# Fotodisociace Rg3+
## Role strukturních izomerů

**René Kalus**
**CE IT4I & KAM, FEI, VŠB-TU Ostrava**

# Osnova

**ČÁST I – ARGON**

1. Konfigurační prostor
2. Termodynamika
3. Absorpční spektrum
4. Fotodisociace

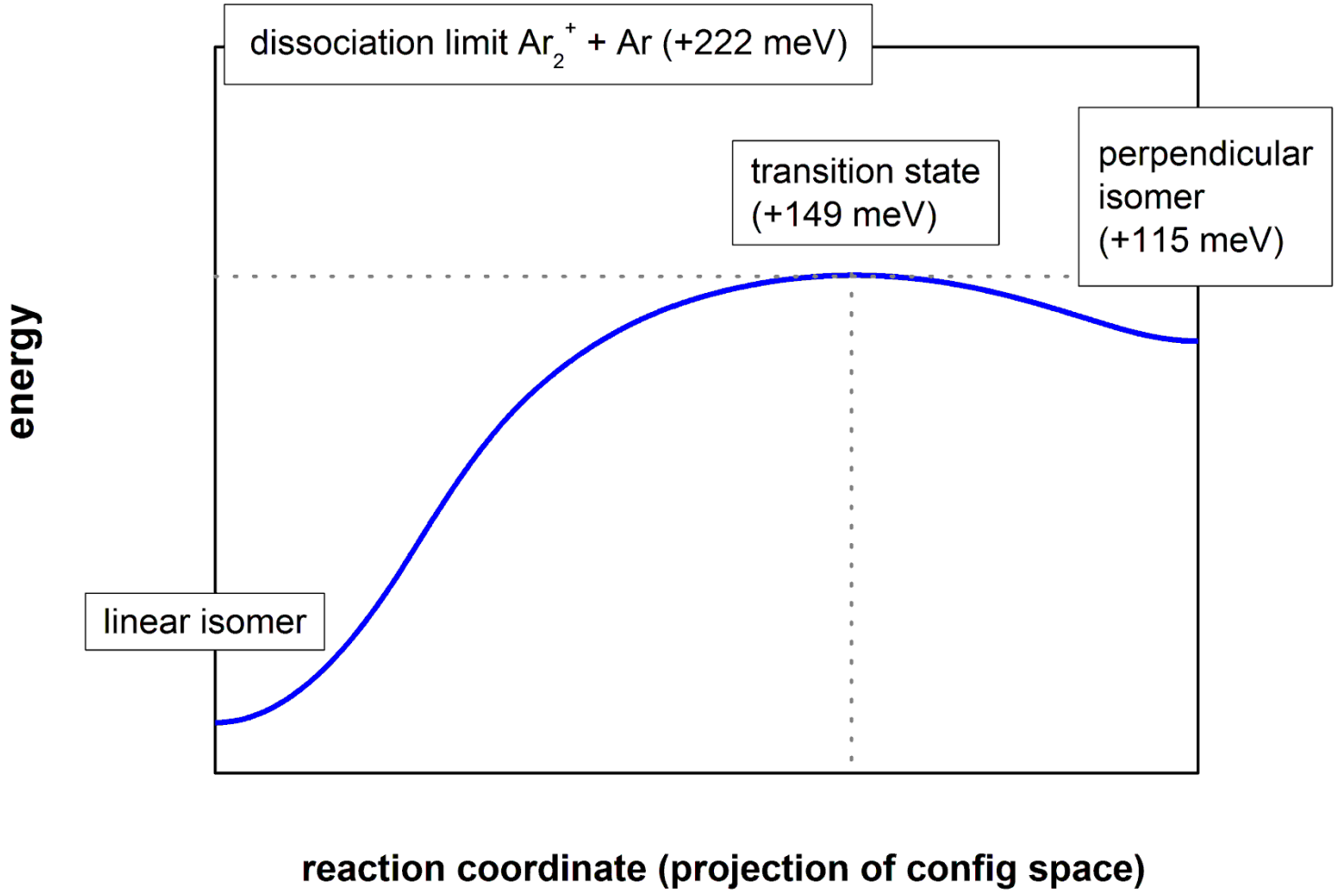
**ČÁST II – XENON**

5. Fotodisociace

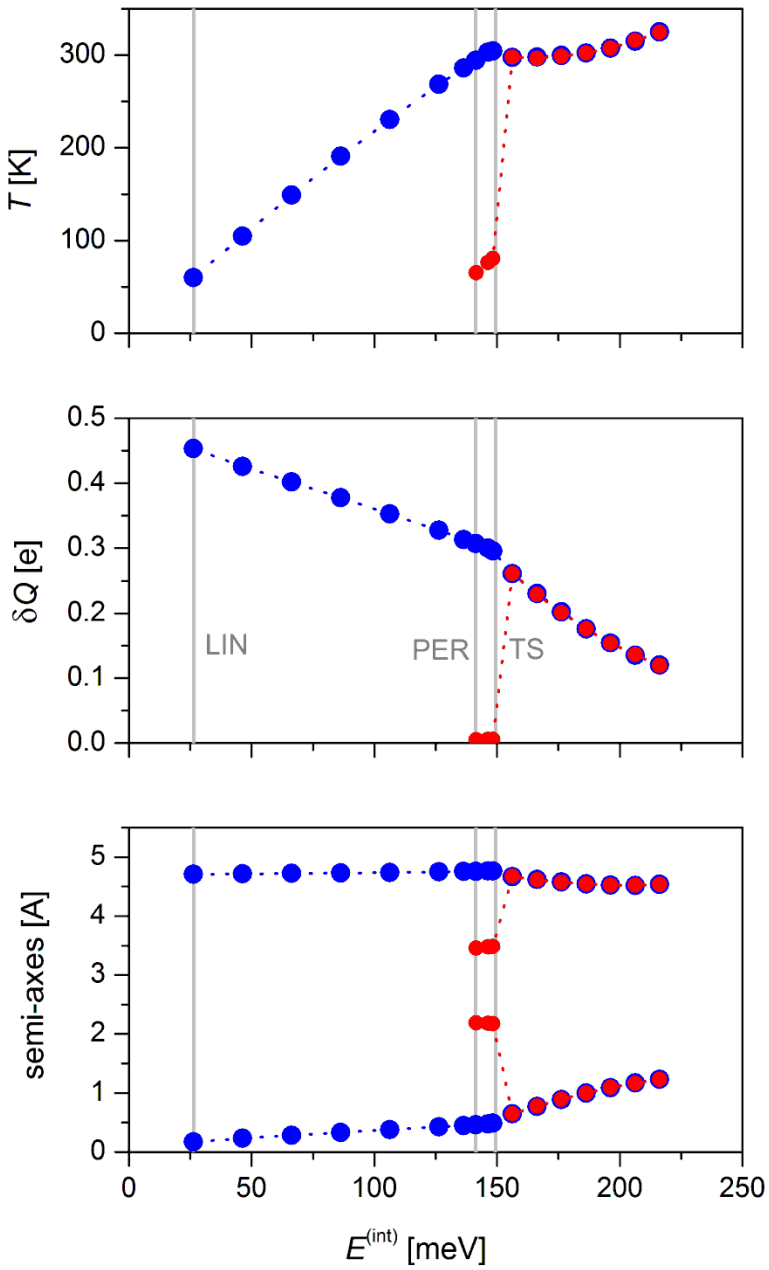
# Část I

# ARGON

# Konfigurační prostor



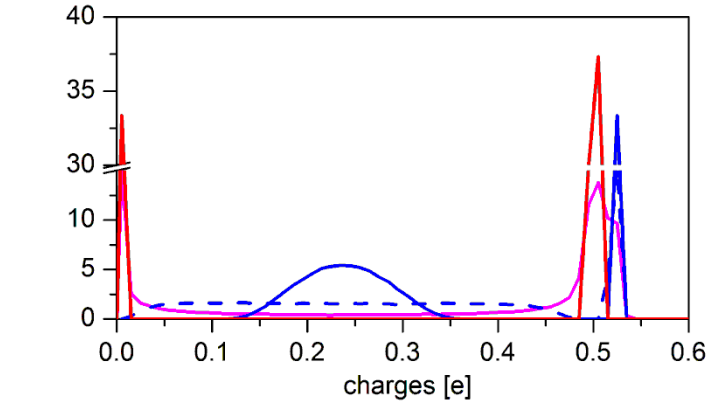
