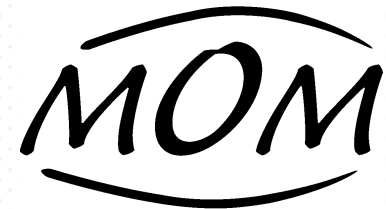


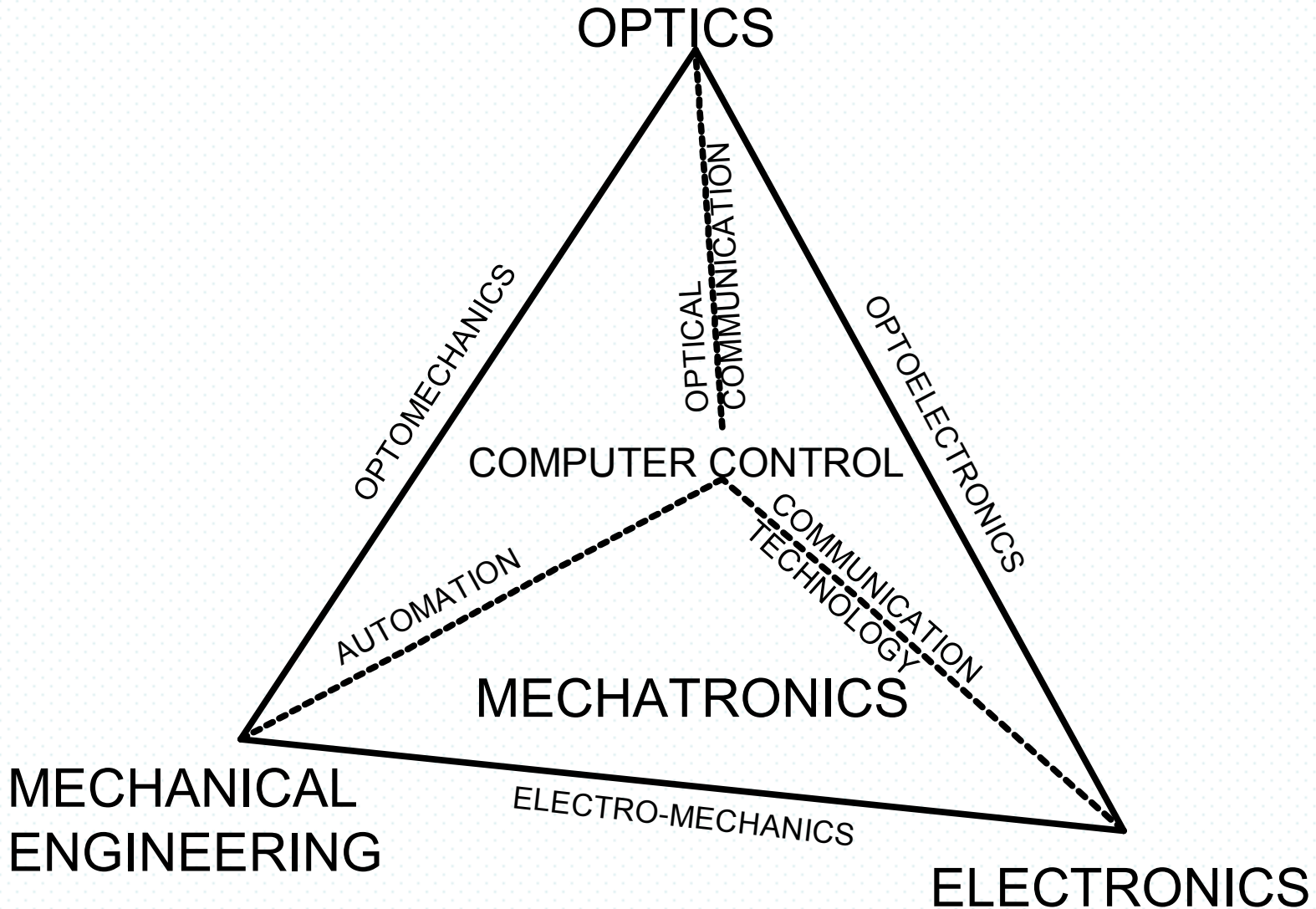
**BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS**

**FACULTY OF MECHANICAL ENGINEERING**



**Department of Mechatronics, Optics and  
Instrumentation Technology**

# OPTOMECHATRONICS



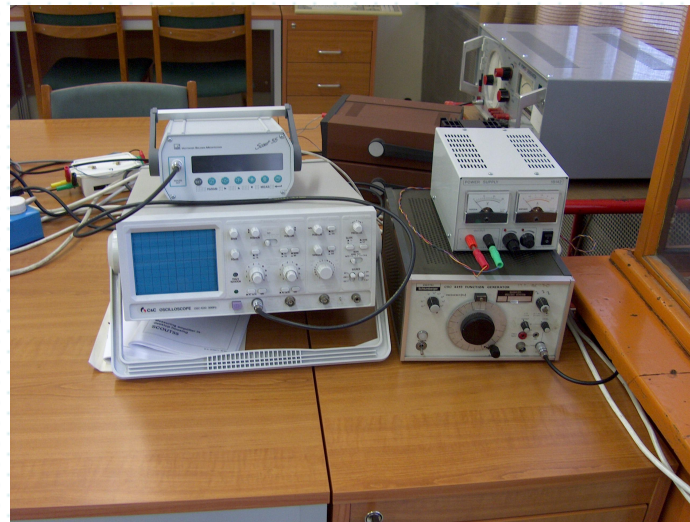
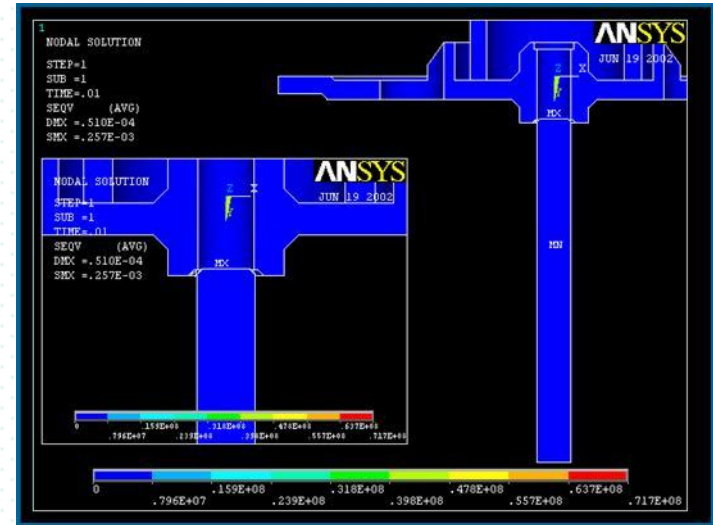
# Mechatronics in practice



