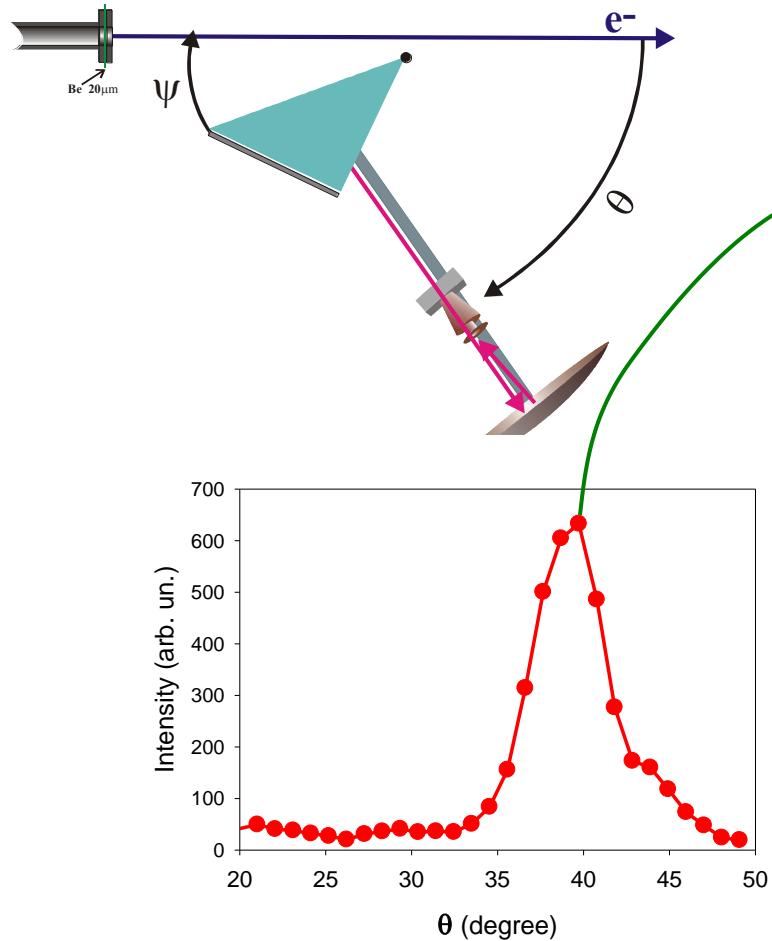


# Polarization Radiation in a Teflon Target

G. Naumenko, A. Potylitsyn, M. Shevelev, A. Konkov, V. Bleko, V Soboleva

*Tomsk Polytechnic University, Tomsk, Russia*

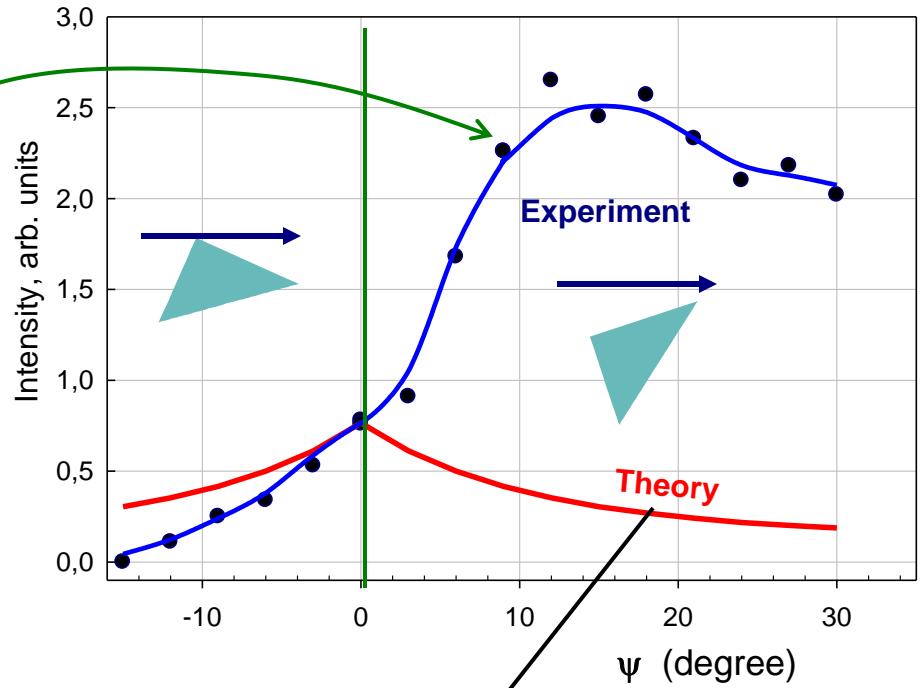