# Termodynamika

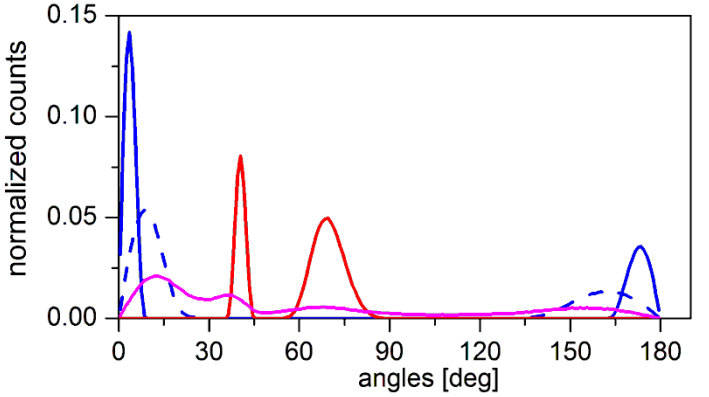


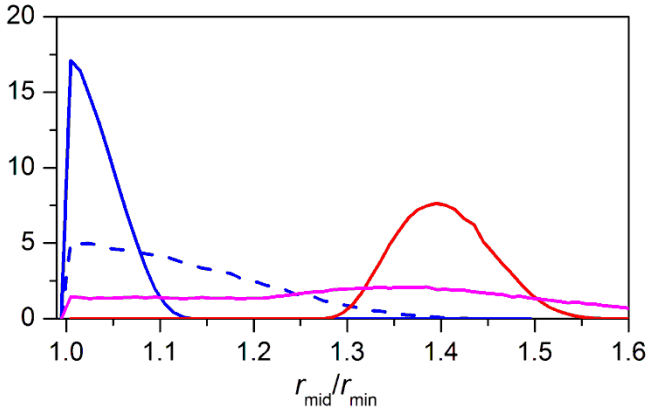

LIN
PER

$\delta Q = Q_1 - Q_2 + Q_3$

# Termodynamika

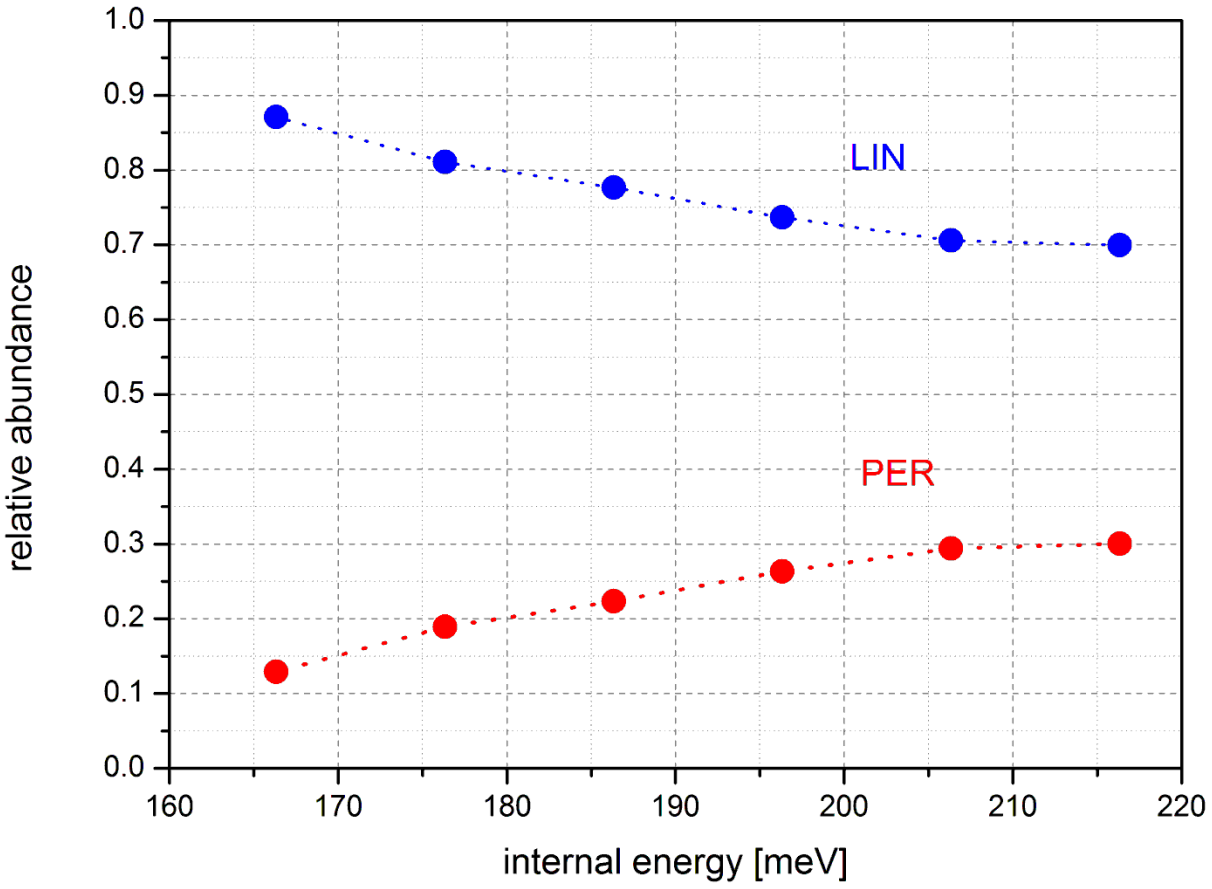


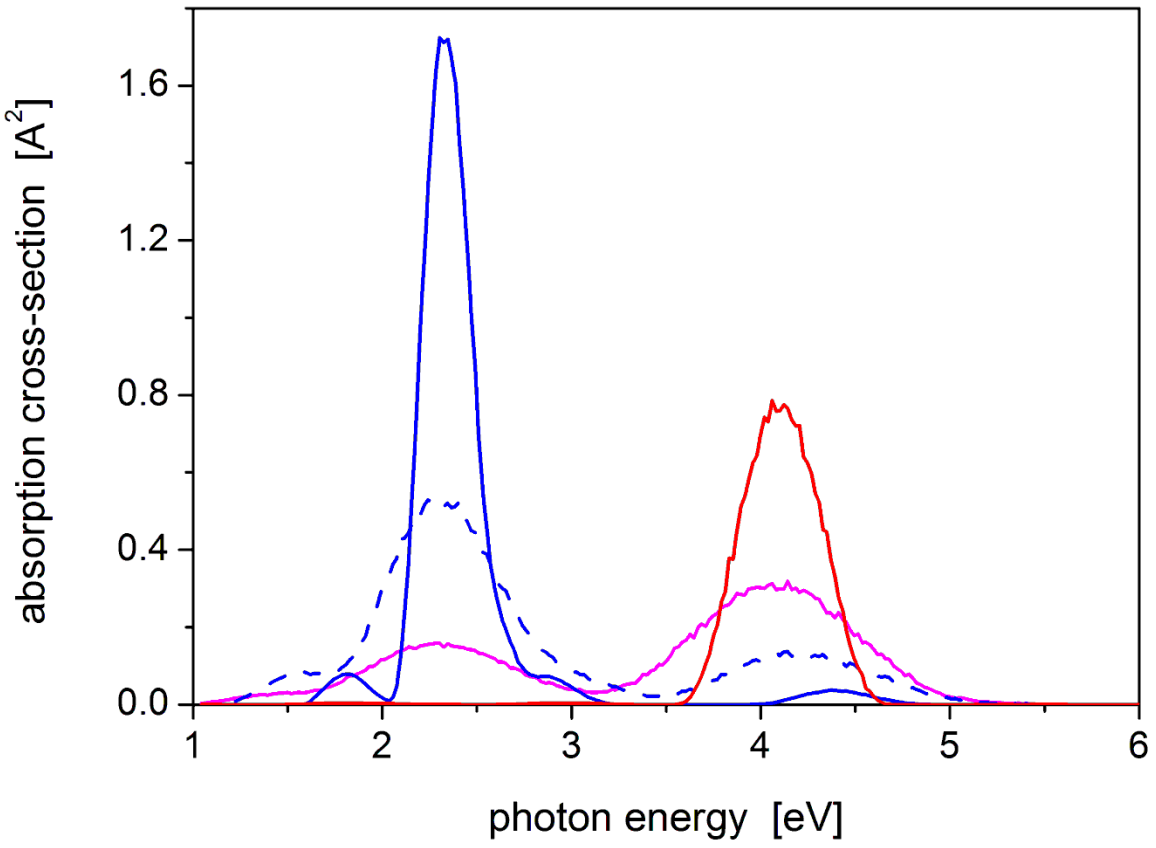




LIN / ZPE(LIN)
LIN / ZPE(PER)
PER / ZPE(PER)
MIX / DISS – 6 meV

# Termodynamika



# Absorpční spektrum




LIN / ZPE(LIN)
LIN / ZPE(PER)
PER / ZPE(PER)
MIX / DISS – 6 meV

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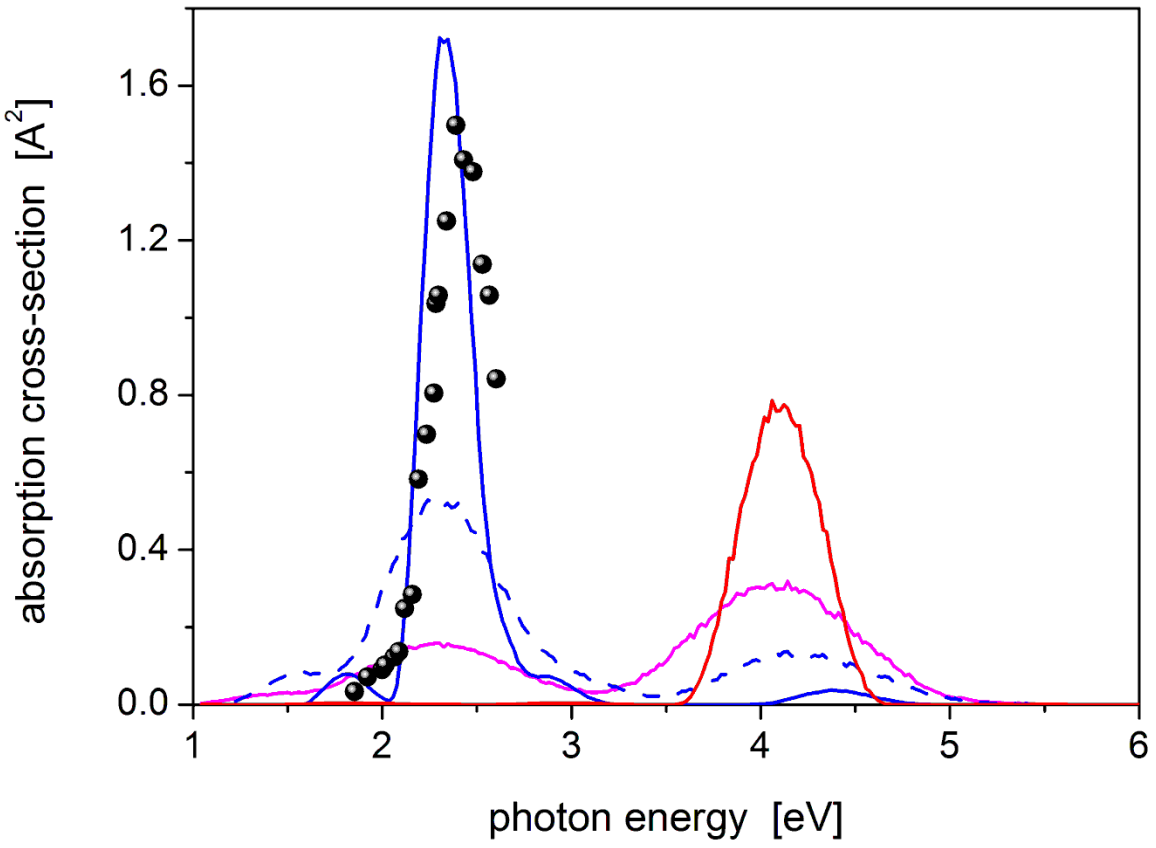


