

Space Activities of Students of the Warsaw University of Technology

Warsaw University of Technology



Student Space Association



Student Space Engineering Scientific Group



Institute of Aviation



Vienna, 11-22 February 2008



Agenda



50 years of The Space Age



Days of Satellite Techniques



Young Engineers' Satellite 2



PW-Sat



Rocket Engines Investigations

Vienna, 11-22 February 2008



50 years of The Space Age



“Space for Humans - fifty years and beyond...”



2-3 October 2007 at
Warsaw University of
Technology – a conference in
commemoration of fifty years
of the Space Age

Attendants from RAS, ESA, NASA, ROSA, HSO,
COPUOS and many others...

Polish government representatives

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50 years of The Space Age



Topics covered on the conference:

- Future plans of Solar System exploration
- Human Spaceflight
- Historical view and future perspectives
- Application of satellite technology
- Development of Polish space industry



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50 years of The Space Age



Students with invited guests



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50 years of The Space Age



Art competition
“Base on the Moon” for
school kids



Student competition
for the best future
visions of the peaceful
use of outer space

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50 years of The Space Age



“Base on the Moon”
- artwork samples



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50 years of The Space Age



A series of lectures
for students and
school kids before
the conference



Studencie Koło Astronautyczne
zaprasza na cykl wykładów



50-LECIE ERY KOSMICZNEJ

13.III.2007

Prof. dr hab. inż. Piotr Wolański

Przewodniczący Komitetu Badań Kosmicznych i Satelitarnych PAN
„Historia podboju kosmosu i korzyści z niego wynikające”

20.III.2007

Gen. Mirosław Hermaszewski

Pierwszy polski astronauta
„Człowiek w Kosmosie”

28.III.2007

Prof. dr hab. Kazimierz Szczepan Stępień

Przewodniczący Komitetu Astronomii PAN
„Astronomia- obserwacja nieba”

17.IV.2007

Prof. dr hab. inż. Piotr Wolański

Przewodniczący Komitetu Badań Kosmicznych i Satelitarnych PAN
„Wyścig na Księżyc”

24.IV.2007

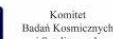
Dr Krzysztof Ziolkowski

Astronom, znany komentator wydarzeń i zjawisk astronomicznych (CBK)
„Układ Słoneczny - nasz dom we Wszechświecie”

WSTĘP WOLNY.

Instytut Techniki Ciepłej
ul. Nowowiejska 21/25
sala T1 godz 16:30
<http://ska.meil.pw.edu.pl>

Patronat honorowy:



Patronat medialny:



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Days of Satellite Techniques



- First polish space industry meeting
- About 30 institutional attendants
- Many demonstrations and exhibitions



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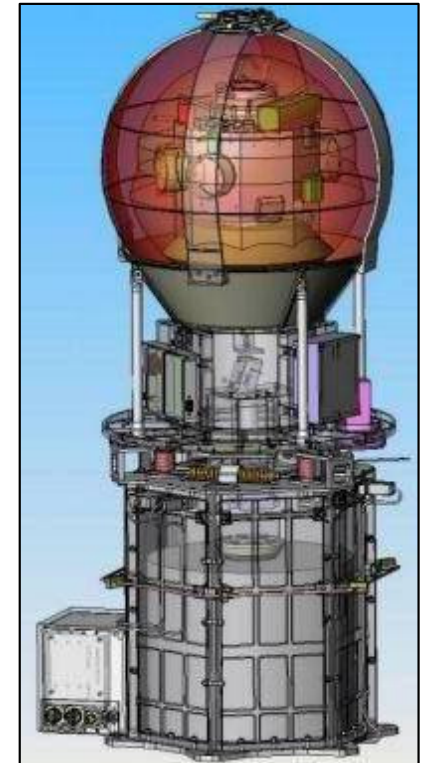
Young Engineers' Satellite 2



Demonstration of inexpensive method of bringing light cargo back from LEO



- Project was conducted as a professional ESA's mission
- Hundreds of European students took part



