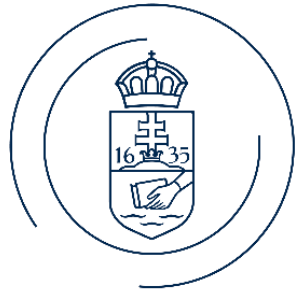


# Personal experiences with COST ACTIONS

Viktor G. Mihucz, Department of Analytical  
Chemistry, Institute of Chemistry, Faculty of Science,  
ELTE



**ELTE**  
EÖTVÖS LORÁND  
TUDOMÁNYEGYETEM



# Participation in COST



1. CA17136, INDIAIRPOLLNET (2018-2023)

<https://www.cost.eu/actions/CA17136/>

<https://indairpollnet.york.ac.uk/>

2. CA18130, ENFORCETXRF (2019-2023)

<https://www.cost.eu/actions/CA18130/>

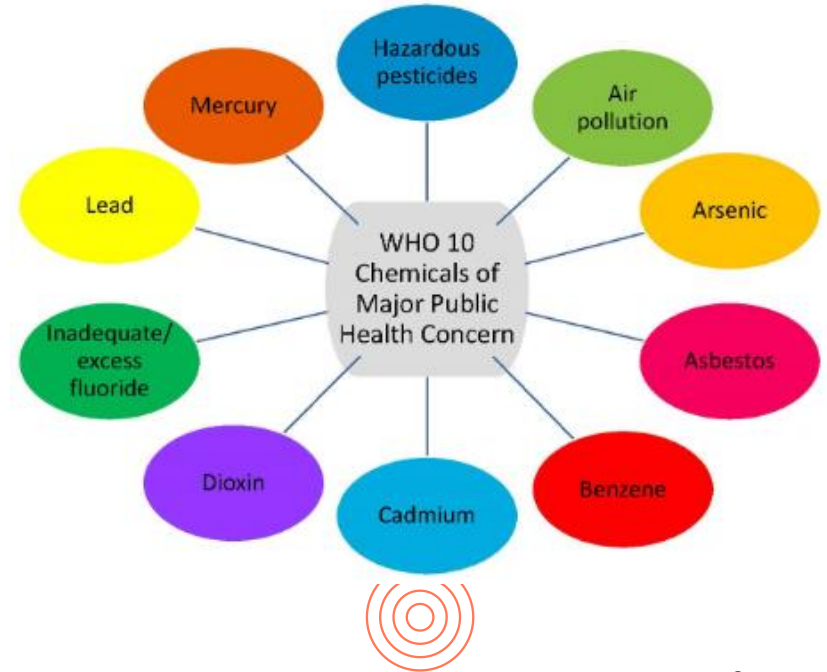
<https://enforcetxrf.eu/>



# An idea is needed – Indoor Air Quality

(IAQ)

- In high-income countries, people spend 80–90 % of their time indoors → most exposure to indoor air pollution.
- Need for reduction of global incidence and impact of diseases such as lung cancer, stroke and asthma.
- Recognition of the significance of exposure to pollution indoors has grown over the last 35 years.
- Buildings have become more airtight to reduce energy loss and CO<sub>2</sub> emissions, to combat climate change impacts.
- Reduced ventilation rates in the energy efficient buildings.
- Research, advice and regulations still focus predominantly on outdoor air pollution.
- Much of the existing IAQ literature is based on North American and Asian studies. **Specific needs for IAQ research in Europe**