LIN / ZPE(LIN)
LIN / ZPE(PER)
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MIX / DISS – 6 meV

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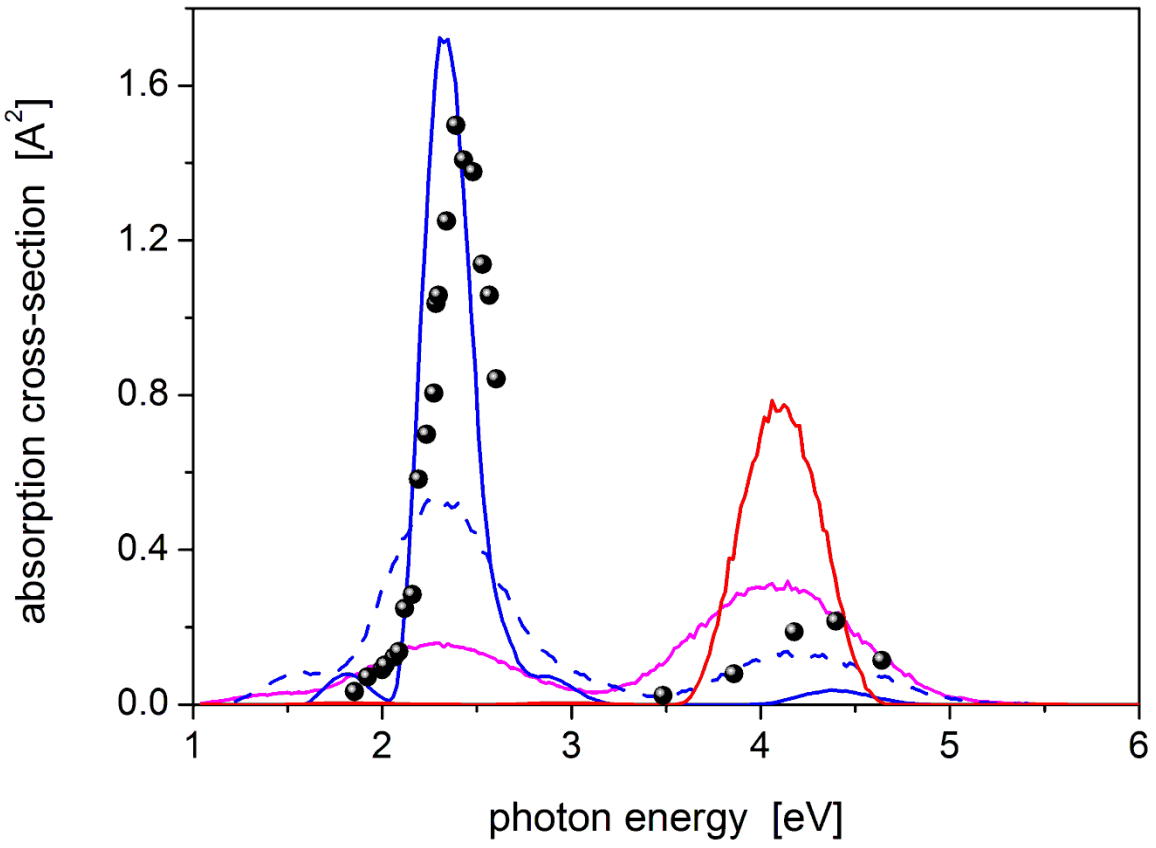


LIN / ZPE(LIN)
LIN / ZPE(PER)
PER / ZPE(PER)
MIX / DISS – 6 meV

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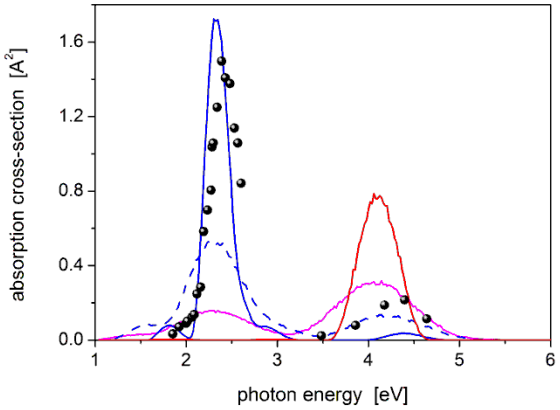
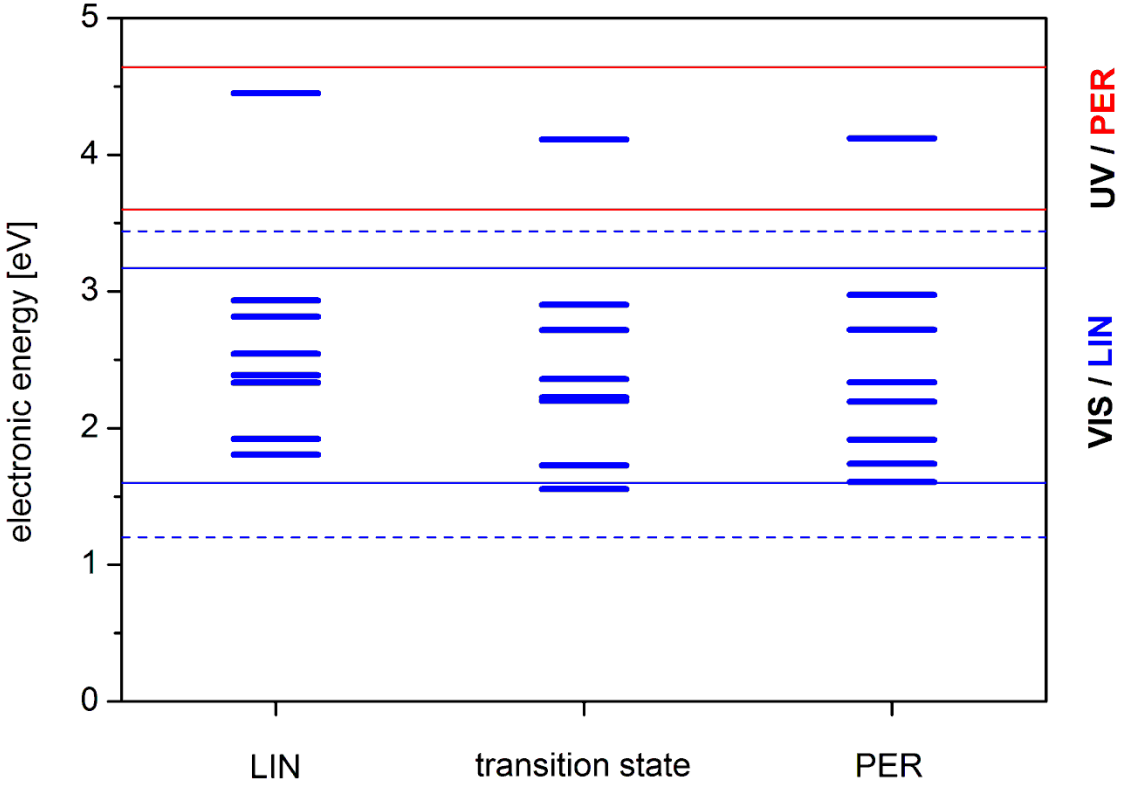