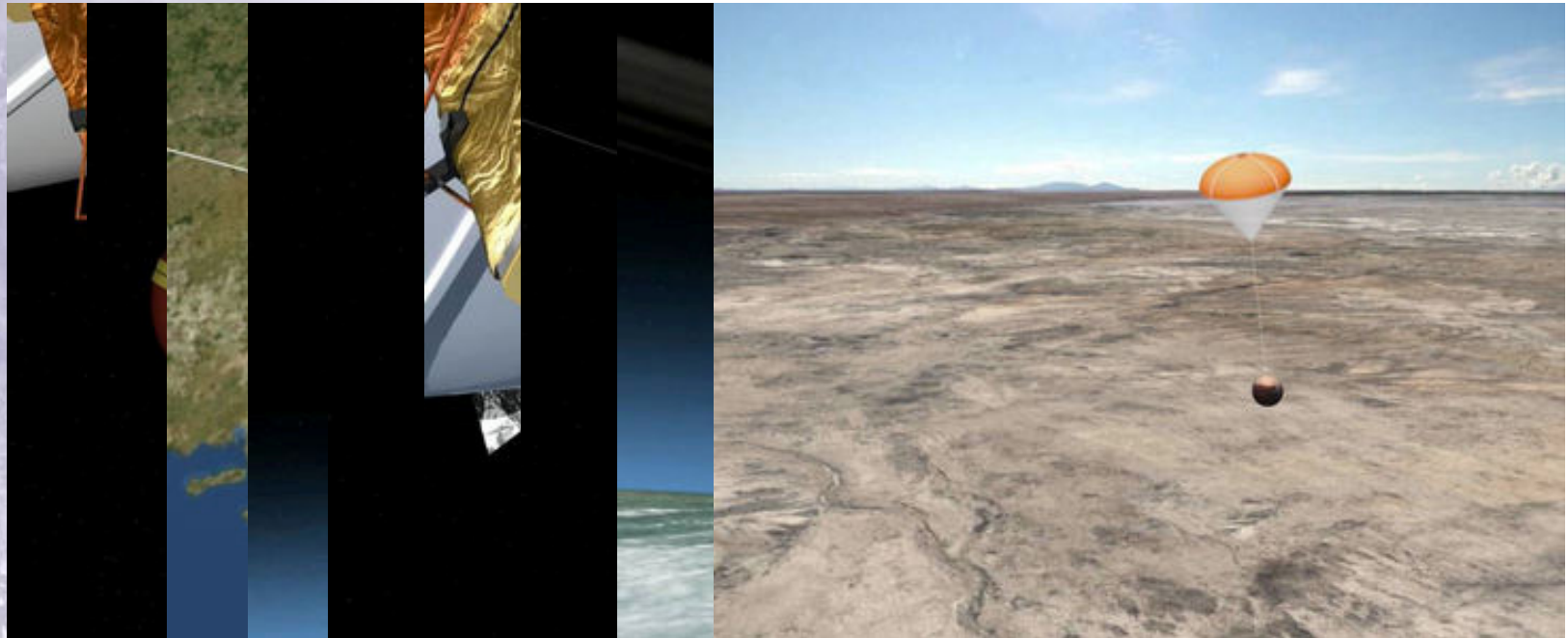
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Young Engineers' Satellite 2



- The longest object deployed in space (31.7 km)
- We took part in mechanical & electrical design



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Young Engineers' Satellite 2