# SCIENTIFIC GROUPS

## *Mechatronical Group*

- Microdrivers and positioners
- New materials and new technologies in the mechatronical design with a special emphasis on silicone rubber-based structures
- New type intelligent actuators
- Research of miniature axial-flux DC motors
- FEM simulation

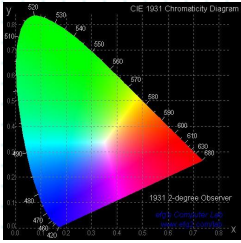


# SCIENTIFIC GROUPS

## *Measurement & Control Technology Group*

- Information theoretical aspects of measurement technology
- Pedagogical and methodological aspects of control technology education
- Pneumatic systems design and realization

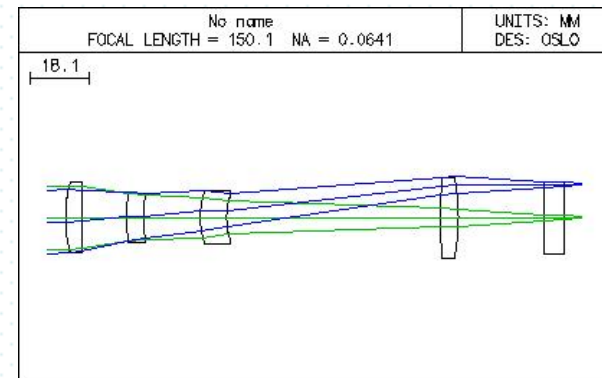
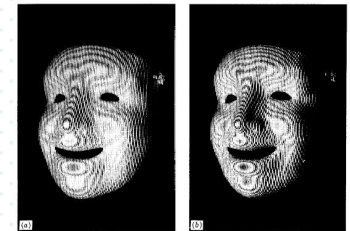
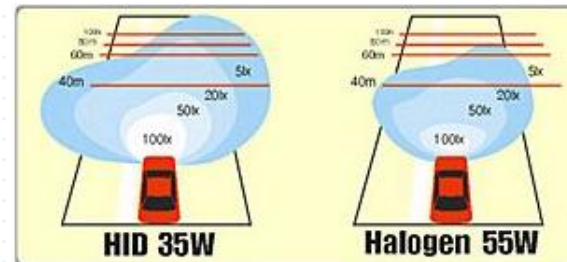