# Fotodisociace

**Proces(y)**

$$\begin{aligned} & Ar_2^+ + Ar \\ Ar_3^+ + h\nu \rightarrow\ & Ar^+ + Ar_2 \\ & Ar^+ + 2Ar \end{aligned}$$

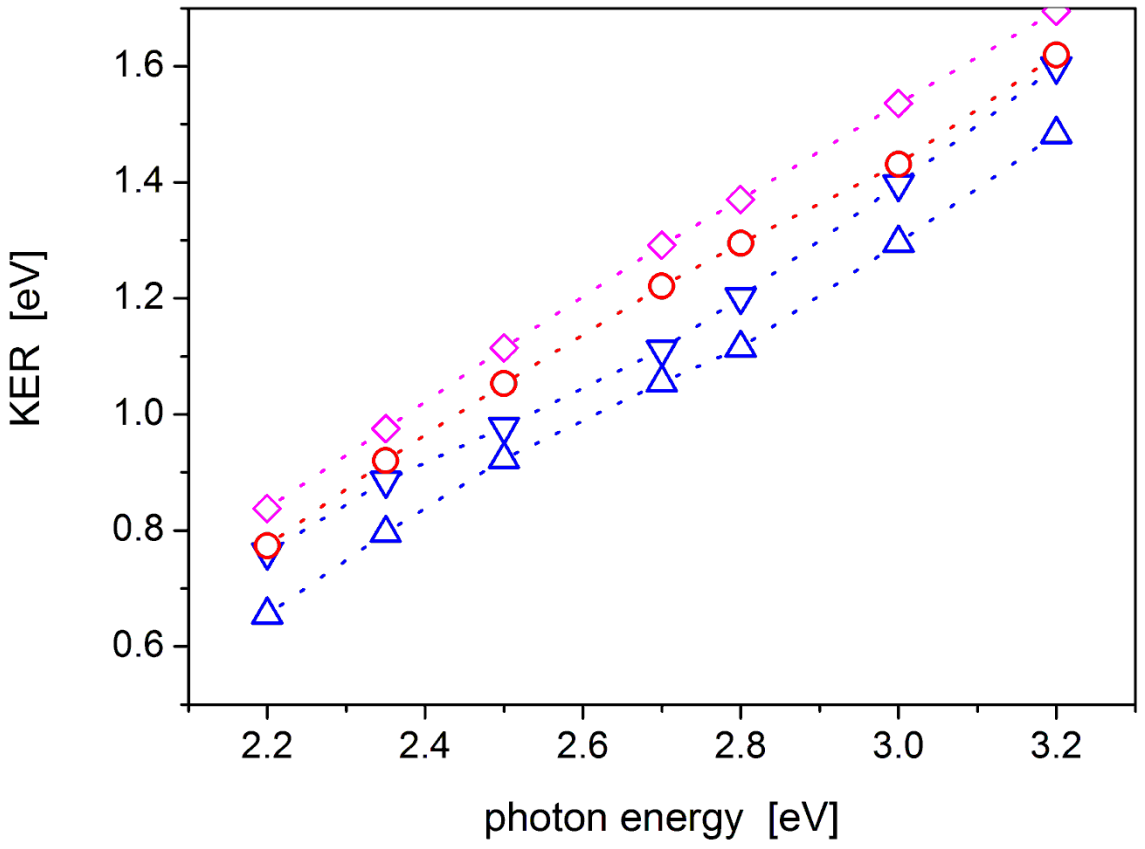
# Fotodisociace

**Proces(y)**

$$Ar_3^+ + h\nu \rightarrow \begin{cases} Ar_2^+ + Ar \\ Ar^+ + Ar_2 \\ Ar^+ + 2Ar \end{cases} \begin{cases} \nearrow\ Ar^+(P_{3/2}) + 2Ar \\ \searrow\ Ar^+(P_{1/2}) + 2Ar \end{cases}$$

# Fotodisociace

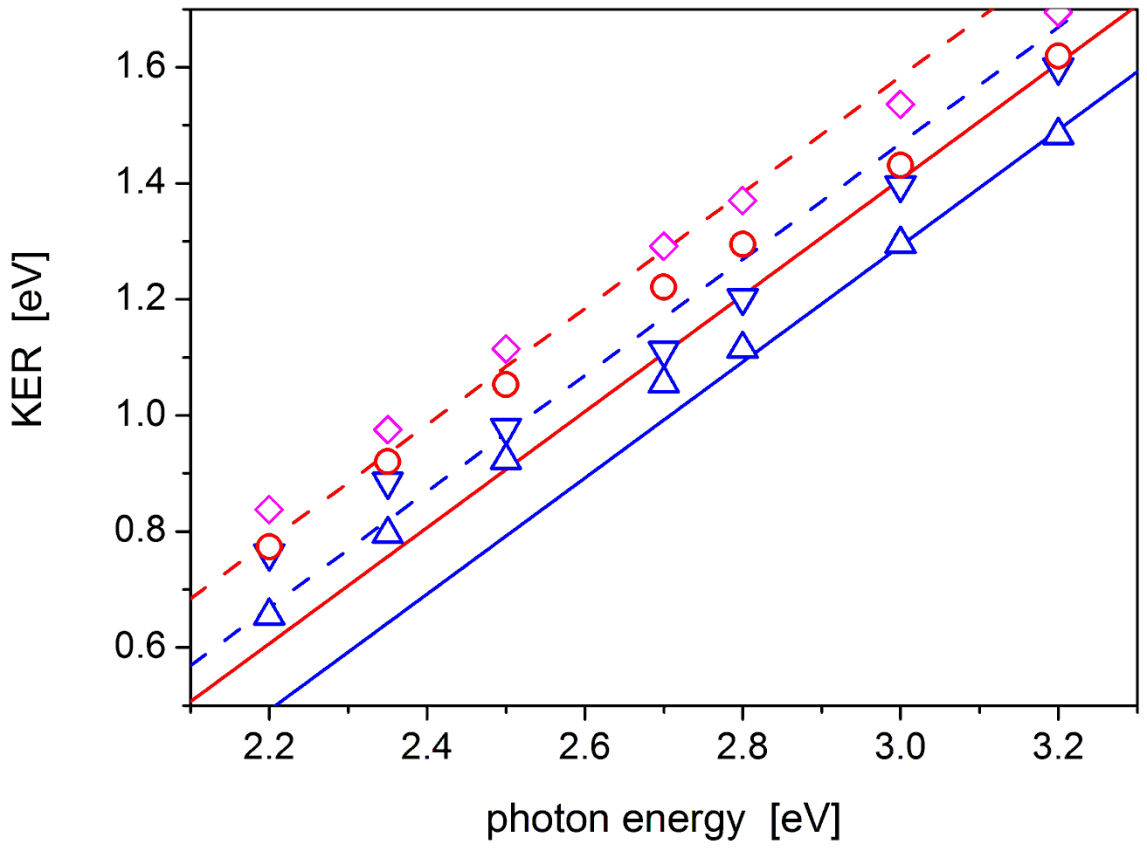
## KER (Kinetic Energy Release)