Fotino recovery attempt
in Kazakhstan



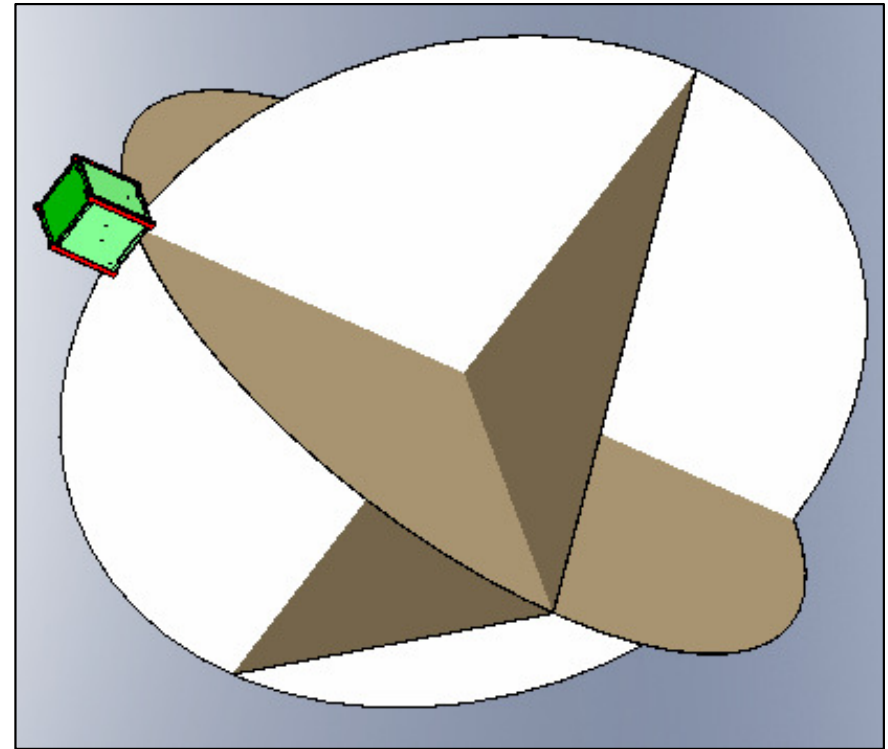
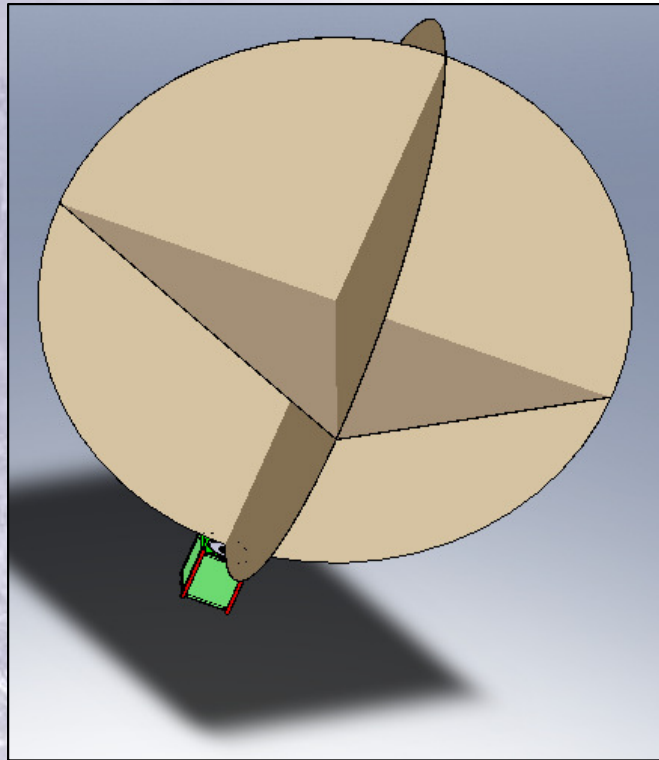
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PW-Sat



- First polish picosatellite (CubeSat)
- Mission goal: test of completely new method of intentional deorbitation



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PW-Sat

- Destined to deploy thin foil structure to increase satellite's face area
- The system could be used in more complex future space missions eventually



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PW-Sat

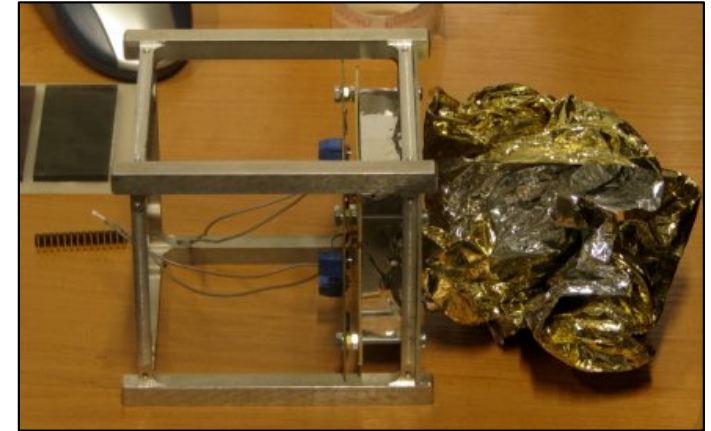
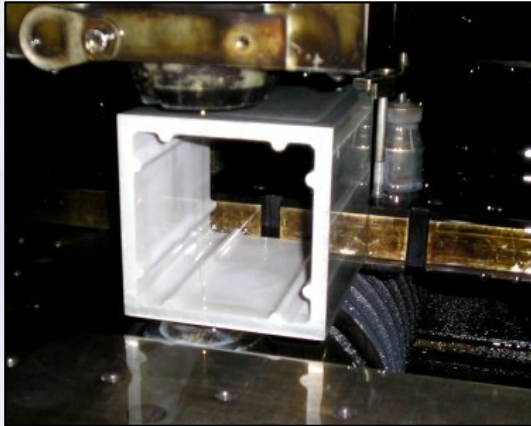
- The Vega Maiden Flight CubeSat Workshop
- We are participating in ESA's best payload competition for Vega launch vehicle (launch date - 2008/2009)