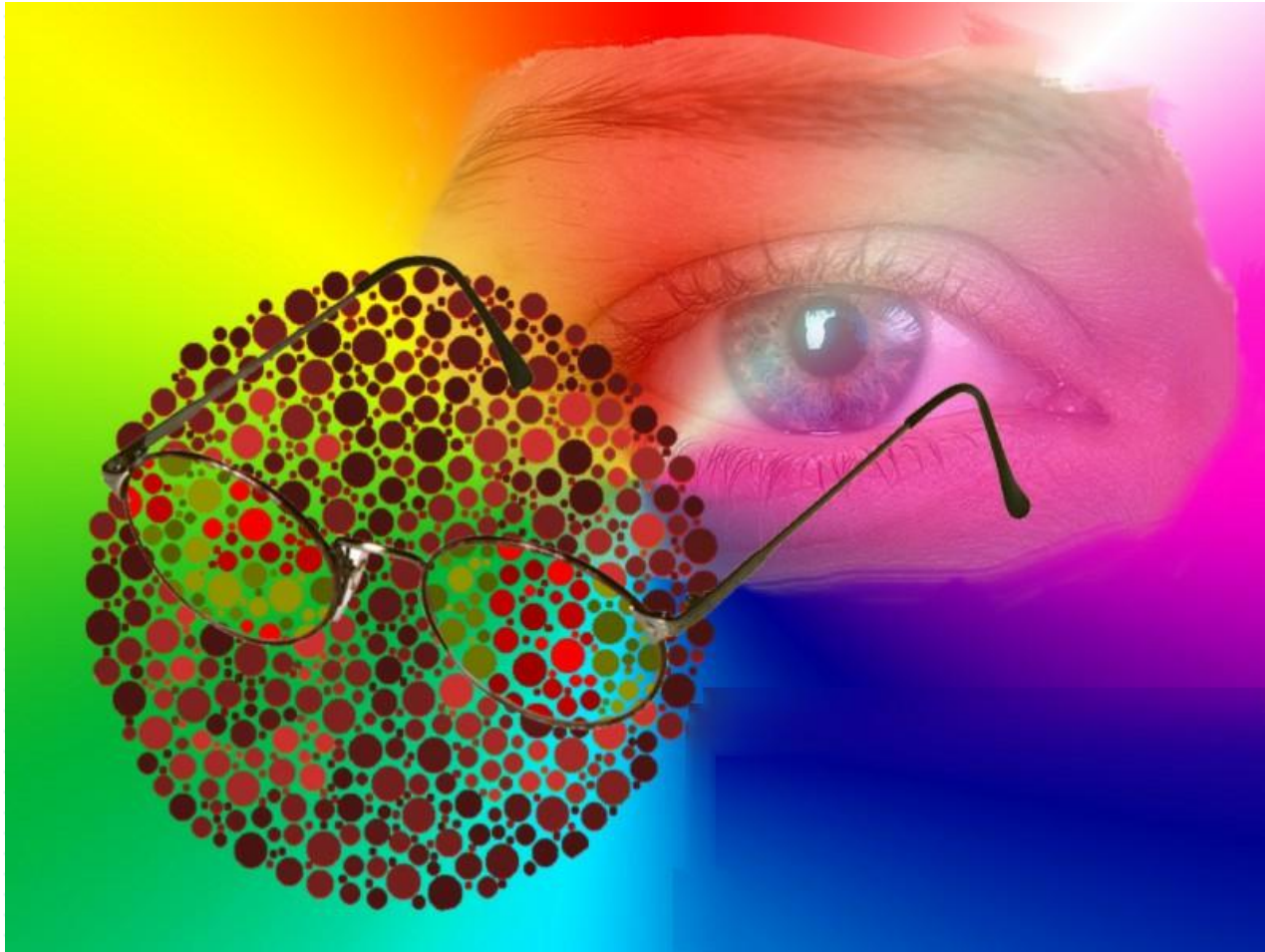
# SCIENTIFIC GROUPS

## *Optical Group*

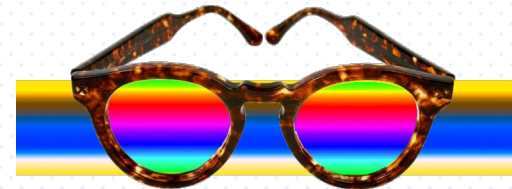
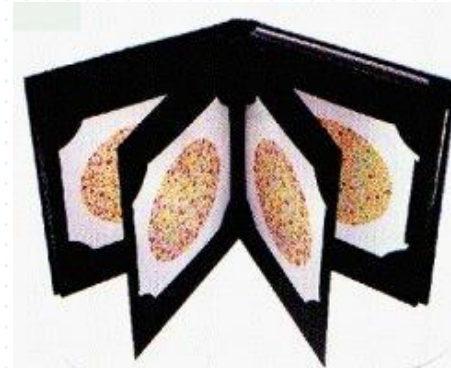
- Optical transfer function measurement
- Optical systems design
- Measurement and correction of human color deficiency
- Stress optics
- Pattern recognition with Moiré technology
- Color calibration, color measurement
- Optomechatronics
- Lighting technology



# Color vision research



# Color vision measurement and correction

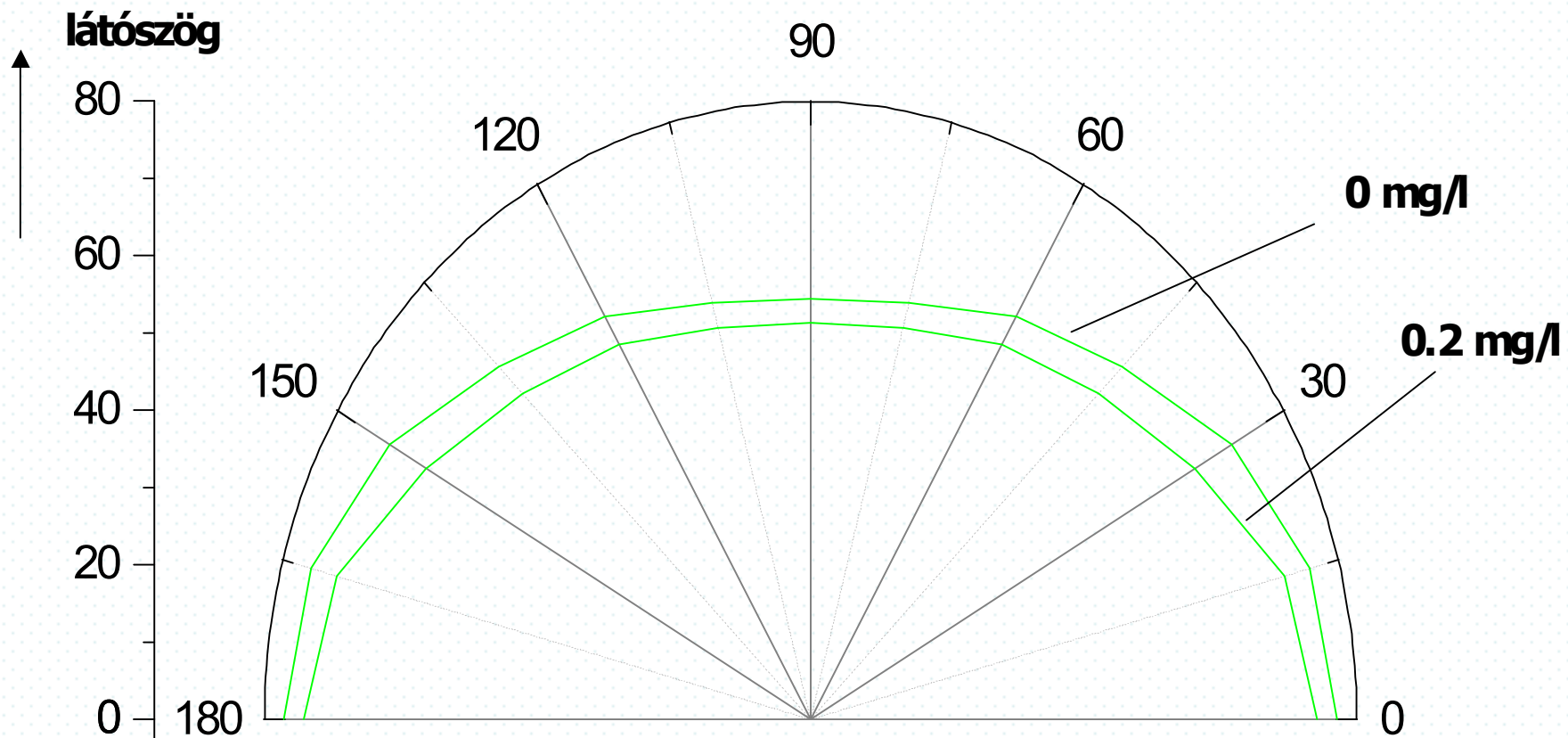




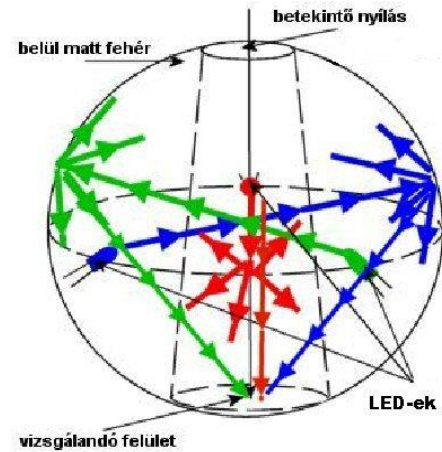
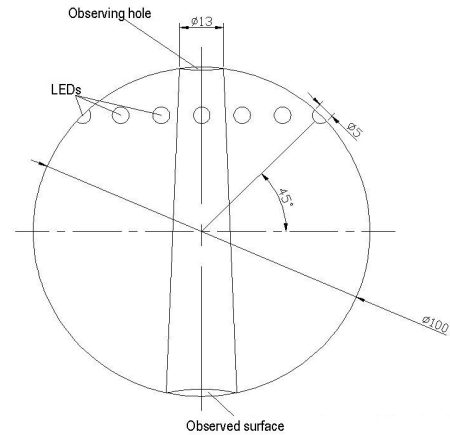
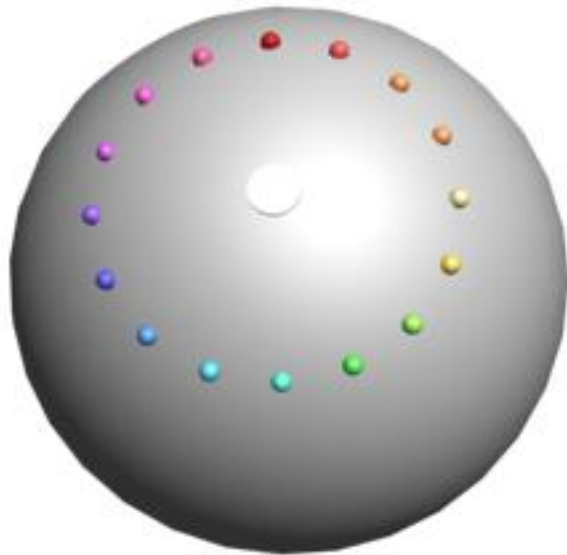
# Effects of color blindness