## Cherenkov Radiation



Channeling 2012

$$\gamma = 12$$
$$\lambda \approx 15\ mm$$

Peak intensity



Why is so large discrepancy?

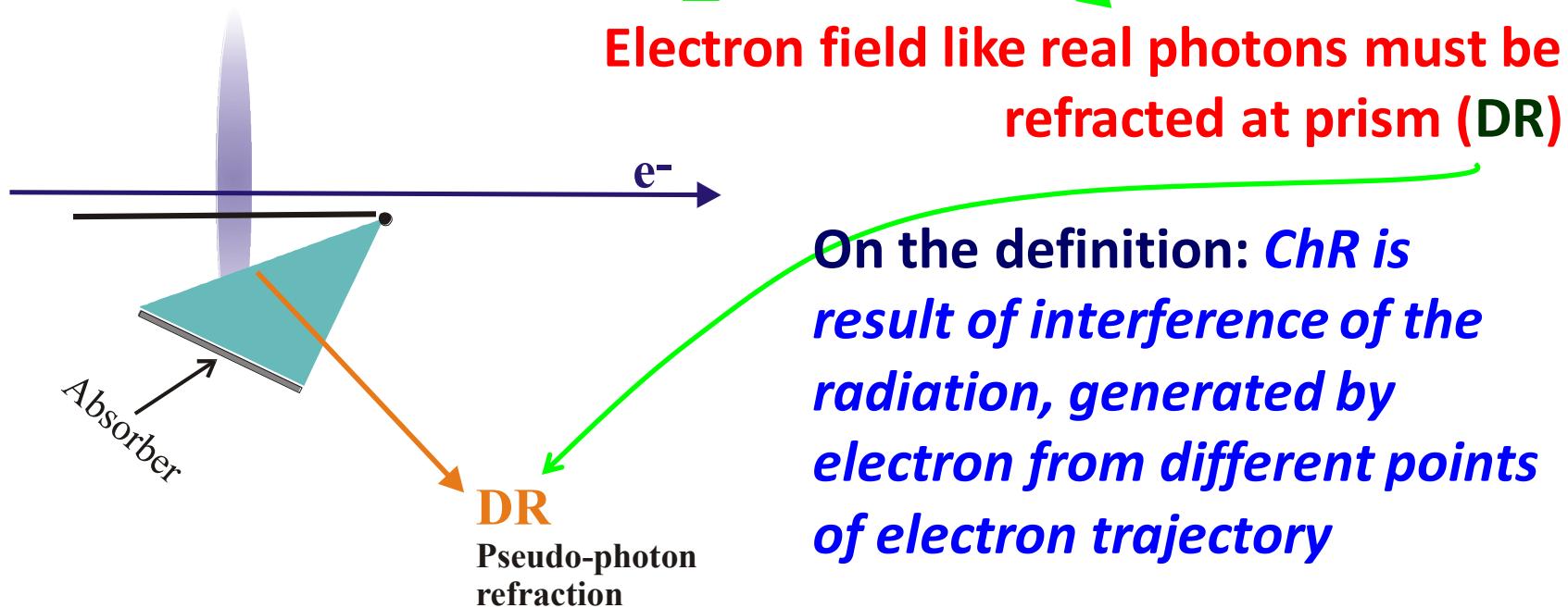
D.V. Karlovets and A.P. Potylitsyn, JETP Lett. **90** 5 (2009), 326-331

