

# PROZEL | Forecasting threats to forest ecosystems using an innovative system for the recognition of odours



*Innovative R&D project developing odor-based system (electronic nose) based on sensors with high sensitivity and AI to monitor selected, particularly dangerous forest pests.*

The threat of forests by various harmful microorganisms is growing due to changing climate conditions and spreading of non-native pathogens and pests.. Simultaneously the relevance of biological methods of monitoring and preventing forest degradation is increasing in the face of the chemical's use restrictions. The main aim of the project is the development of an innovative device (electronic nose/ e-NOS), based on a matrix of broad-band electrochemical sensors and neural networks that would detect and analyse the odor-based signals e.g. pheromones of certain insect species. The examples of pathogens and pests addressed in the project include *Dendrolimus Pini* (L.) and *Phytophthora oomycetes*.

The developed system delivers comprehensive and complex information which allows to create a neural classifier (using artificial intelligence). The dedicated software was developed to perform the analysis of the data and create a database – library of signals, which will allow to detect the analytes sought in the field. For each application foreseen in the project (analysis of specific smells), dedicated sensory matrices were prepared.

## PODROBNOSTI

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### PÔVOD DREVA

Les

### DRUH DREVA

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### UVAŽOVANÝ DRUH DREVA

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### VPLYV NA ŽIVOTNÉ PROSTREDIE A BIODIVERZITU

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### DOPAD NA PRÍJMY

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### POTENCIÁL VYUŽITIA

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### ROZBOČOVAČ

Stredovýchodný uzol

### EKONOMICKÝ VPLYV

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### POTREBA ŠPECIFICKÝCH ZNALOSTÍ

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### MOBILIZAČNÝ POTENCIÁL

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### POTENCIÁL UDRŽATEĽNOSTI - HODNOTA

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### UĽAHČENIE IMPLMENTÁCIE

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### UĽAHČENIE IMPLMENTÁCIE - HODNOTENIE

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### Kľúčové PREPOKLADY

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### TYP PODUJATIA, NA KTOROM BOL TENTO BPI PREZENTOVANÝ

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### DOPAD NA ZAMESTNANOSŤ

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### NáKLADY NA IMPLEMENTÁCIU (EURO - €)

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## VIAC INFORMÁCIÍ

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### RIEŠENÁ VÝZVA

1. Zlepšenie odolnosti lesov a adaptácie na zmenu klímy

### DOMAIN

Inventarizácia, posudzovanie, monitoring/monitorovanie  
Disturbancie/kalamity, riziká, odpoveď na katastrofu

### TYP RIEŠENIA

Senzory, meracie prístroje/meracie vybavenie

### Kľúčové SLOVÁ

pests  
sensors  
forest threats

### DIGITALNE RIEŠENIE

áno

### INOVÁCIE

Áno

### KRAJINA PôVODU

Poľsko

### ROZSAH APLIKÁCIE

Národný

### ZAČIATOK A KONIEC ROKA

2018 - 2021

## KONTAKTNÉ ÚDAJE

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### VLASTNÍK ALEBO AUTOR

Warsaw University of Technology, Faculty of Physics  
Warsaw University of Technology, Faculty of Physics  
prozel@pw.edu.pl  
<https://www.pw.edu.pl/>

### REPORTÉR

Łukasiewicz Research Network - Wood Technology Institute (ITD)  
Dobrochna Augustyniak-Wysocka  
dobrochna.augustyniak@itd.lukasiewicz.gov.pl

## REFERENCES AND RESOURCES

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### HLAVNÁ WEBSTRÁNKA

<http://prozel.fizyka.pw.edu.pl/>

### PROJEKTOVÁ WEBSTRÁNKA

<http://prozel.fizyka.pw.edu.pl/>

### REFERENCIA PROJEKTU

Forecasting threats to forest ecosystems through the implementation of an

### ZDROJE

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innovative electronic system for the recognition of odors, co-financed by National Center for Research and Development (BIOSTRATEG III programme), 2018-2021, grant no. BIOSTRATEG3/347105/9/NCBR/2017



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PROJEKT, V RÁMCI KTORÉHO BOL TENTO INFORMAČNÝ PREHĽAD VYTVORENÝ  
Rosewood 4.0

DÁTUM ODOSLANIA  
12 aug 2021

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This project has received funding from the European Union's Horizon  
2020 research and innovation programme under grant agreement No.  
862681

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY