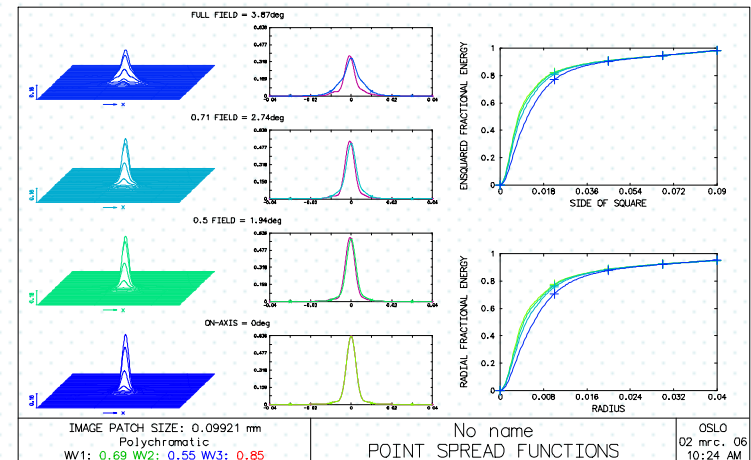
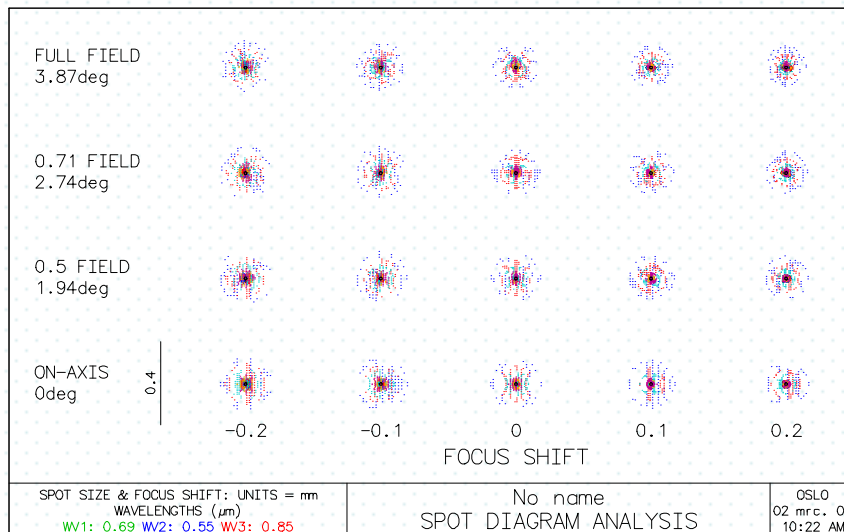
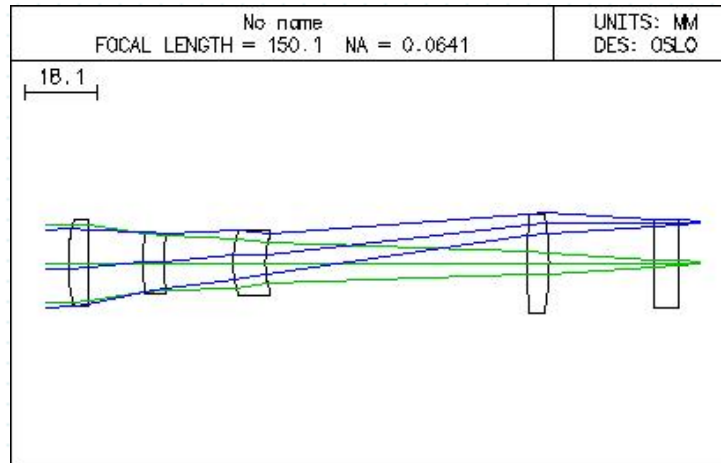
# Effects of alcohol on periferial vision



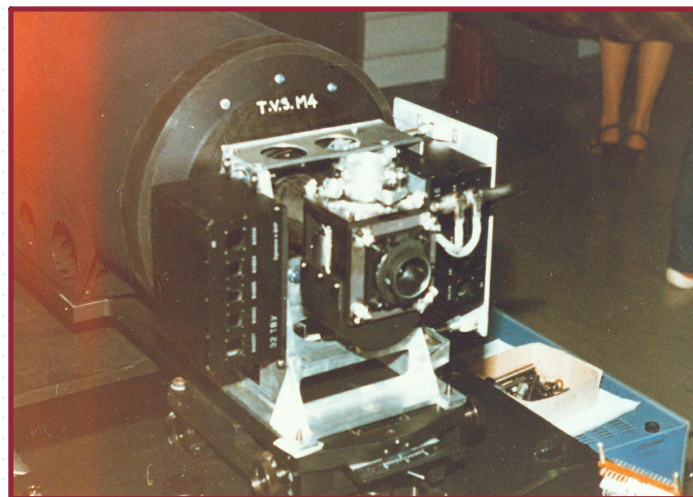
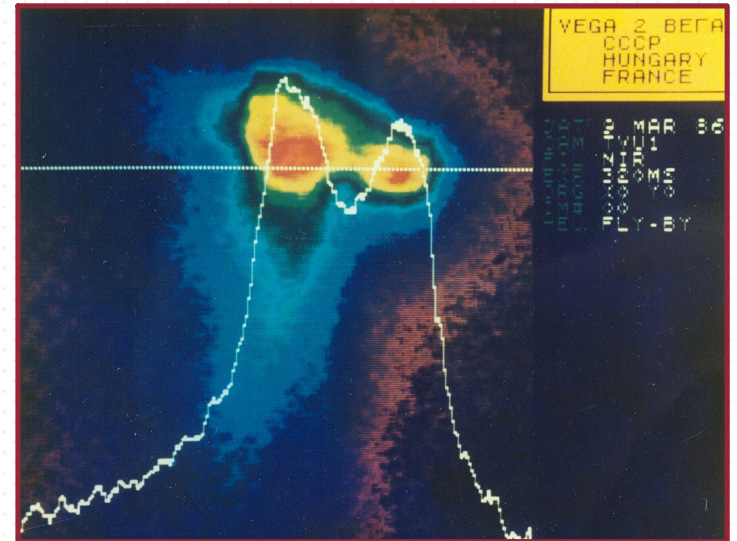
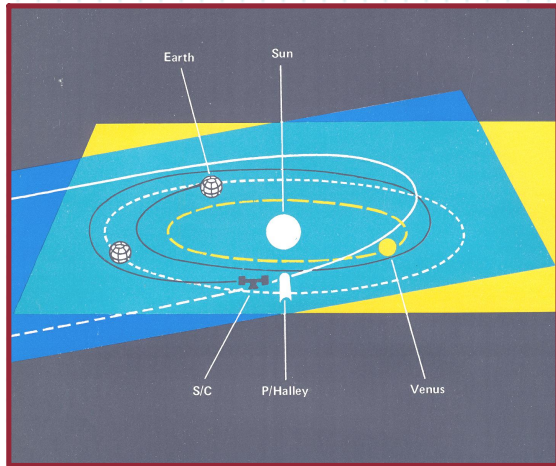
# Lighting technology