△ LIN / ZPE(LIN)
▽ LIN / ZPE(PER)
○ PER / ZPE(PER)
◇ MIX / DISS – 6 meV

# Fotodisociace

## KER (Kinetic Energy Release)




△ LIN / ZPE(LIN)
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# Fotodisociace

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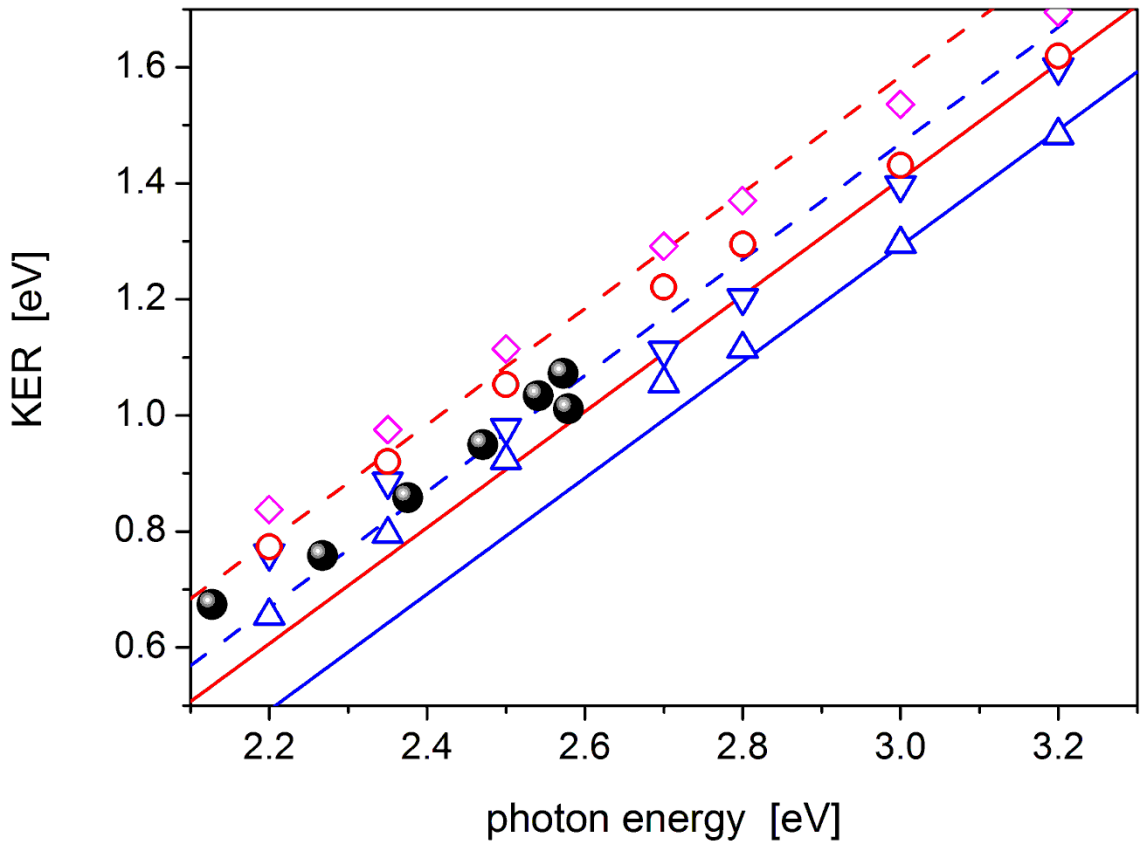


△ LIN / ZPE(LIN)
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# Fotodisociace

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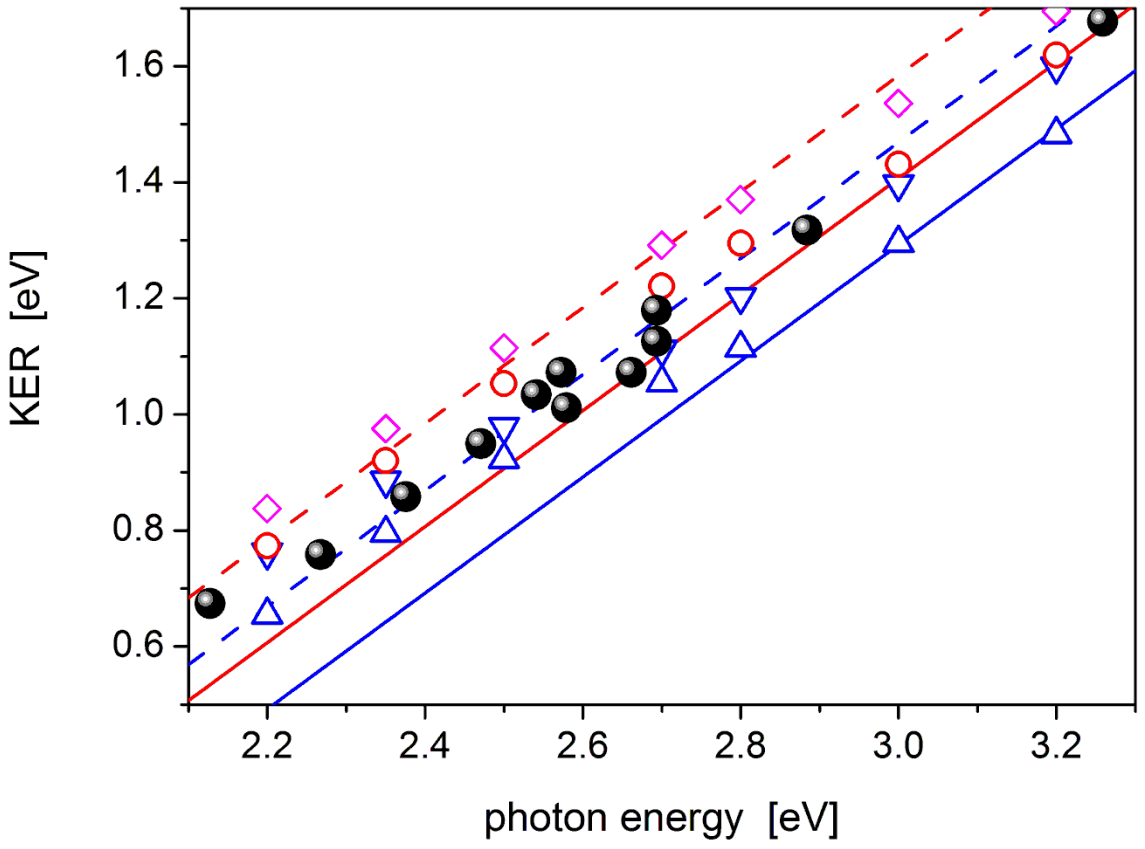
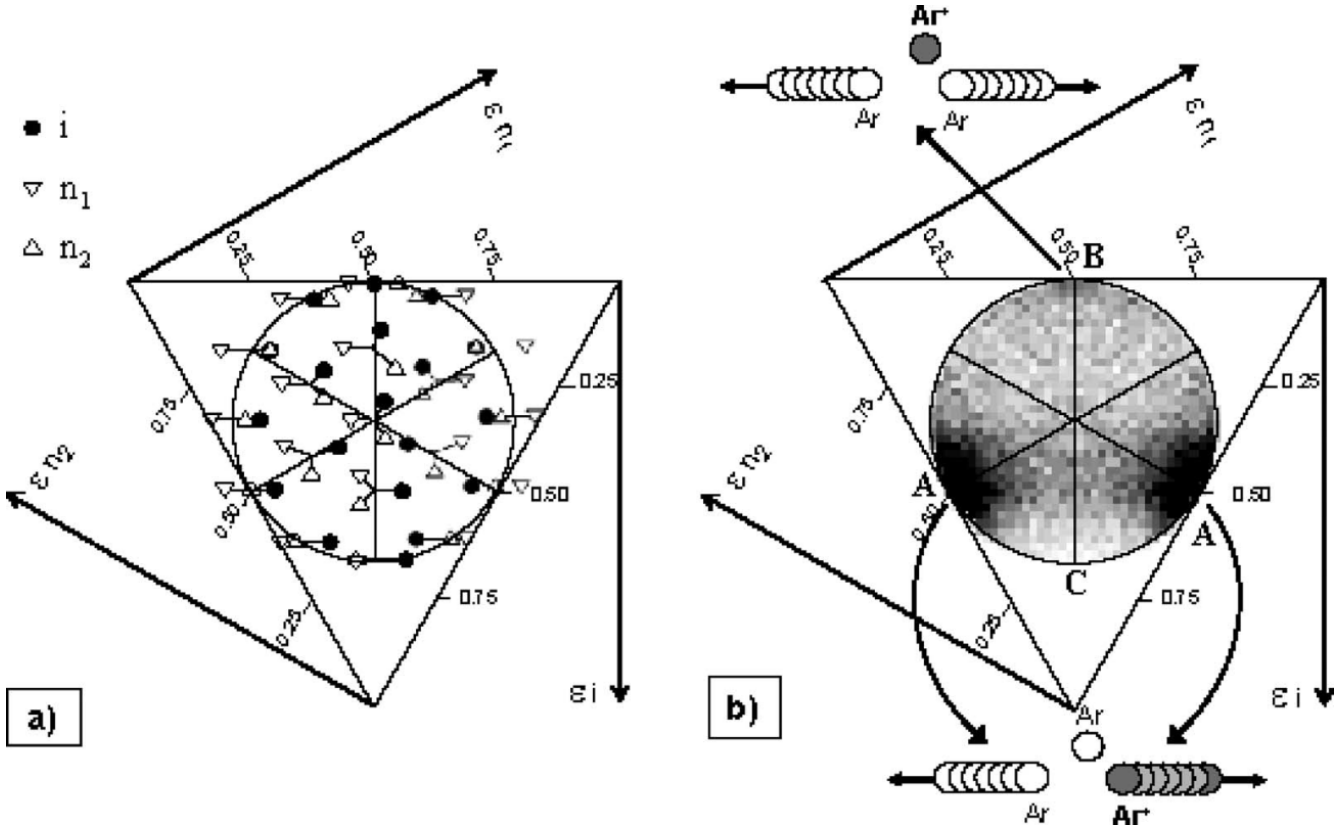