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Student team's work



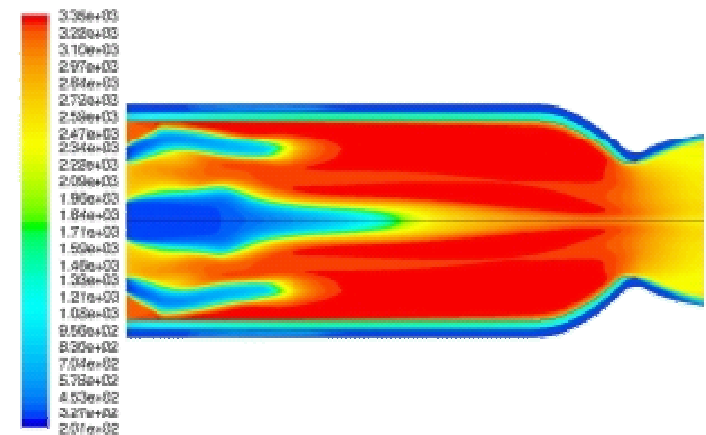
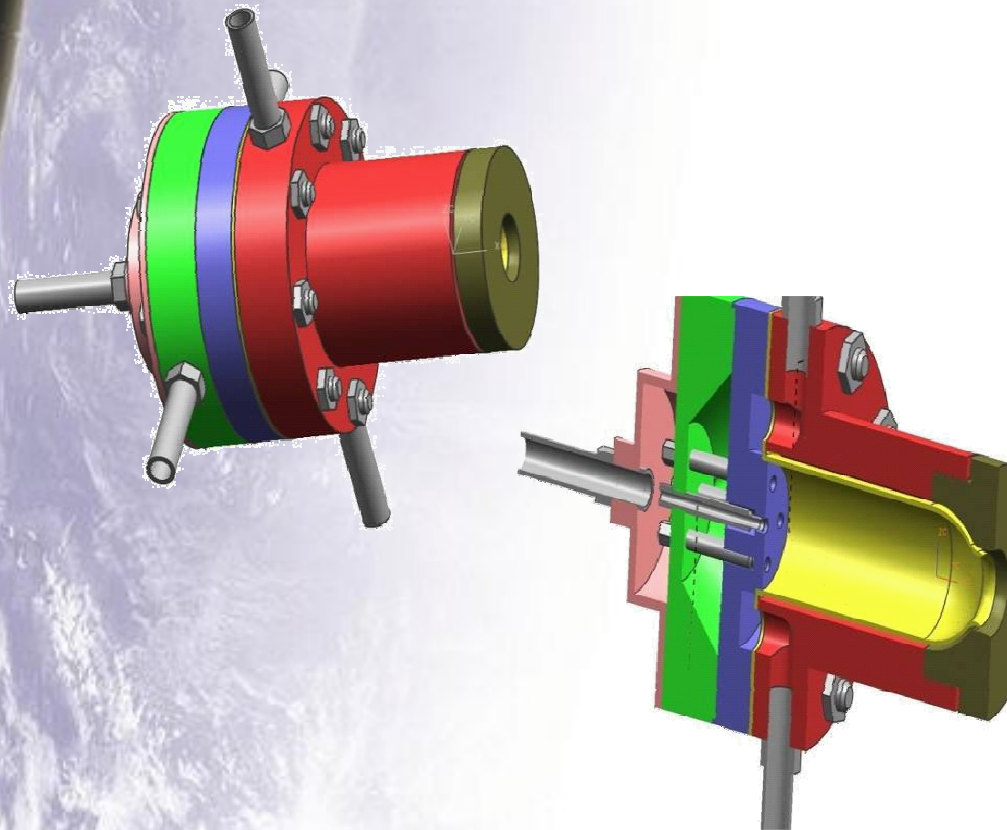
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Rocket engines investigations