# Optical design



# Participation in the VEGA space program





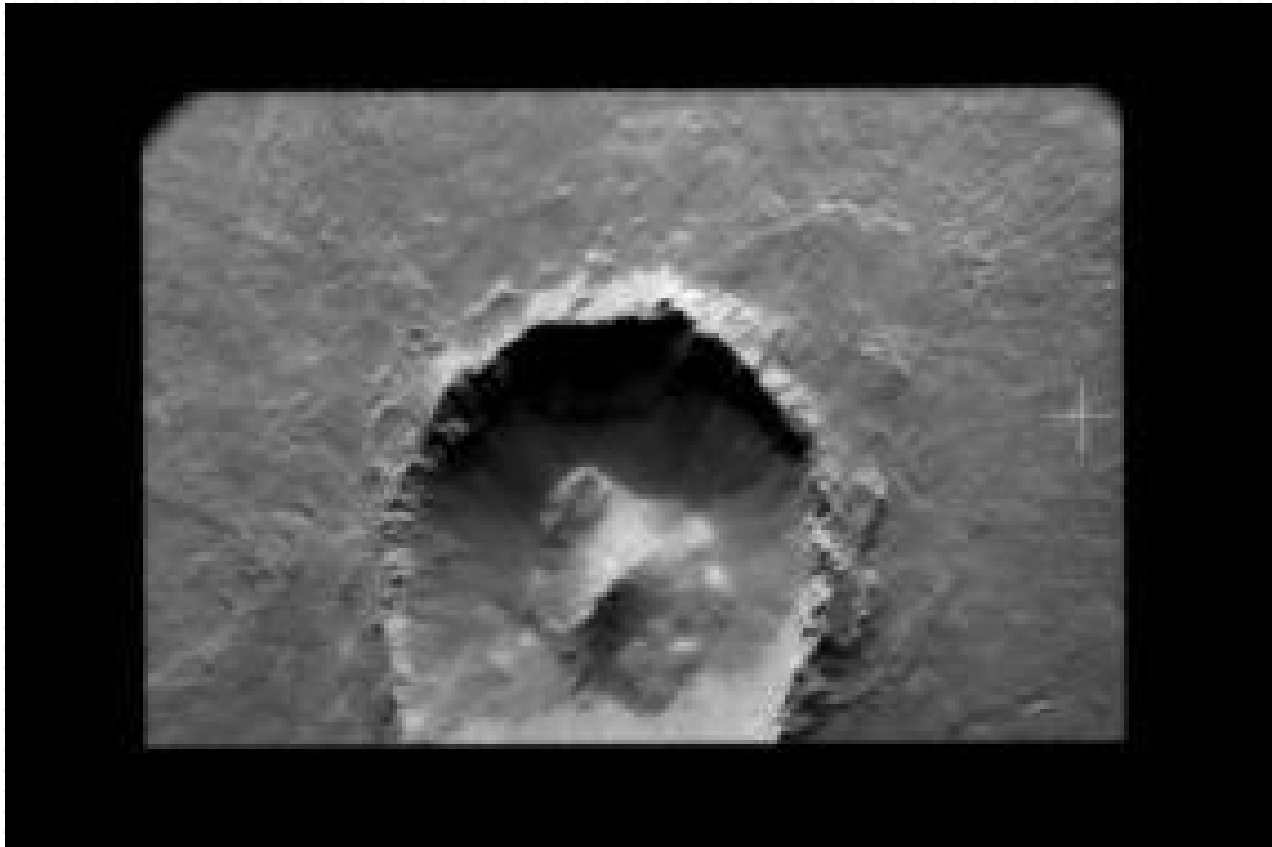
**DAWN FC**

# MTF

Target group	0/1	0/2	0/3	0/4	0/5	0/6	1/1	1/2	1/3	1/4	1/5	1/6
USAF lp/mm	1.00	1.12	1.26	1.41	1.59	1.78	2.00	2.24	2.52	2.83	3.17	3.56
CCD lp/mm	11.67	13.07	14.70	16.45	18.55	20.77	23.33	26.13	29.40	33.02	36.98	41.53