# Experimental analysis 2013

## Pseudo-photon view-point:

Electron field:  $|E_{\parallel}| \ll \frac{1}{\gamma} |E_{\perp}|$

If  $\gamma \gg 1 \rightarrow v \approx c$ ,  $|E_{\parallel}| \ll |E_{\perp}|$  → Electron field is almost transversal

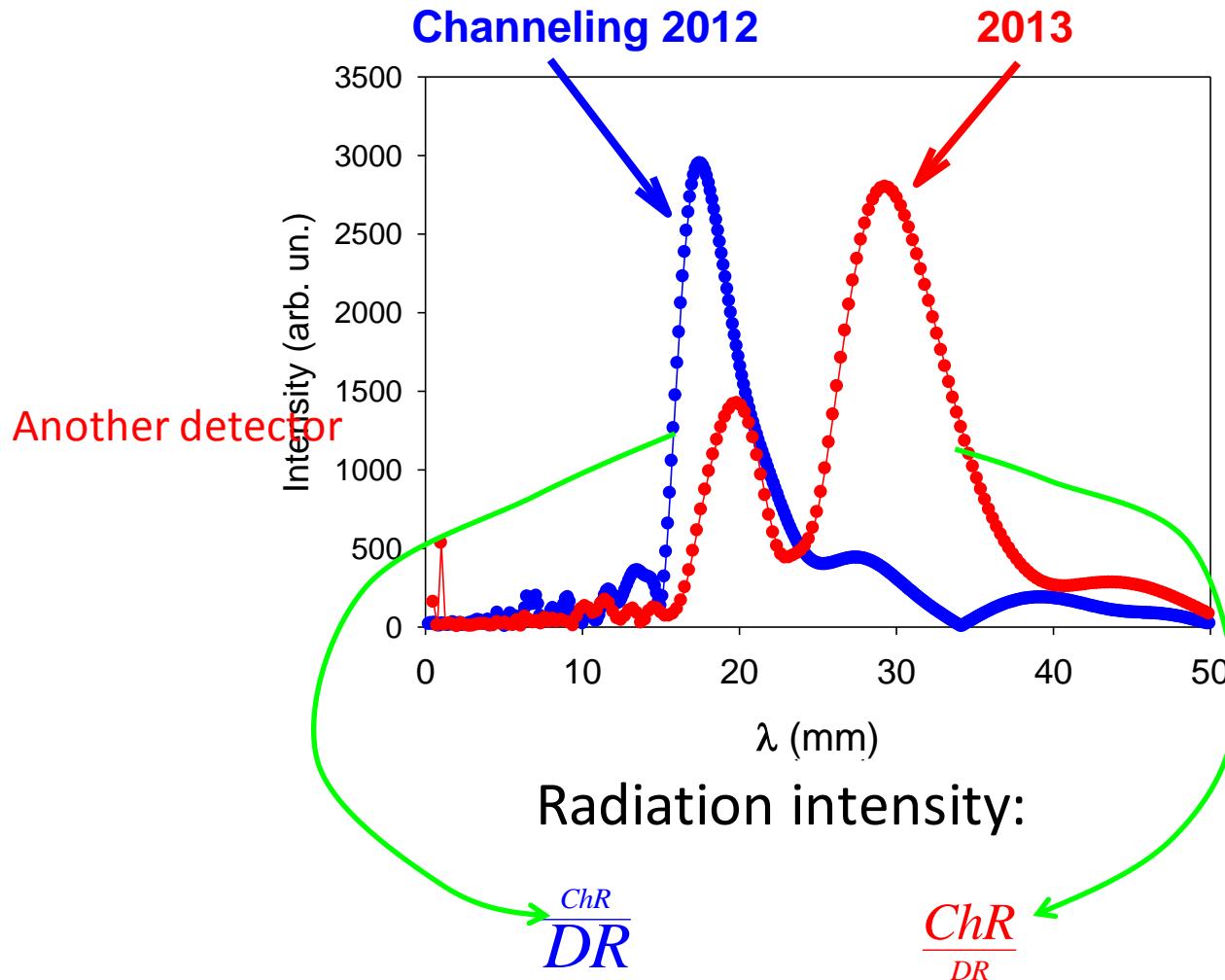


On the definition: *ChR is result of interference of the