# INDAIRPOLLNET: **IND**oor **AIR POLL**ution

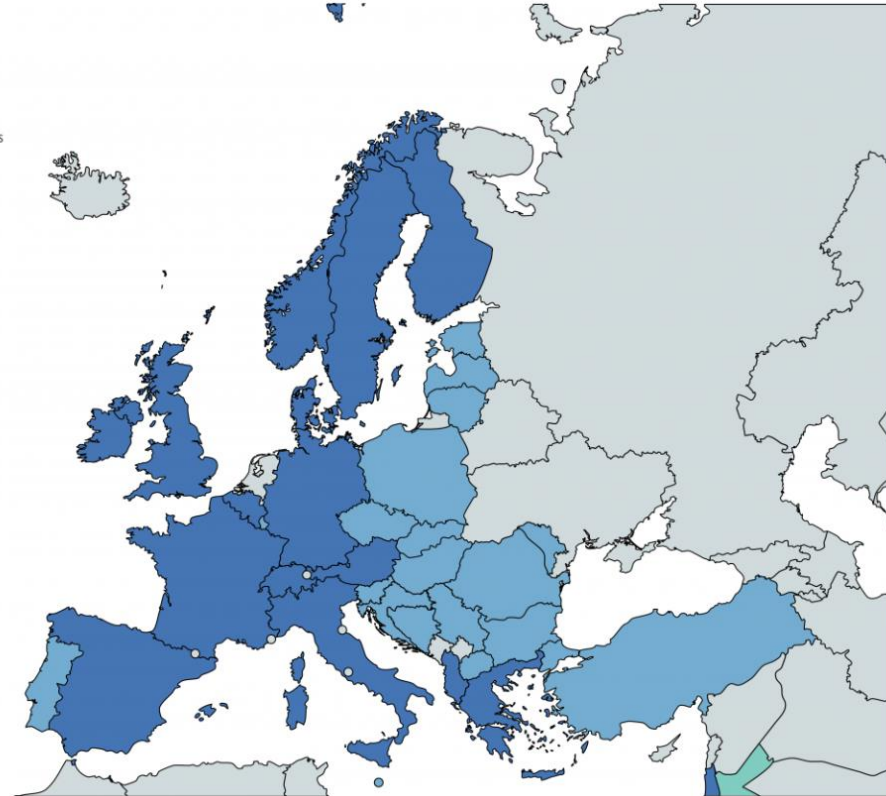
- Previous contact with main proposer due to the OFFICAIR FP6 collaborative EU research project (2010-2015)



- Running time: **2018-2023**
- **48** original proposers from **17** different countries.
- At the end of the project, **208** participating scientists from **37** countries.

INDAIRPOLLNET participants

- COST Full members
- COST Inclusiveness Target Countries (ITC)
- Near Neighbouring Countries

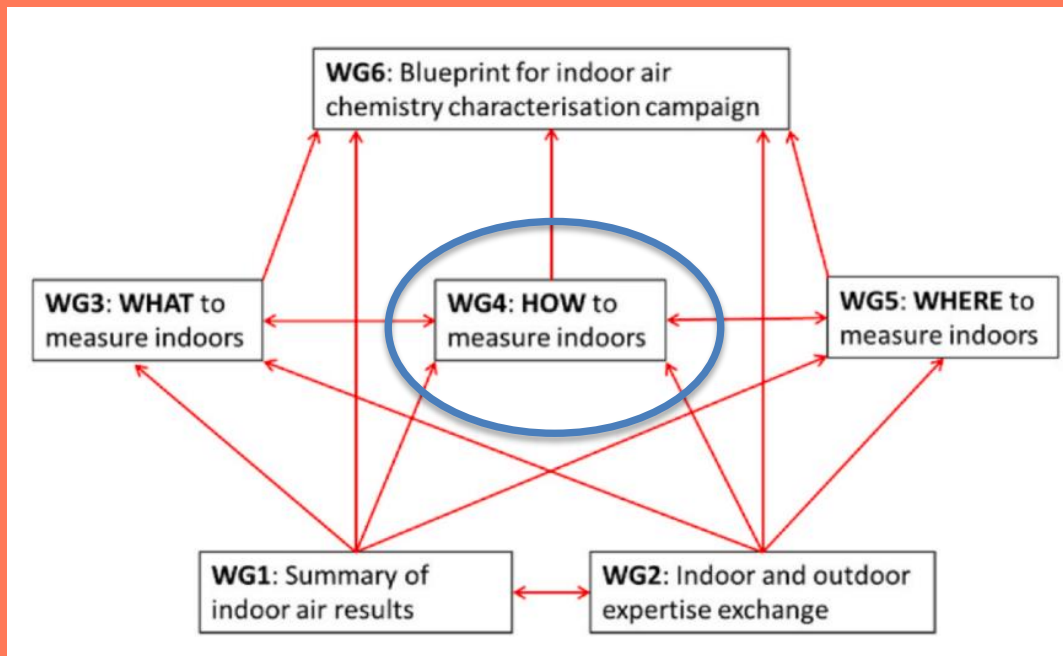


# Objectives of INDAIRPOLLNET

- **Blueprint** for the optimal indoor air chemical characterisation campaign
- Significantly advance the field of indoor air pollution science
- **Training** a new generation of **Early Career Investigators** (ECIs)
- Highlighting future research areas
- Bridging the gap between research and business to identify appropriate mitigation strategies that optimise IAQ.