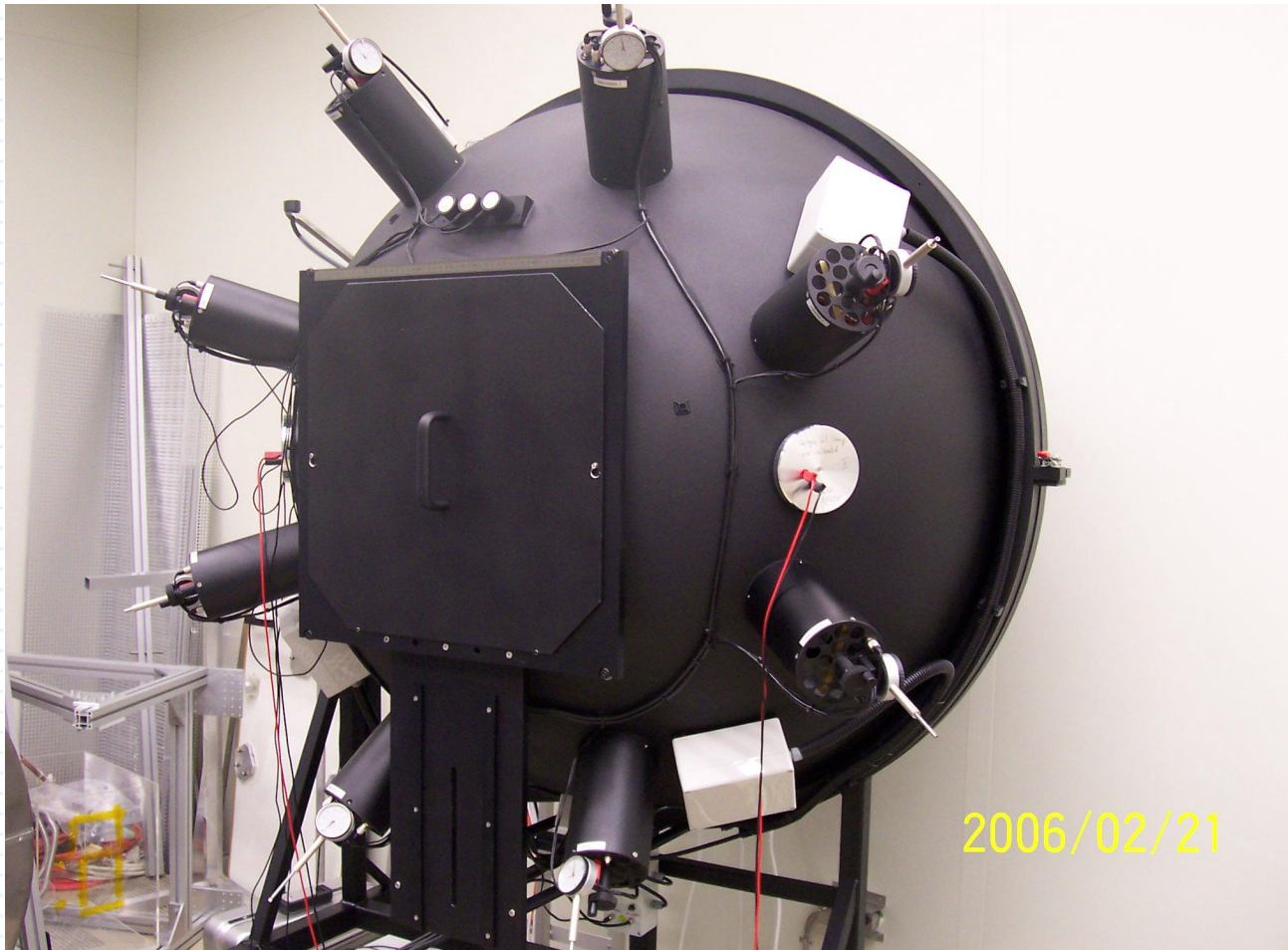


# Contrast





# FLAT



# *Educational Program Participation*

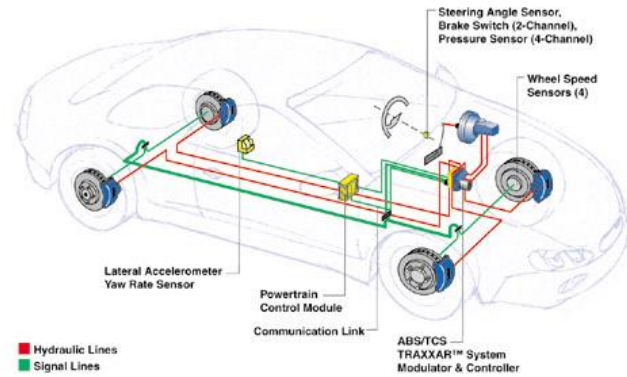
- Mechanical Engineering;
- Engineering physics;
- Industrial design engineering;
- Industrial robotics;
- Biomedical engineering;
- Optometry courses;
- Communication technology

# INTERNATIONAL RELATIONS

## *Partners in Education & Research*

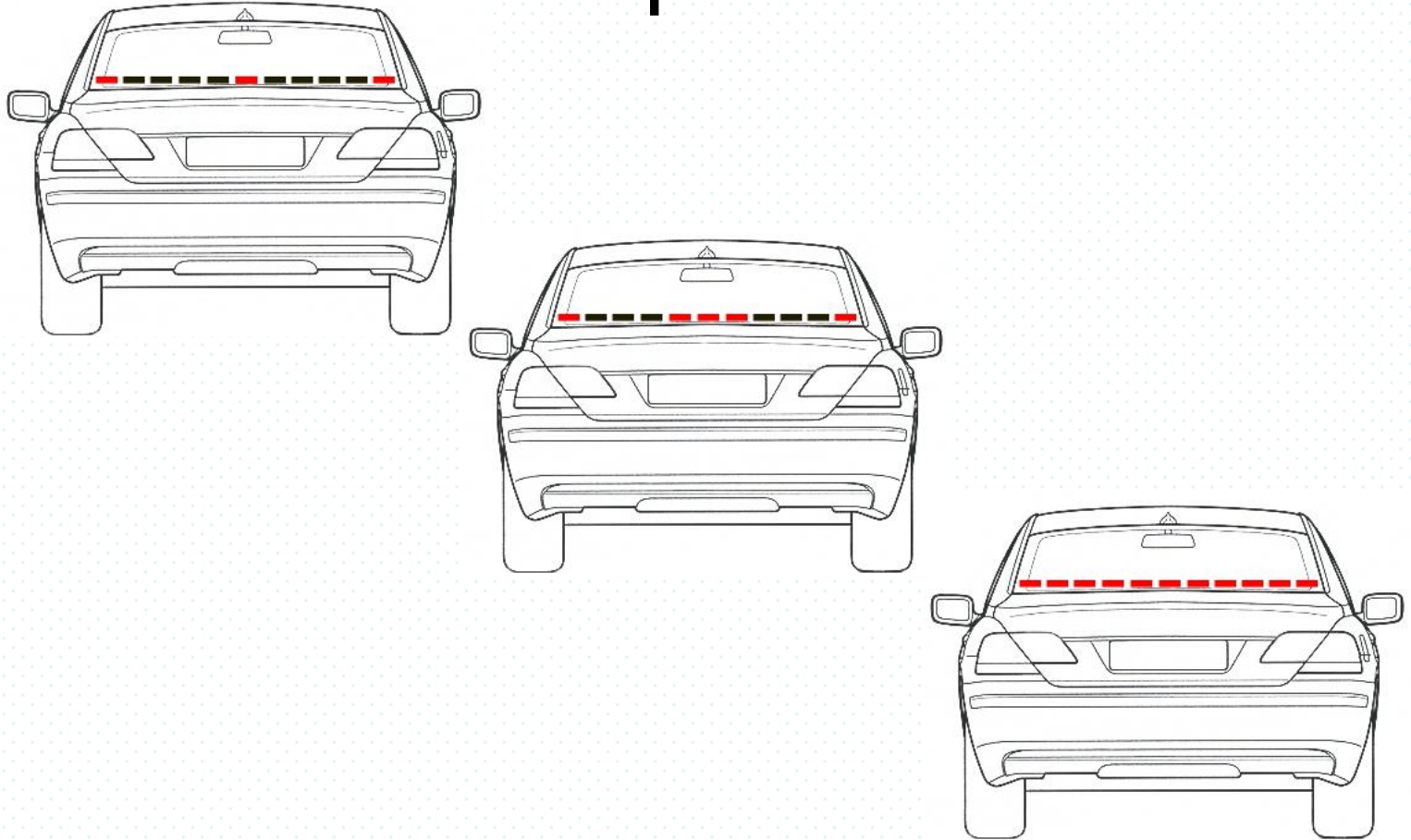
- Technical University of Dresden
- Technical University Ilmenau  
Joint Research project:  
New materials in precision engineering
- Max Planck Institute for Solar System Research
- Technical University Cluj
- City University of London
- Czech Technical University, Prague
- Tübingen University
- St.Petersburg State Academy of Aerospace

