Hygroscopicity / water absorption (Perdoch); b)Strength properties; c)Mycological examination (Perdoch); d)Flammability parameters (Perdoch); e)Thermal properties (Perdoch; Mania); f) Determination of the elemental composition for the produced materials (Budzyńska).
2	Production of thermal insulation materials that are bonded with mycelium	1.Wytworzenie spoiw naturalnych 2.Charakterystyka materiału	
3	Development and characterization of model thermal insulation materials (half-technical scale)	1.Wytworzenie spoiw naturalnych 2.Charakterystyka materiału	Fabrication of material (Perdoch, Budzyńska): a)Hygroscopicity / water absorption (Perdoch); b)Strength properties; c)Mycological examination (Perdoch); d)Flammability parameters (Perdoch); e)Thermal properties (Perdoch; Mania); f) Determination of the elemental composition (Budzyńska). g)Acoustic properties (Mania) h)VOC analysis (Budzyńska; Perdoch).

Rzeczpospolita Polska | Narodowe Centrum Badań i Rozwoju

Target group of the expected results of the project:

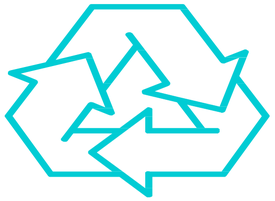


Producers of thermal insulation materials
Contractors of prefabricated timber frame structures.

General contractors of construction works;

- Individual clients planning to build or renovate a house or apartment.

- Advantages over competitive solutions:



Recycling

Sustainable development

Competitive and stable price

Growing expectations of the producers 'and consumers' market

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP PFR Group

Innovative fire- and water resistant cellulose-based material

Lab equipment, devices, machines, … - our playground

PARTNERS

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu
Poznań University of Life Sciences

NIBIO
NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants | Norway grants

Innovation Norway

PARP Grupa PFR

?

Iceland Liechtenstein Norway grants | Norway grants

Working together for a green, competitive and inclusive Europe

duration 12 months

News | Guide for applicants | Learn more about the Grants | Contact | Search

Main page > News

Open call for Bilateral Initiatives between Poland and Norway in the area of Green Transition starts today!

15.09.2022

Soft - not investment

people

PARTNERS

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu

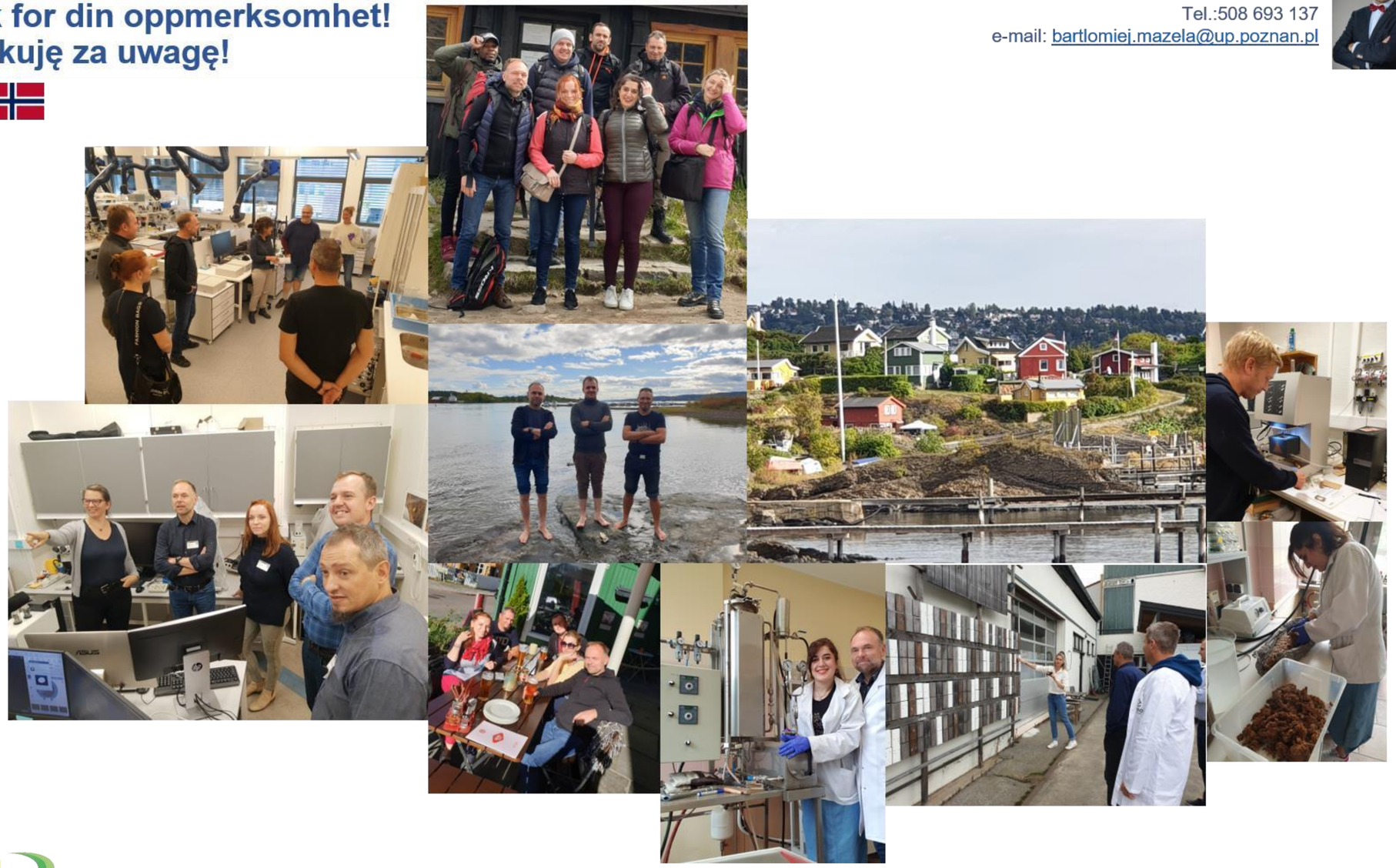
NIBIO NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants

Thank you for your attention!
Takk for din oppmerksomhet!
Dziękuję za uwagę!

CELLMAT4EVER TEAM



Bart Mazela
Tel.:508 693 137
e-mail: bartlomiej.mazela@up.poznan.pl

PARP
Grupa PFR

PARTNERS

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu
Poznań University of Life Sciences

NIBIO
NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

POSkładani.pl

Iceland Liechtenstein Norway grants

Norway grants

Innovation Norway

PARP
PFR Group

Thank you for your attention!
Takk for din oppmerksomhet!
Dziękuję za uwagę!

CELLMAT4EVER TEAM

Bart Mazela
Tel.:508 693 137
e-mail: bartlomiej.mazela@up.poznan.pl

PARTNERS:

Narodowe Centrum Badań i Rozwoju

Uniwersytet Przyrodniczy w Poznaniu
Poznań University of Life Sciences

NIBIO
NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH