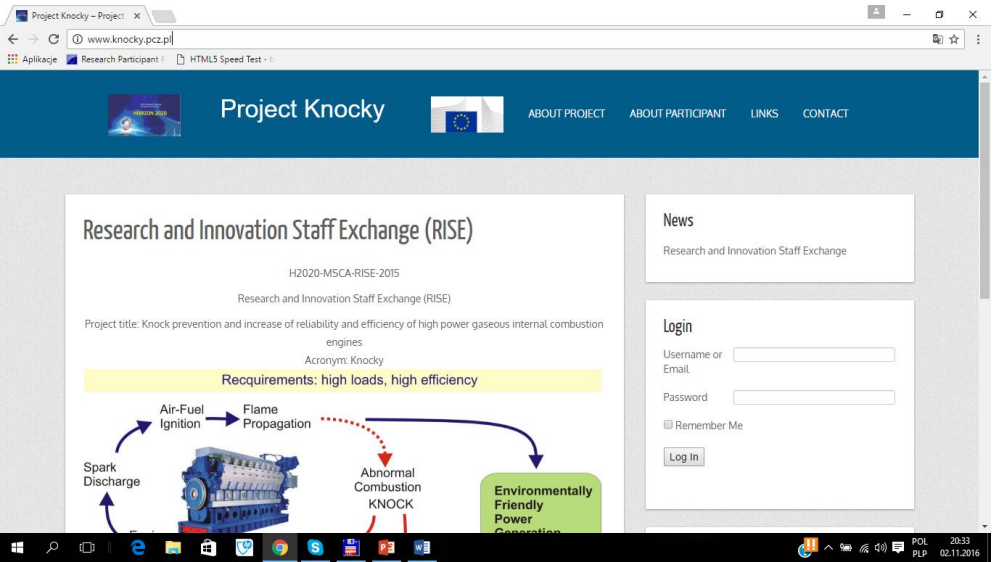
Grant Agreement number: 621232 – Knocky – H2020-MSCA-RISE-2015

Acronym: **Knocky**

6 Participants from the UE (Polska, Finlandia, Austria, Niemcy, UK)
1 Partner from the USA



http://www.knocky.pcz.pl/

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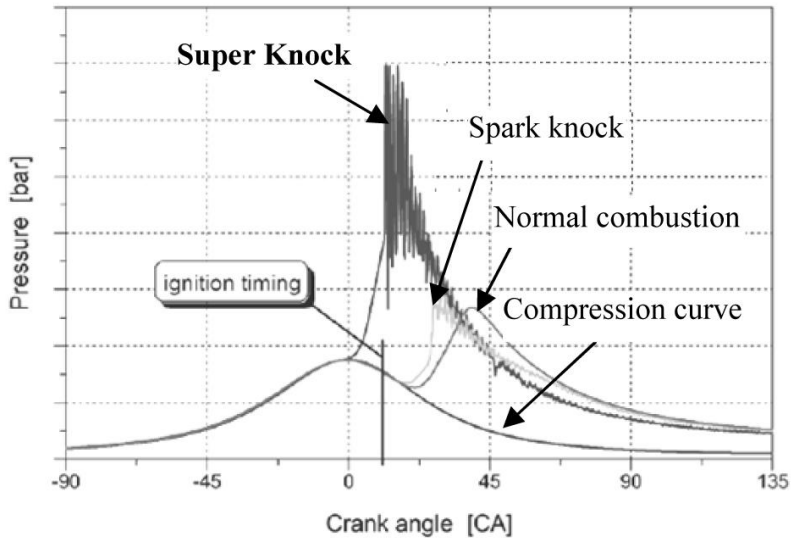


Tytuł:

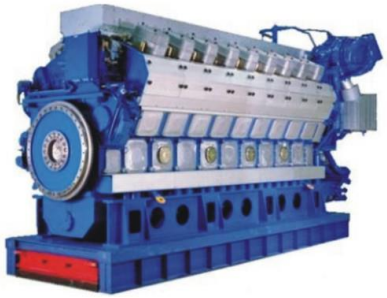
Knock prevention and increase of reliability and efficiency of high power gaseous internal combustion engines

equirements: high loads, high efficiency

Flame Propagation

Spark Discharge

Engine Control Ignition Module



Abnormal Combustion KNOCK

Deterioration of
Engine Durability
Exhaust Emissions
Enviromental Impact

Environmentally Friendly Power Generation

Demands: knock reduction and prevention, toxic emissions below limits

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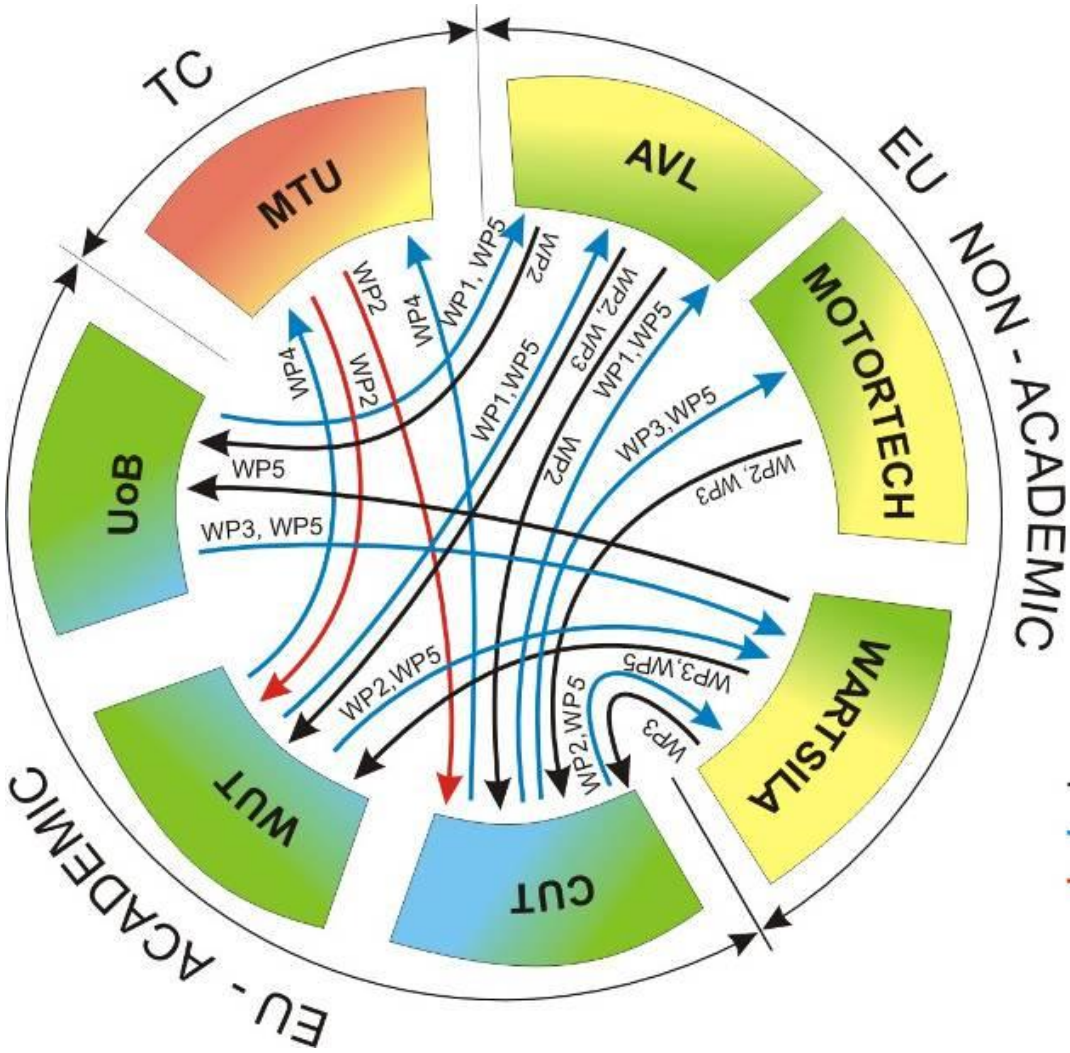

CUT - Czestochowa University of Technology
Politechnika Czestochowska
WUT - Warsaw University of Technology
Politechnika Warszawska
UoB - University of Birmingham
MTU - Michigan Technological University

EU - Non-Academic to EU Academic
EU - Academic to EU Non-Academic or TC
TC to EU Academic

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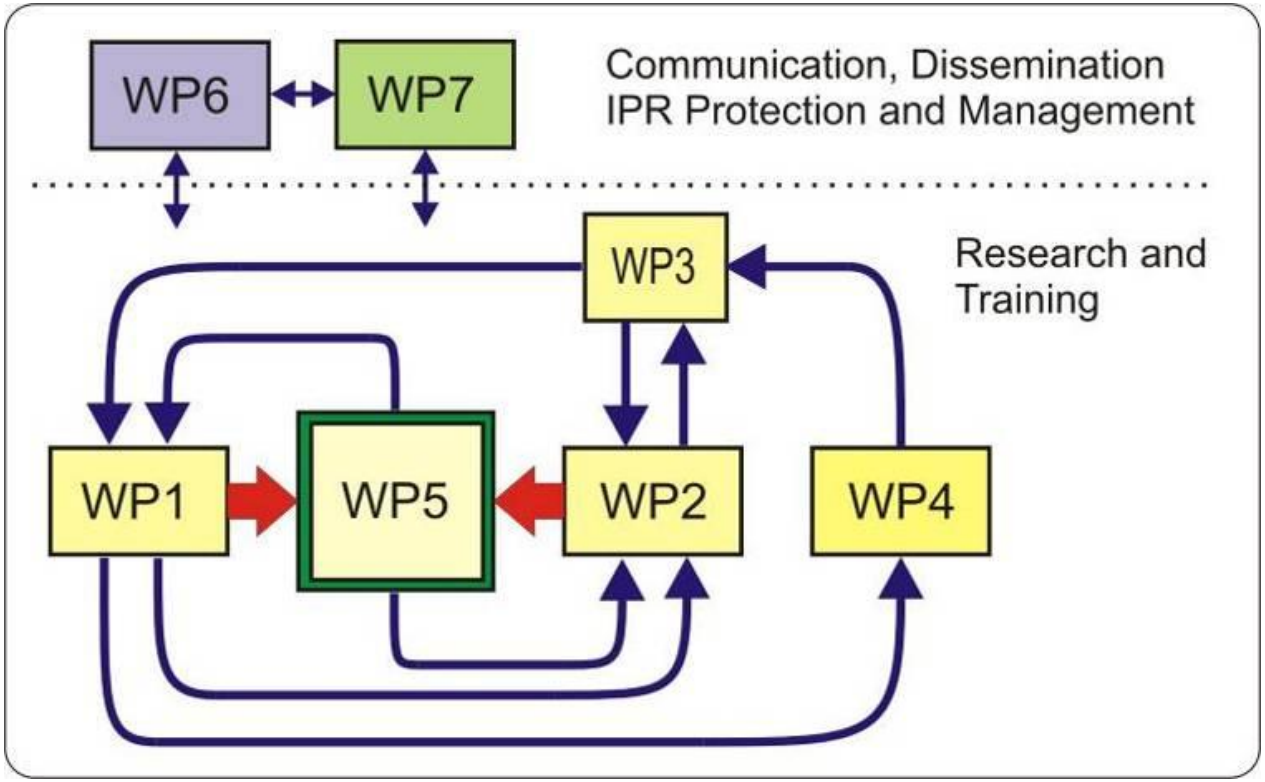
Alltogether - 7 WorkPackages
5 WPs – Research
Interactive Management



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The project :KNOCKY" is mainly focused on the following:

a) research on combustion problems in the internal combustion spark ignited engine (theory and tests)
b) knowledge exchange among project participants,
c) researcher's staff career development due to participating in ongoing research projects conducted by project participants,
d) knowledge enrichment by applying academic scientific staff into the project tasks,
e) approaching to early stage researchers the industrial-academic collaboration as effective method for solving both scientific, technological and engineering problems.

Who:
MSc Students, PhD Students, academic workers.

How: secondments

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Since February, 2016:

- 2 publications
- 8 persons on secondments (4 PhD students)

3 ongoing works:

- Computational study and CFD modeling of the VariFlow valve for a spark ingited natural gas fueled engine with aid of the FOAM software.

Location of work: Motortech, Celle, Germany
Person in secondment: PhD student Mathias Romańczyk,

- Modeling engine knock and end gas autoignition. Preparing preliminary assumptions for the CFD AVL Fire.

location: AVL, Graz, Austria
Person in secondment: PhD student Rafał Pyszczek,

- Investigation on gaseous lean mixture combustion with use of pre-chamber and detonation wave structure in the Rapid Compression machine.

Location: Wartsila, Vaasa, Finland
Persons in secondment: PhD student Urszula Niedzielska, dr. Karol Grab-Rogaliński, dr. Łukasz Kapusta., dr Arkadiusz Kępa.

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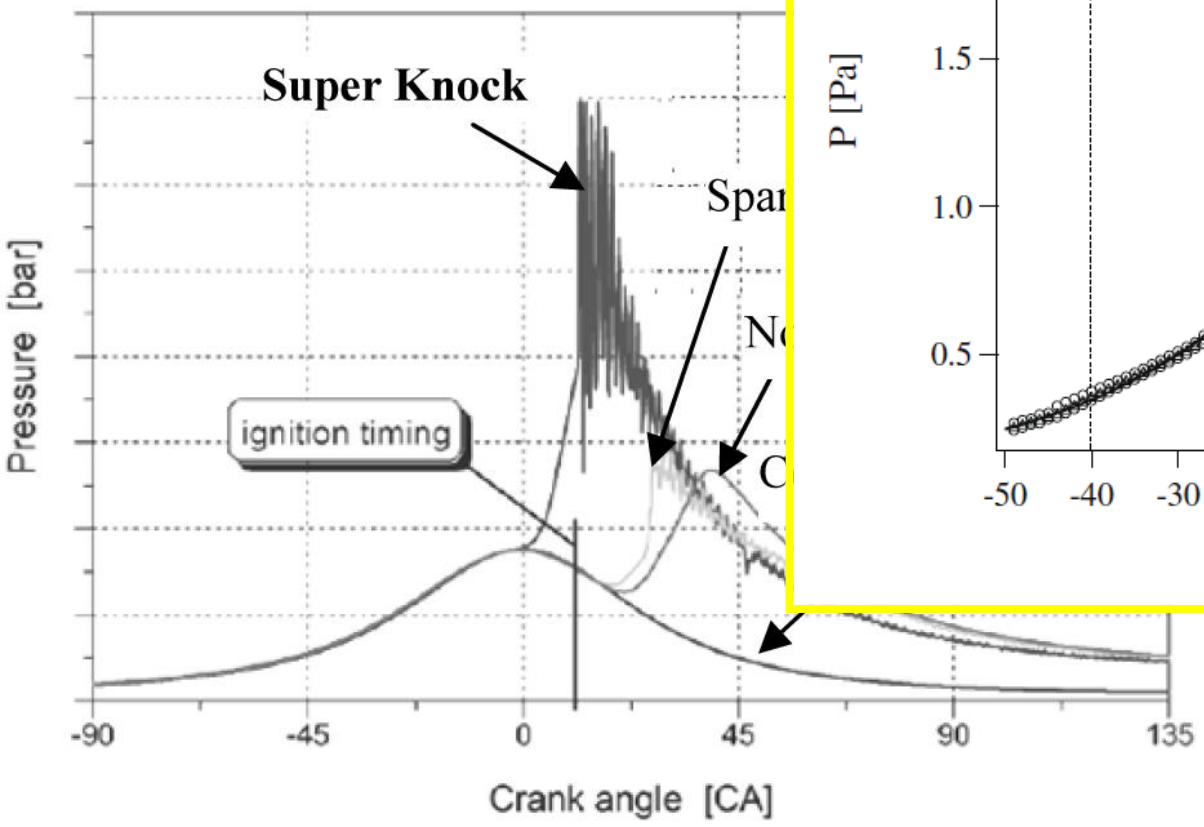
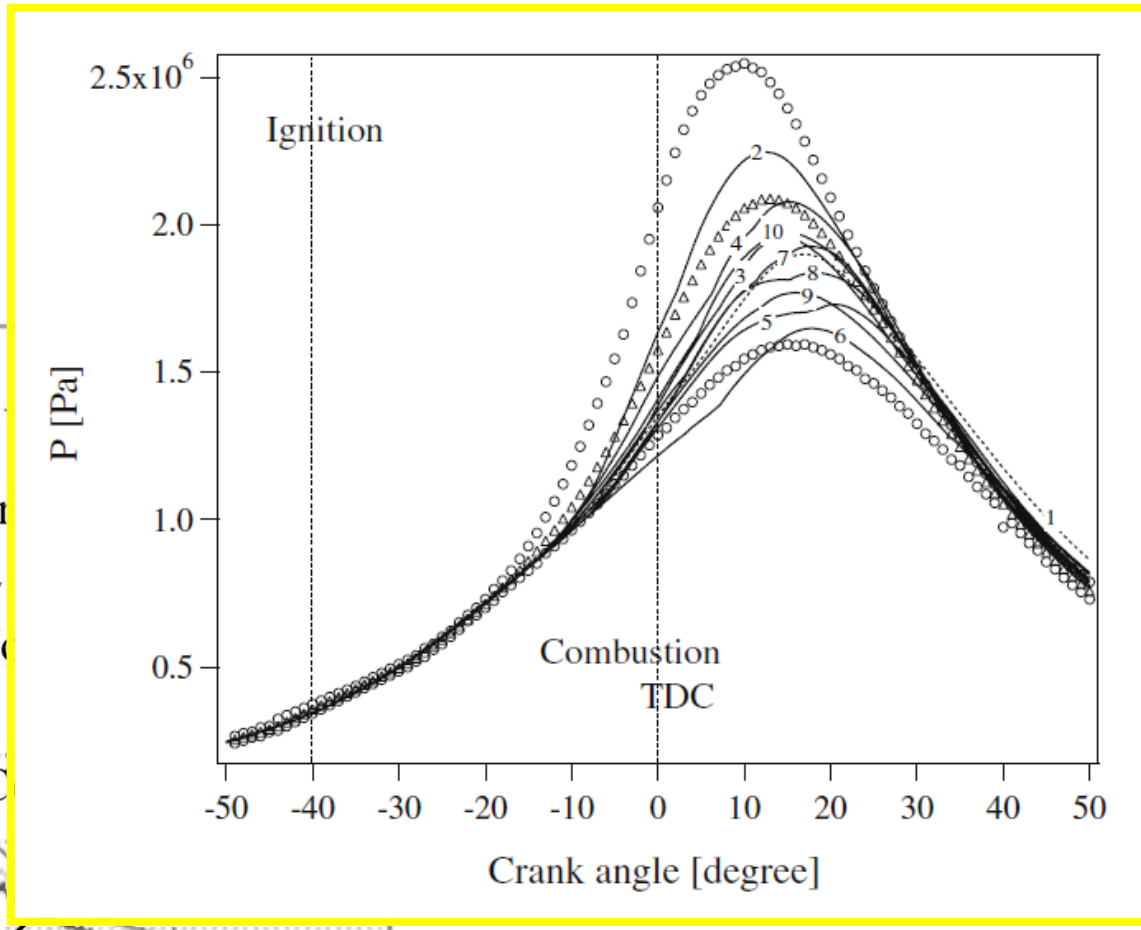
Engine Combustion Knock – what is this?





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Project Participants

Academic

University of Birmingham
Czestochowa University of Tech.
Michigan Tech. University
Warsaw University of Tech.

Non-academic

AVL, Austria
MOTORTECH, Germany
Wartsila, Finland

Intersectoral student/staff exchange

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Work Package Number	1						
Work Package Title	Combustion modelling						
Activity Type	Research, Training						
Participant Short Name	Czestochowa Univ. of Tech.	MOTO RTECH GmbH	AVL	Wartsila Finland OY	Michigan Technological University	UoB	WUT
Person-months per Participant:	5	0	1	0	1	12	25

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Work Package Number	2						
Work Package Title	Engine tests						
Activity Type	Research, Training						
Participant Short Name	Czestochowa Univ. of Tech.	MOTOR TECH GmbH	AVL	Wartsila Finland OY	Michigan Technological University	UoB	WUT
Person-months per Participant:	11	1	0	1	0	12	12

Grant Agreement number: 691232 – Knocky – H2020-MSCA-RISE-2015

Work Package Number	3						
Work Package Title	Combustion pressure signal processing & data analysis						
Activity Type	Research, Training						
Participant Short Name	Czestochowa Univ. of Tech.	MOTOR TECH GmbH	AVL	Wartsila Finland OY	Michigan Technological University	UoB	WUT
Person-months per Participant:	25	2	0	1	0	0	3

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Work Package Number	4						
Work Package Title	Flame visualization						
Activity Type	Research, Training						
Participant Short Name	Czestochowa Univ. of Tech.	MOTOR TECH GmbH	AVL	Wartsila Finland OY	Michigan Technological University	UoB	WUT
Person-months per Participant:	22	0	0	0	0	0	12

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Work Package Number	5						
Work Package Title	Conclusions - Knock reduction measures						
Activity Type	Research, Training						
Participant Short Name	Czestochowa Univ. of Tech.	MOTOR TECH GmbH	AVL	Wartsila Finland OY	Michigan Technological University	UoB	WUT
Person-months per Participant:	32	2	2	4	1	15	3

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Thank you