- 2. Work group leadership
- 3. Core group member



**1. Management Committee Membership**  
Active involvement in all decisions concerning the project

WG4 Leader

60 members divided into 6 subgroups

Dr Victor MIHUCZ ▾



# CA 17136 INDAIRPOLLNET 2<sup>nd</sup> ECIs' Training School, May 24-26<sup>th</sup>, 2022, Hungary



Group picture of the 16  
PhD student and Young  
Researcher participants  
in  
Székesfehérvár

Visit to the Budapest  
platform for Aerosol  
Research and Training  
(BpART) at ELTE



Caroline Madsen (Munkácsy, Orsi) delivering a lecture at  
ELTE



Group work on data evaluation of the measurements  
performed



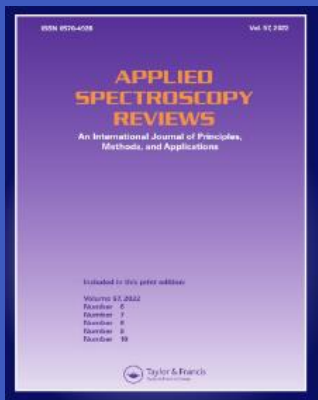
Performing TD-GC/MS and ICP-MS measurements  
at FEPTTEST Laboratory (Székesfehérvár)

# Outcomes

Applied Spectroscopy Reviews (Q1 journal)

Open access Special Issue papers, Vol. 57, 2022:

Toward a better understanding of indoor air quality holistically integrating improved and new instrumental analytical techniques



Outcomes of the project as inaugural article of a new scientific journal



<https://indairpollnet.york.ac.uk/resources>

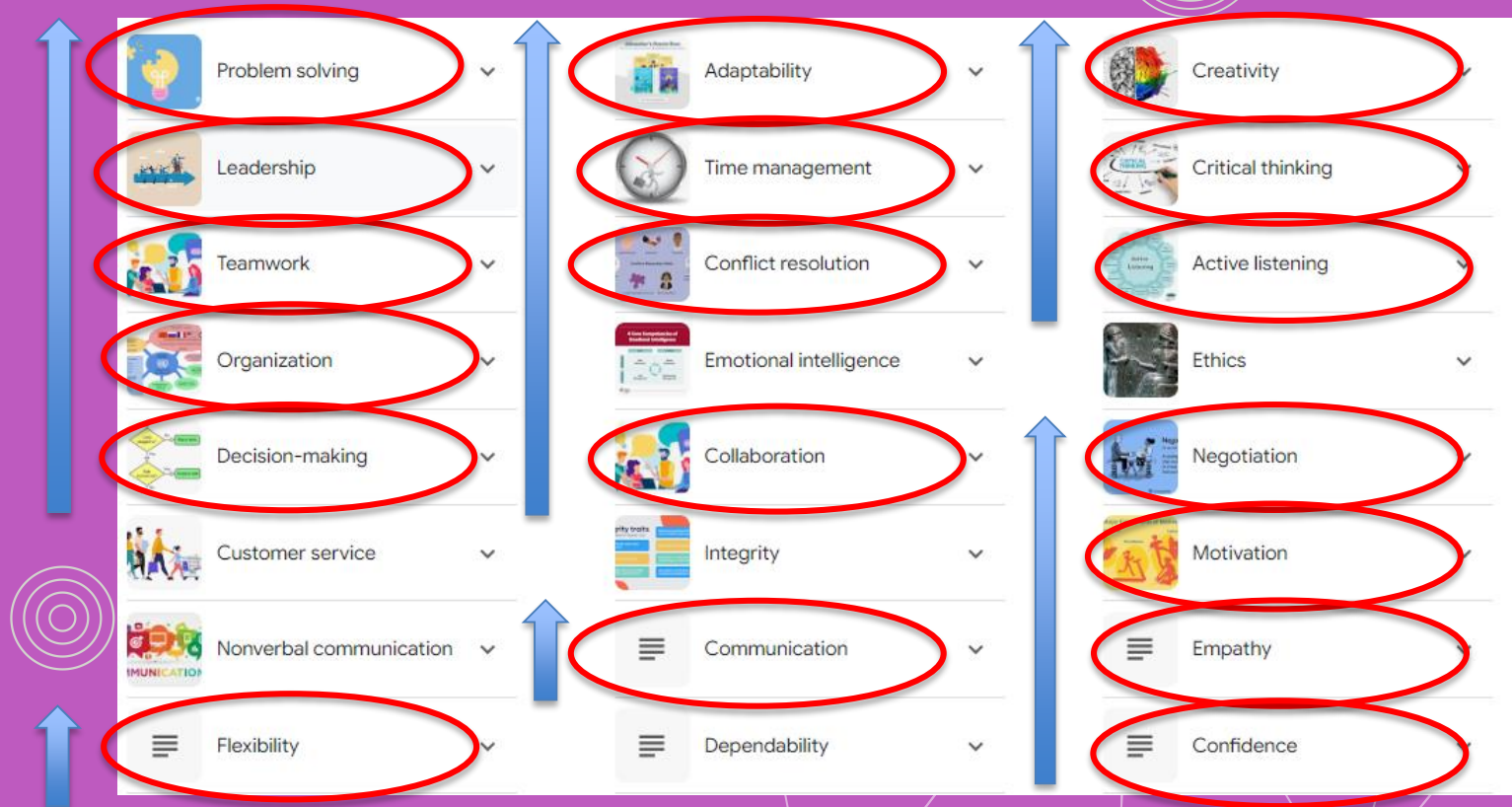
<https://indairpollnet.york.ac.uk/measurement-recommendations>

1	identification of the species																					
2																						
3	species name (preferred IUPAC name) checked	species name	synonym	CAS n° (if relevant, if not NR)	SMILES	Molecular formula	Molar mass	chemical category	Building materials (long-term emissions from building materials and paints) (Linked)	green materials (long-term emissions from green materials and paints) (Linked)	Occupant (human emission) (Linked)	Occupant activities (time-limited activities such as cooking, cleaning and operating combustion appliances) (Linked)	Consumer products (long-term emissions from e.g. furniture and electronics) (Linked)	Outdoor sources (time-limited emissions from e.g. traffic and local wood burning and reactivity) (Linked)	Outdoor chemistry (Linked)	Biological processes (emissions from microbial growth or decay of materials) (Linked)	Catalytic processes (from surface species for abatement) (Linked)	source of reactivity (from gas phase reactions) (Linked)	Secondary product (from gas phase reactions, or surface processes including aging) (Linked)	Secondary product (from surface processes including aging) (Linked)	Other sources (Linked)	Identified in particles (Y/N) (Linked)
4	[1R,2R,6S,7E]	[1R,2R,6S,7E]	alpha-barba	39863-73-5	C[C@@H]1C=C1	C15H24	204.3546															
5	[3S,8S,9S,11R]	[1R,3aS,3bS]	cholesterol	57-88-5	CC[C@]12CC[C@@H]3[C@H]([C@@H]1CC)CCC[C@@]23	C27H46O	386.6598															
6	[1R,4E,9S]-4	[1R,4E,9S]-4	(E)-Caryophyllene	87-44-5	C/C=C/C=C/C	C15H24	204.3546															
7	[1S]-4,7-dim	[1S]-4,7-dim	alpha-calacal	21391-99-1	CC1=CCC(C)C1	C15H20	200.32															
8	[1S,2R,5S,7E]	[1S,2R,5S,7E]	alpha-cedrene	469-61-4	C[C@@H]1C=C1	C15H24	204.3546															
9	[1S,2S]-1-ene	[1S,2S]-1-ene	gamma-ele	30824-67-0	CCC=C(C)C	C15H24	204.3546															
10	[1S,4aR,8aR]	[1S,4aR,8aR]	alpha-cadin	24406-05-1	CC1=C(C)C1	C15H24	204.3546															
11	[1S,4aR,8aR]	[1S,4aR,8aR]	gamma-cad	483-74-9	CC1=C(C)C1	C15H24	204.3546															
12	[1S,4aR,8aR]	[1S,4aR,8aR]	gamma-arn	6980-46-7	CC1=C(C)C1	C15H24	204.3546															
13	[1S,5S]-2,6,4	[1S,5S]-2,6,4	alpha-pinene	80-56-8	CC1=CCC2C1C=CC2	C10H16	136.2364	monoterpene	Y					Y	Y	Y						
14	[2E,6E]-3,7,12	[2E,6E]-3,7,12	beta-farn	4602-84-0	CCC=CCC(C)C	C15H26O	232.3698															
15	[3R,4aS,5R]	[3R,4aS,5R]	selenene		CC1=CC=C2C1=CC=CC=C2	C15H24	204.3546															
16	(6R)-1,5,5,9	(6R)-1,5,5,9	alpha-cham	13912-83-5	CC1=CC(C)C1	C15H24	204.3546															
17	[Z]-octadec	[Z]-Octadec	oleic acid	112-80-1	CCCCCCCC=C	C18H34O2	282.4654					Y in particle										Y
18	2-(dimethyl)	(dimethylamino)-	acetone	926-64-7	CN(C)CC(=O)N	C4H8N2	84.1206				Y											

Review of about 900 distinct chemical species detected indoors in the literature.



# Personal development



# Professional development



- Participation in the elaboration of a ventilation guide for indoor environments
- Initiation of a PhD work in this field at ELTE
- Referee in international PhD thesis defenses (Como, Italy, March & York, UK, August 2024)
- Participation in the HORIZON-HLTH-2021-ENVHLTH-02 call with network partners submitting a research proposal to address the sources, transformation, exposure, dose-response and health effects of indoor aerosols
- Participation in a COST ACTION proposal: Network for Indoor Air Cleaning – **just accepted**
- Invited speaker at European Symposium on Atomic Spectrometry on this topic



Σ: Better insight on indoor air quality



# Thank you very much for your attention!