△ LIN / ZPE(LIN)
▽ LIN / ZPE(PER)
○ PER / ZPE(PER)
◇ MIX / DISS – 6 meV

# Fotodisociace

## Dalitzovy diagramy

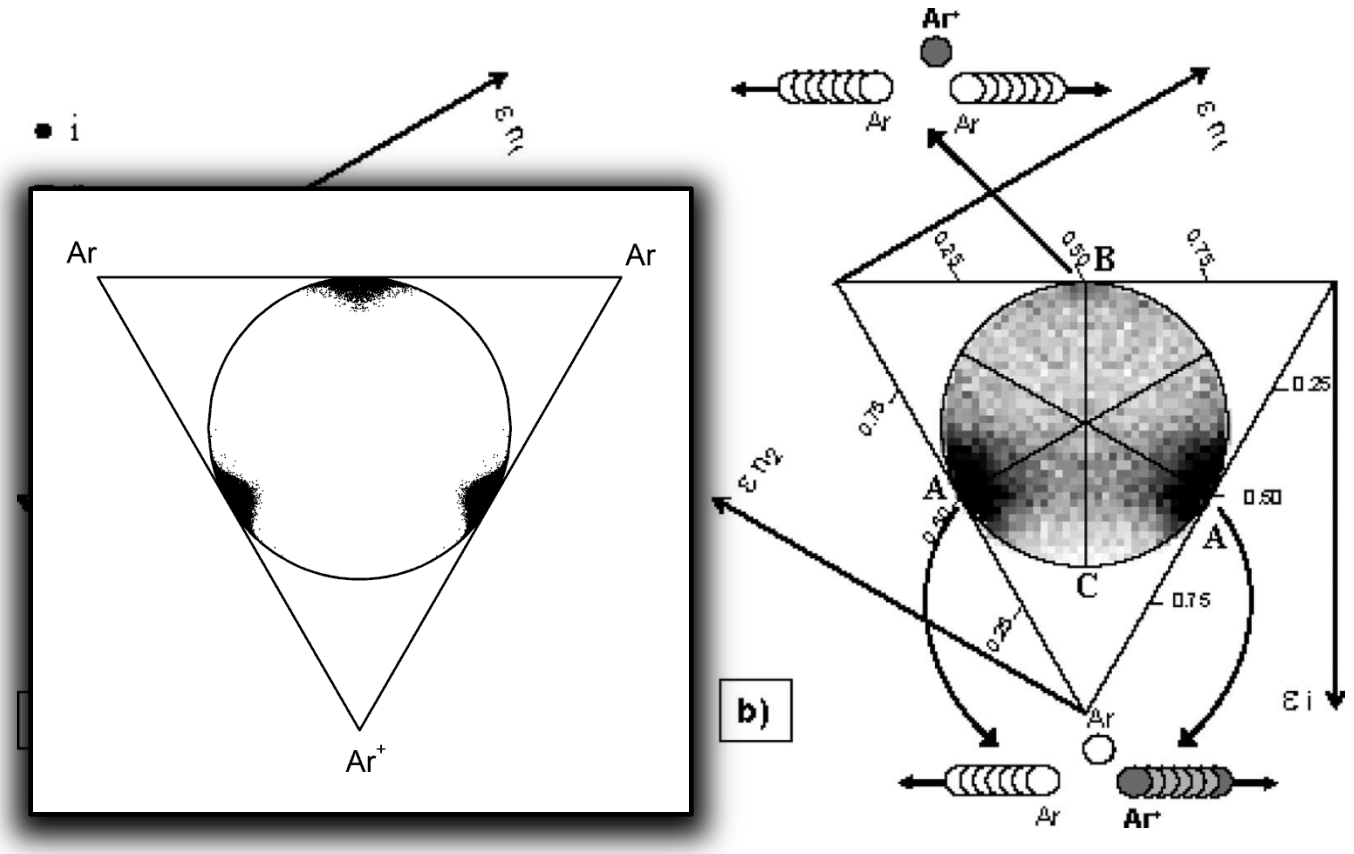



Experiment, $E_{fot}$ = 2,35 eV: JCP 130 (2009) 194301, Lepère et al.

# Fotodisociace

## Dalitzovy diagramy

**LIN / ZPE(LIN)**

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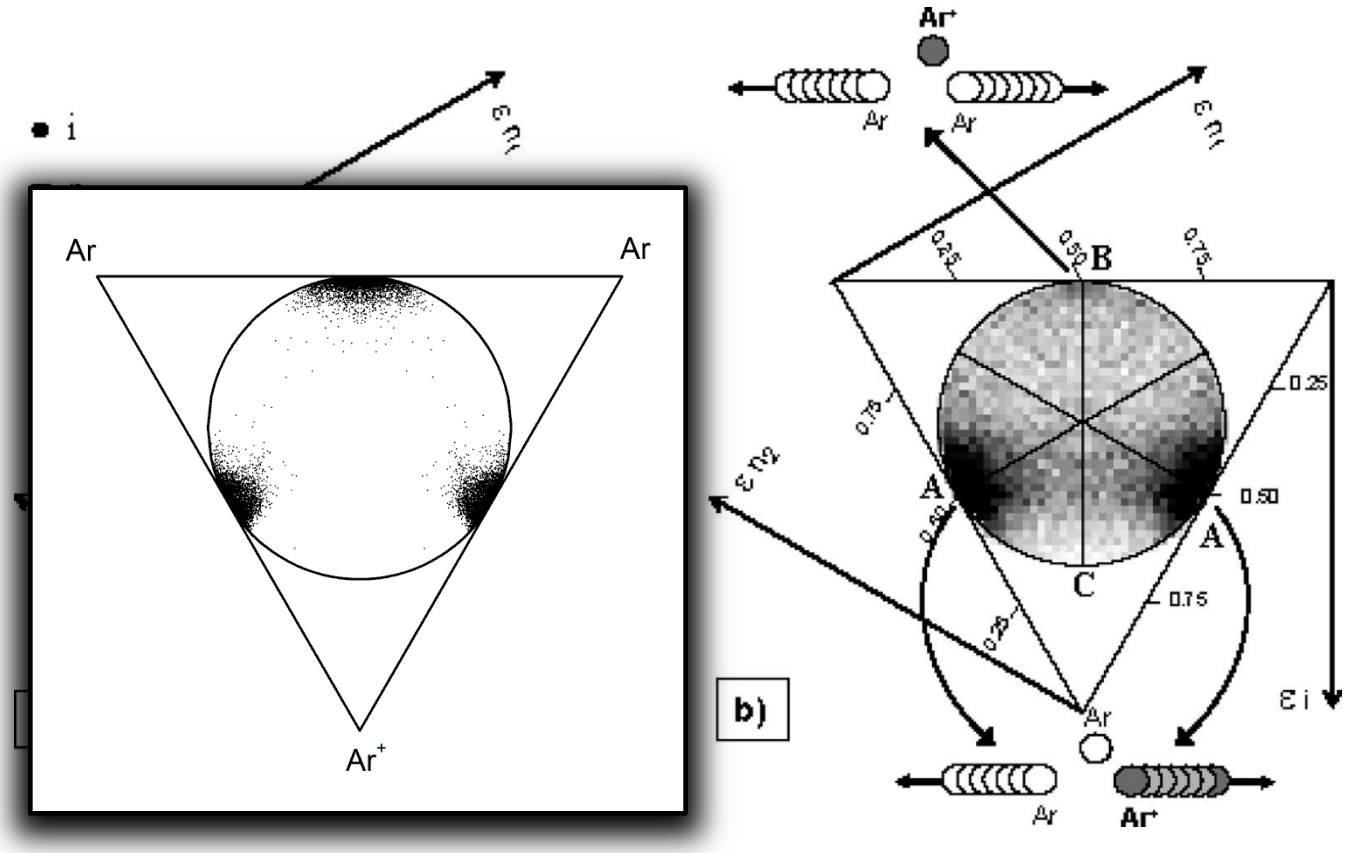
# Fotodisociace