radiation, generated by electron from different points of electron trajectory*

Only DR is expected to be observed

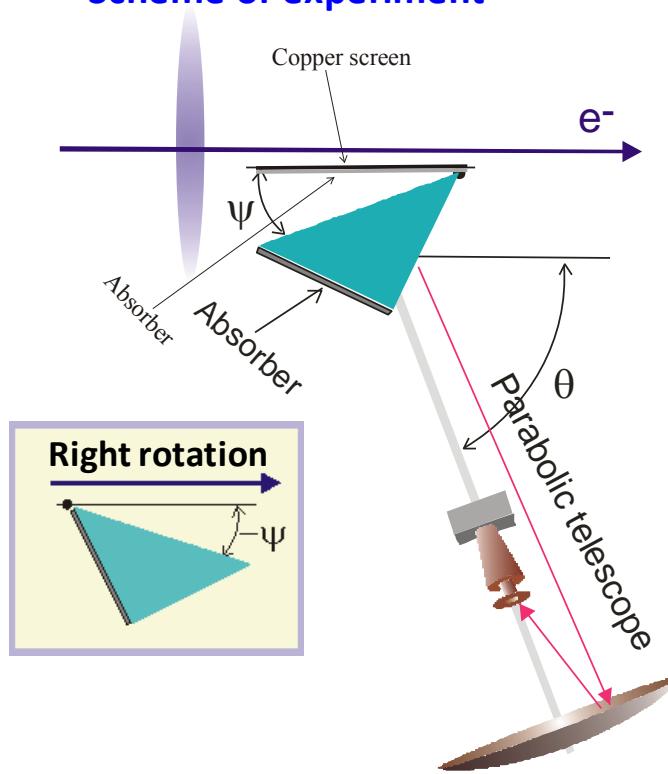
Now we shift the spectral region

### Spectrum of pseudo-photons of electron bunches



# Experiment

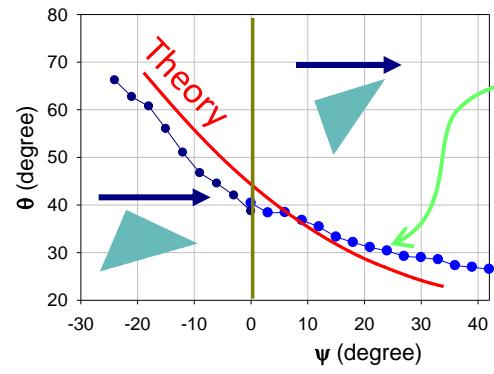
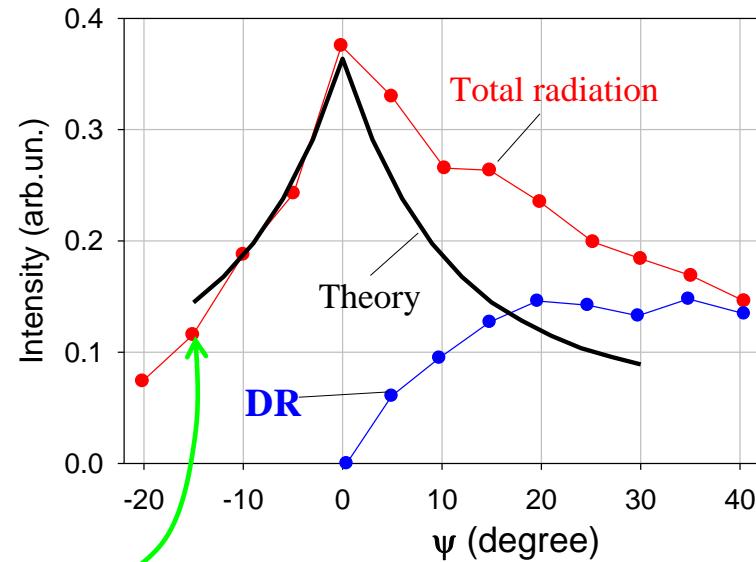
## Scheme of experiment