# Electronic Vehicle and Vehicle Control Cluster



# Comparison of Proportional and Standard brake lights (BME-EJJT)

# Operational principle of the last generation of proportional stop-lamps



# Simulations



# Simulations

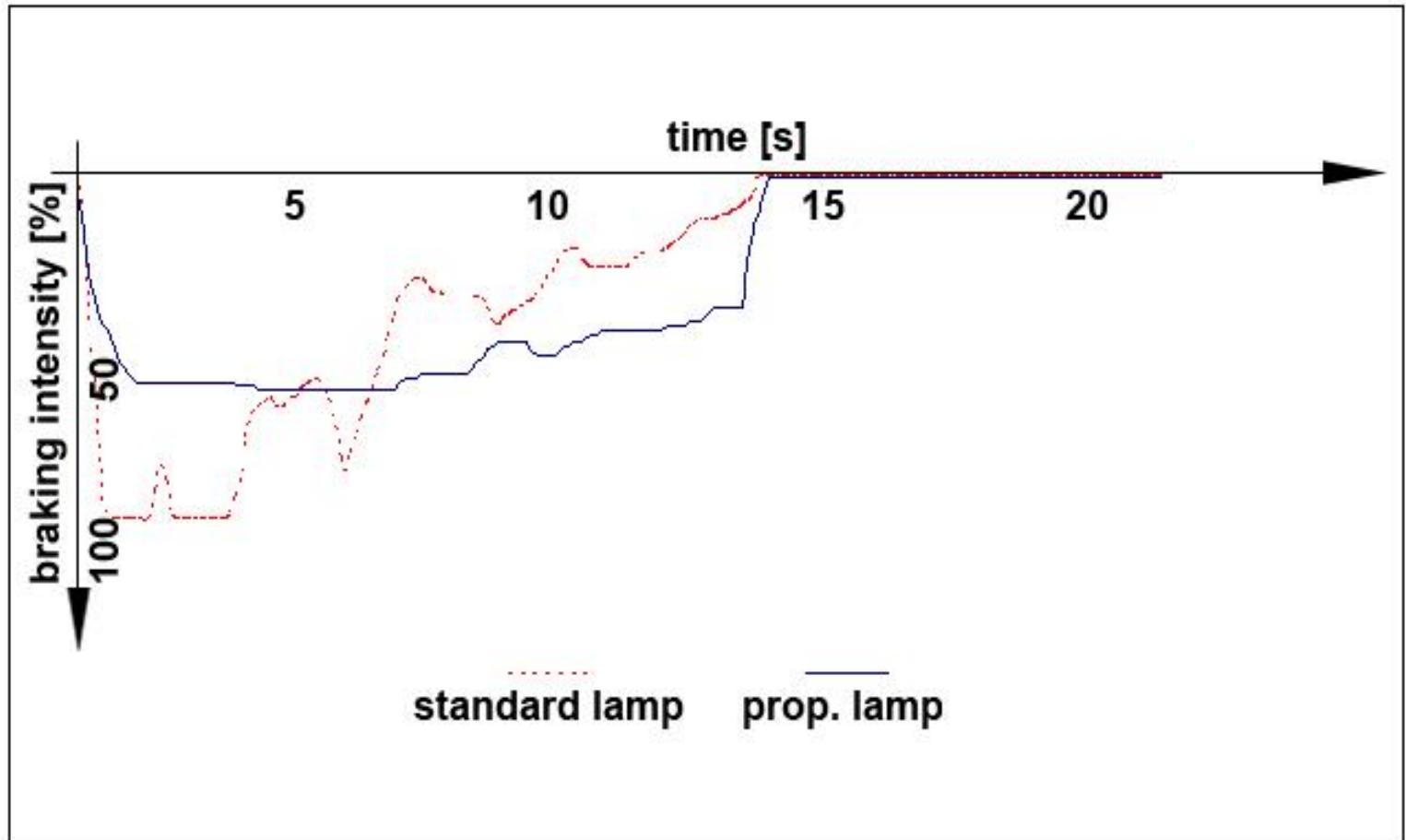