## Dalitzovy diagramy

PER / ZPE(PER)

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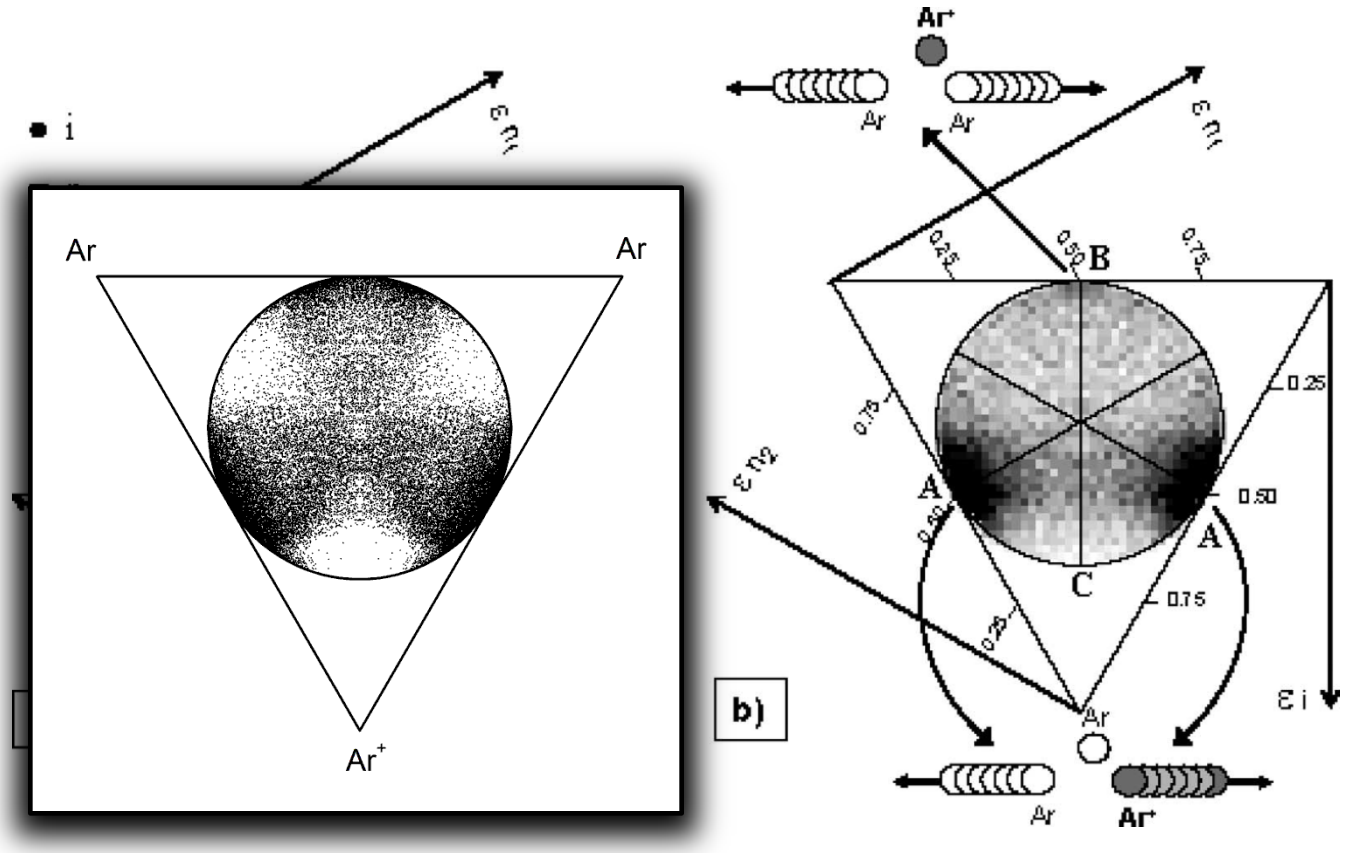
# Fotodisociace

## Dalitzovy diagramy

LIN / ZPE(PER)

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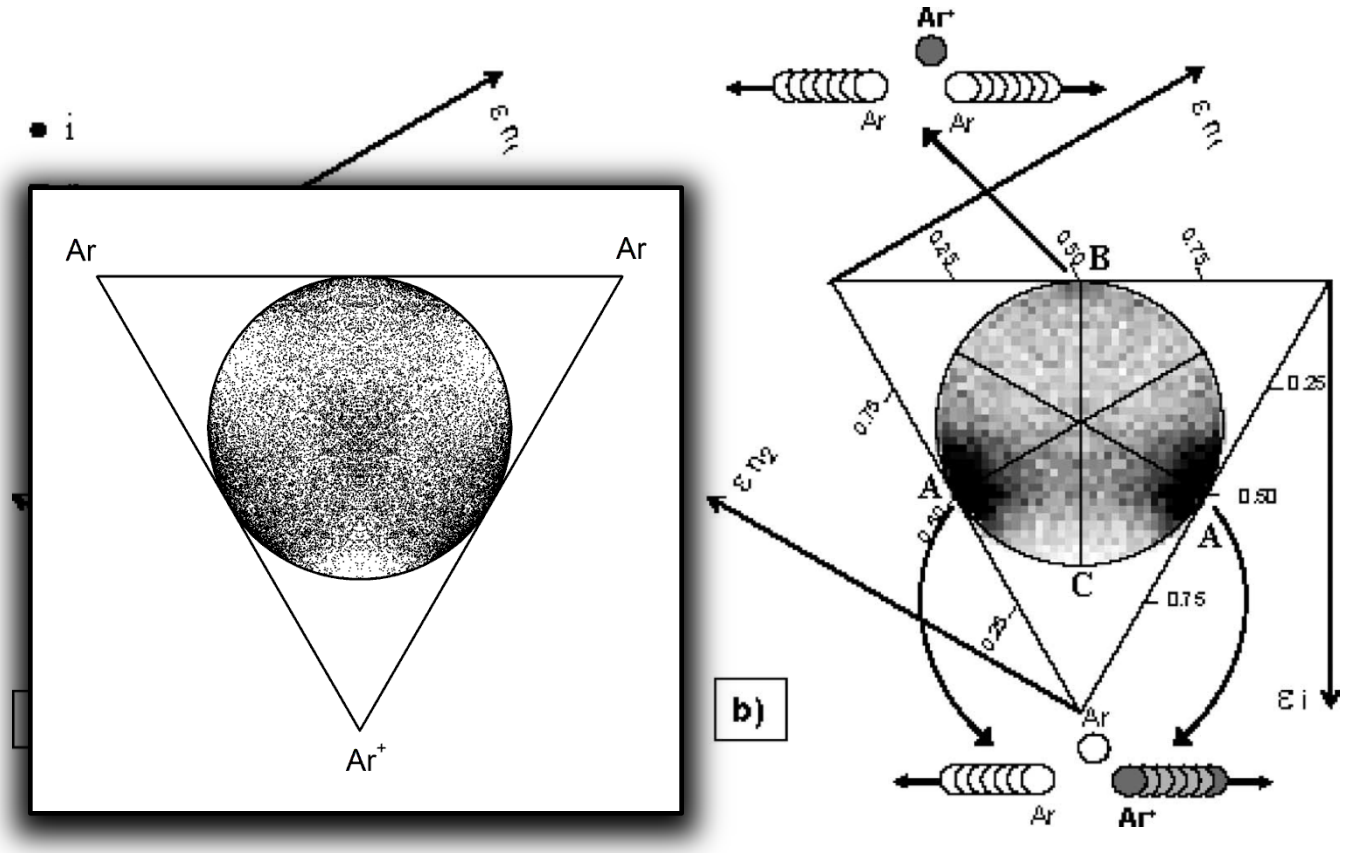
# Fotodisociace