- Design and calculation of laboratory gaseous Oxygen-CH₄ rocket engine



Contours of Static Temperature (K)

FLUENT 6.2 (sol, dp, segregated, spe, rke) May 25, 2007

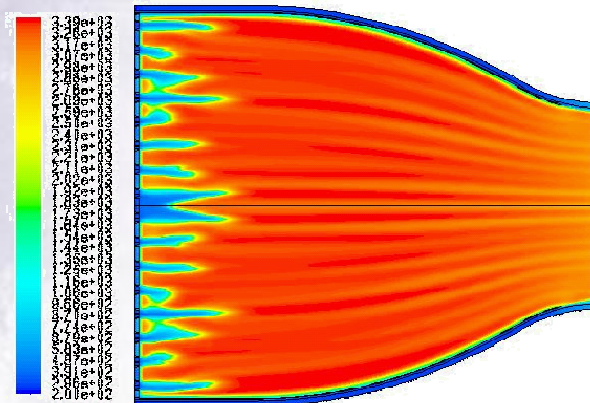
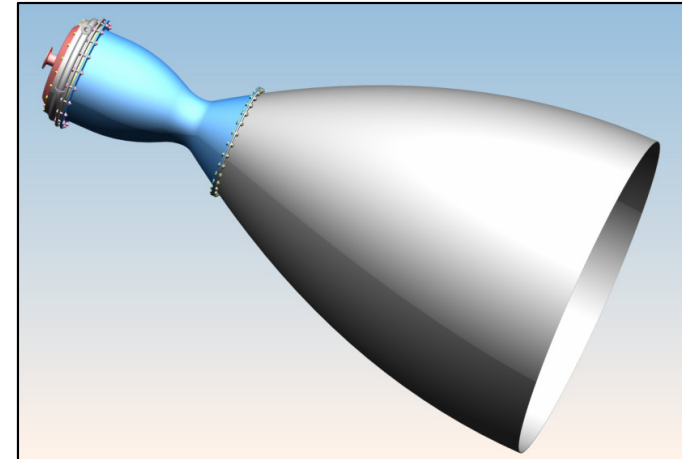
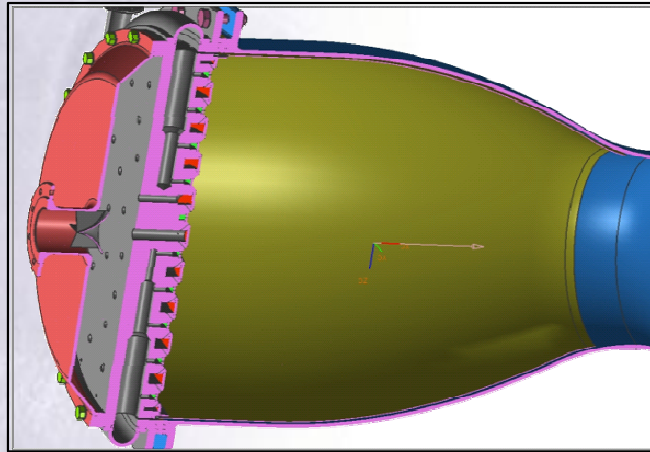
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Rocket engines investigations

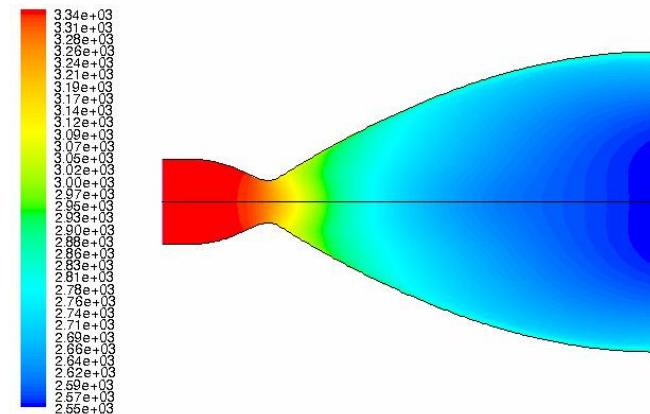


- Design and calculations of LOx-LCH₄ rocket engine



Contours of Static Temperature (k)