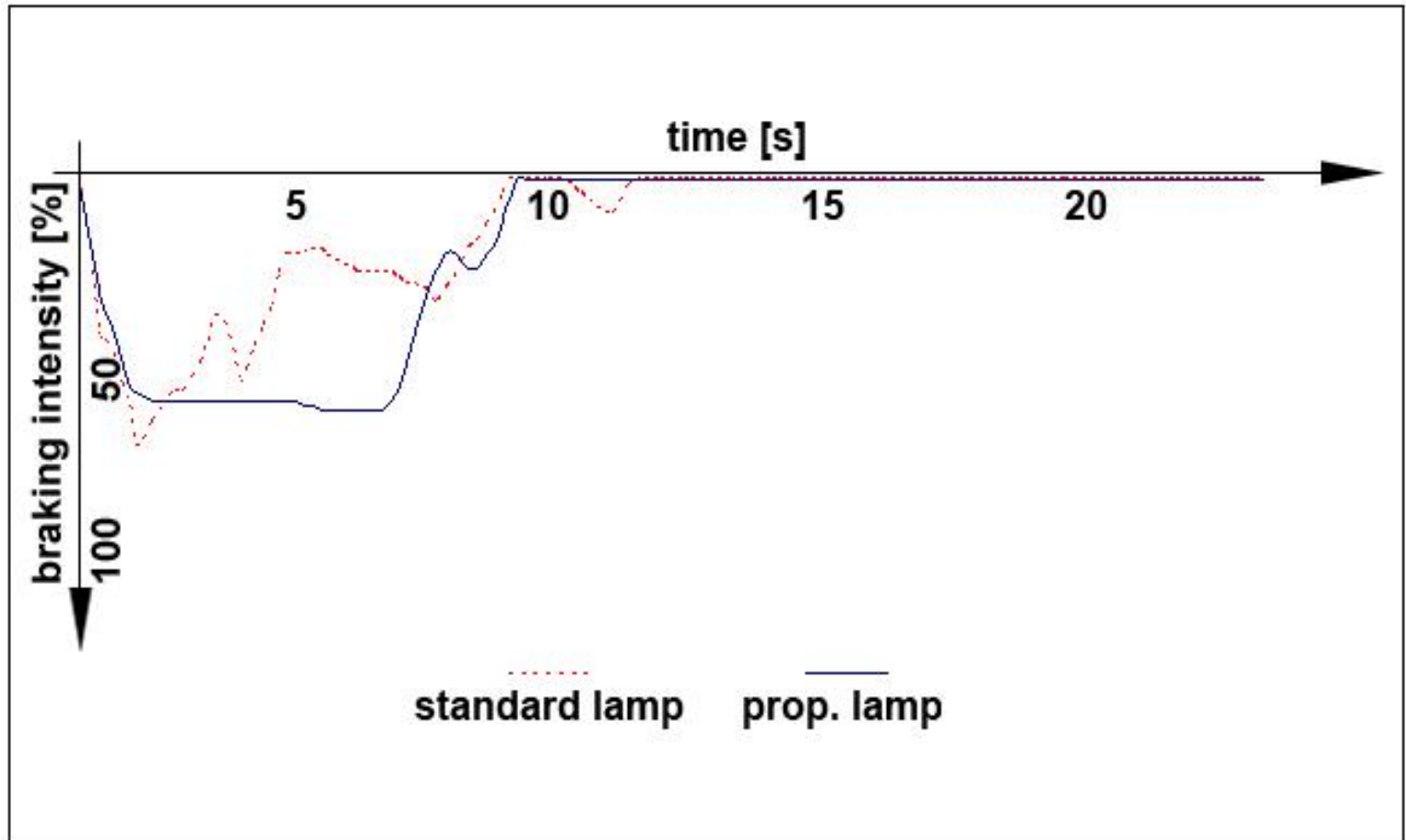
# Simulational videos

# Measuring station and procedure

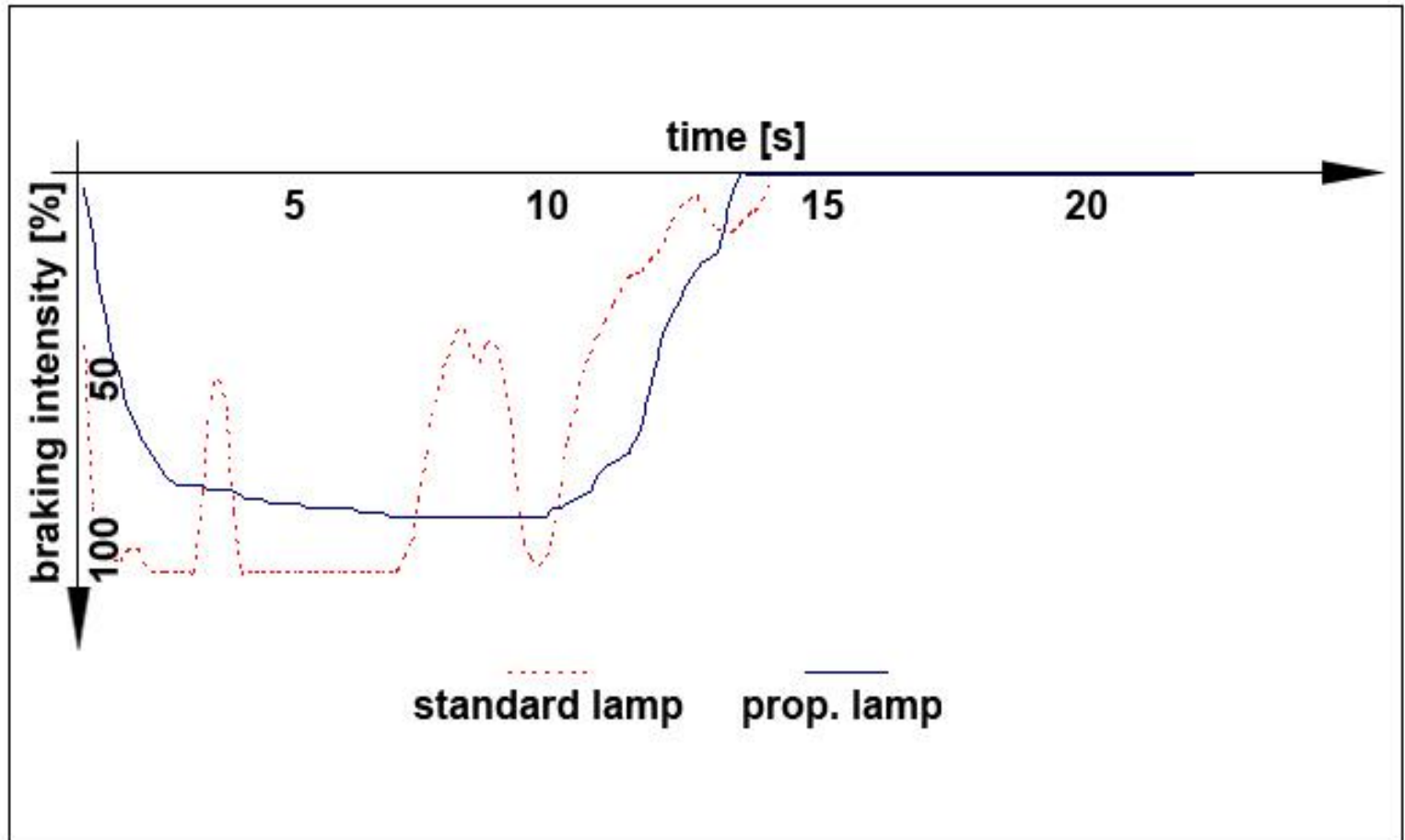
# Results



# Results



# Results



**Thank you for your attention!**