## Dalitzovy diagramy

MIX / DISS – 6 meV

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# Část II
# XENON

# Fotodisociace

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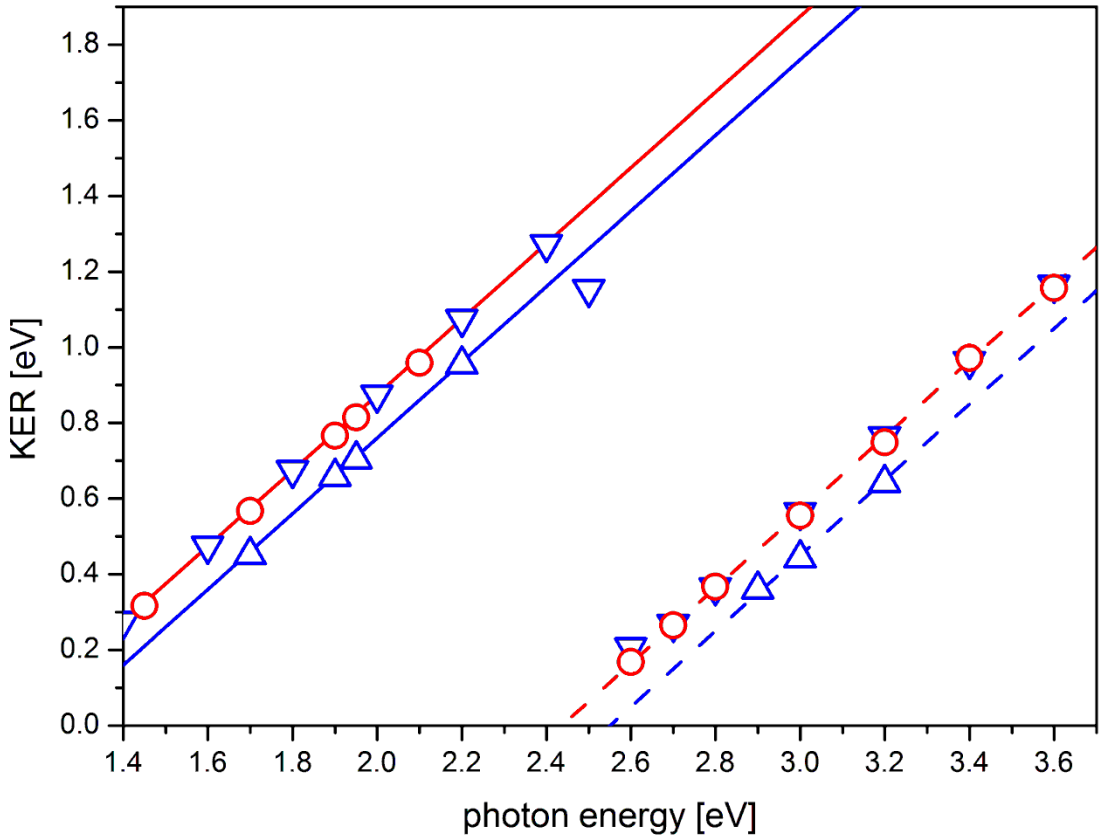


△ LIN / ZPE(LIN)
▽ LIN / ZPE(PER)
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# Fotodisociace

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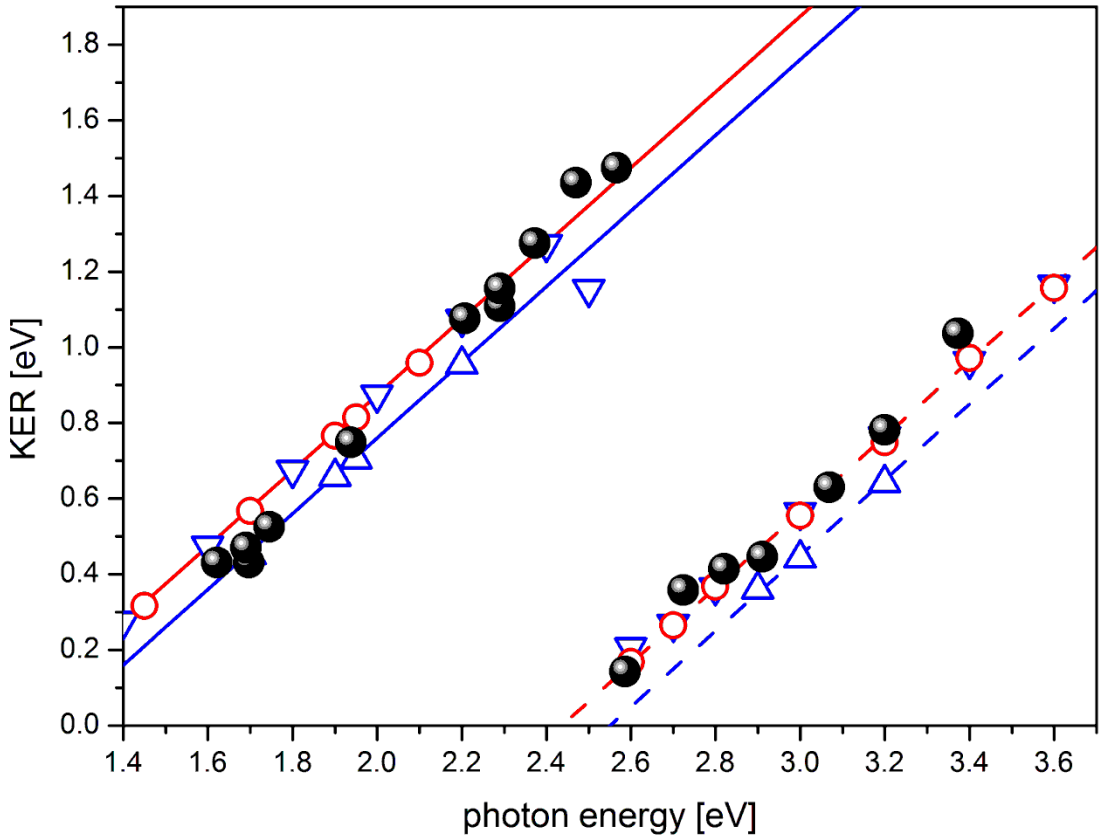


△ LIN / ZPE(LIN)
▽ LIN / ZPE(PER)
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# Fotodisociace

## Metastabilní fragmenty

isomer LIN / ZPE(PEN)

$$Xe_3^+ + h\nu \rightarrow \begin{cases} Xe_2^+ + Xe \\ Xe^+ + Xe_2 \\ Xe^+ + 2Xe \end{cases}$$

# Fotodisociace

## Metastabilní fragmenty

isomer LIN / ZPE(PEN)

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# Fotodisociace

## Metastabilní fragmenty

isomer LIN / ZPE(PEN)

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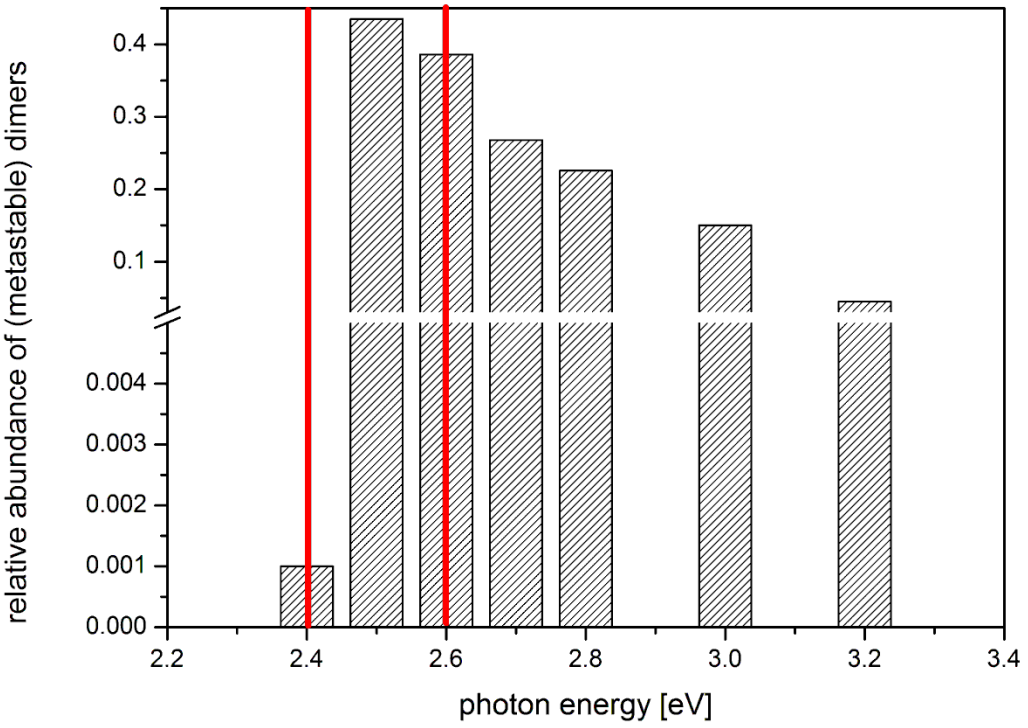

# Konec ...