Sep 20, 2007
FLUENT 6.3 (axi, dp, pbns, spe, rke)



Contours of Static Temperature (k)

Sep 21, 2007
FLUENT 6.2 (axi, dp, segregated, ske)

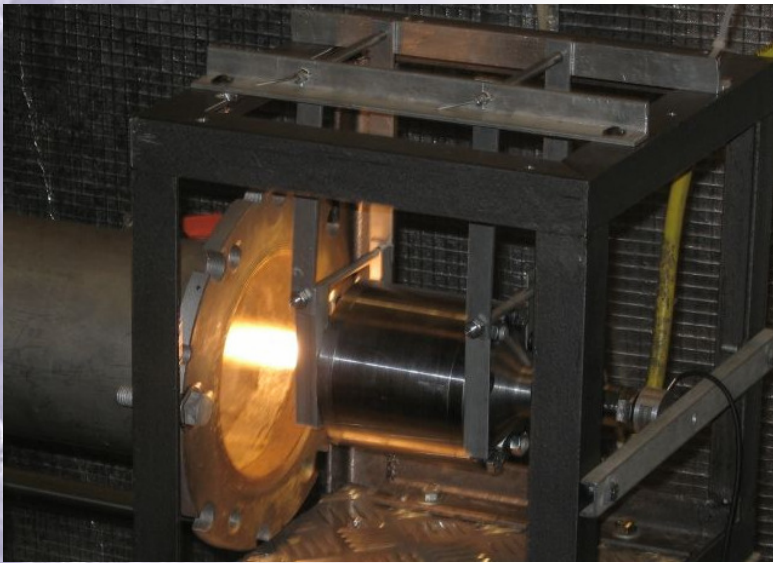
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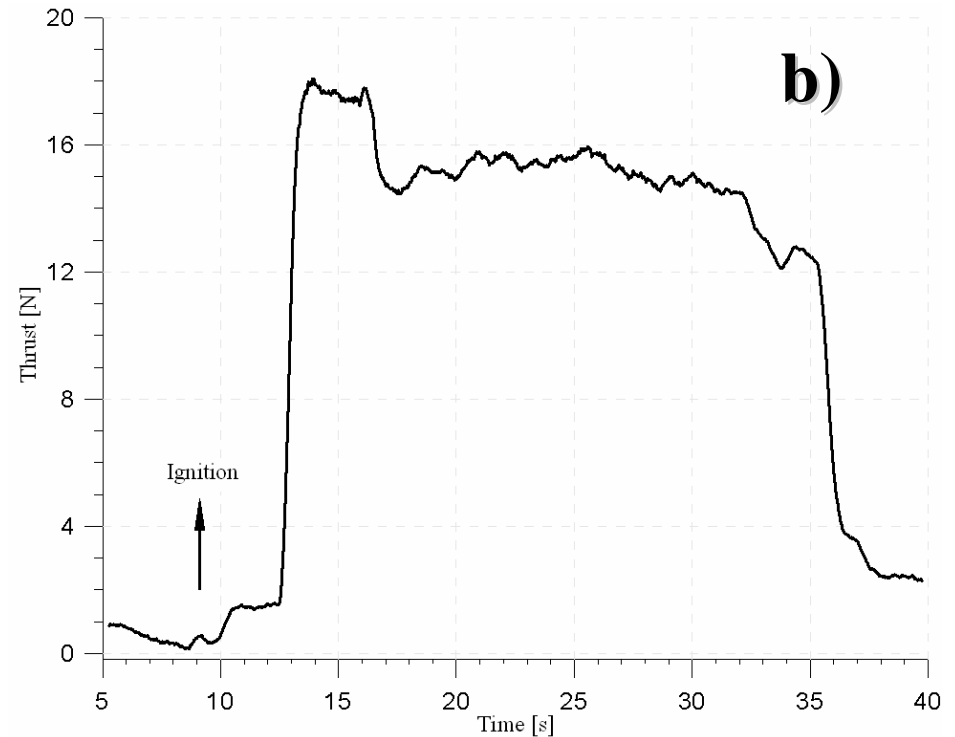
Rocket engines investigations



- Hybrid rocket engine investigation:
 - a) Test in the laboratory
 - b) Thrust versus time



a)



b)

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Thank you for your attention

Students of the Warsaw University of Technology

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