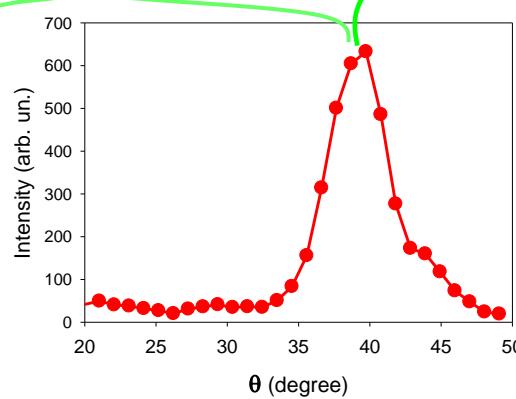
$$\gamma = 12$$

$$\lambda \approx 30 \text{ mm}$$

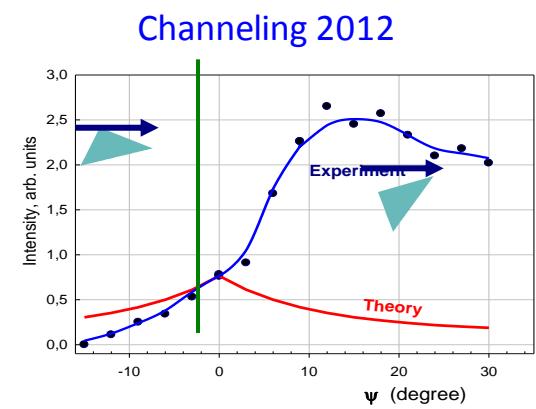
## Peak intensity



## Peak position



## Angular dependence

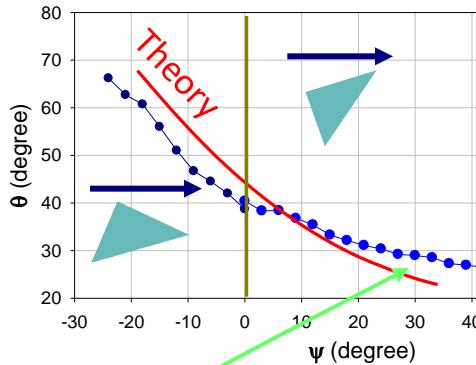


## Channeling 2012

# Discussion

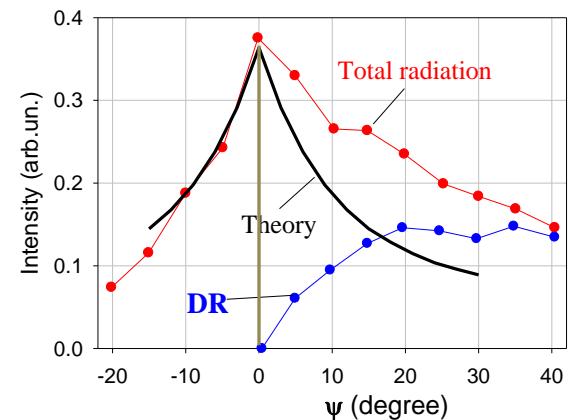
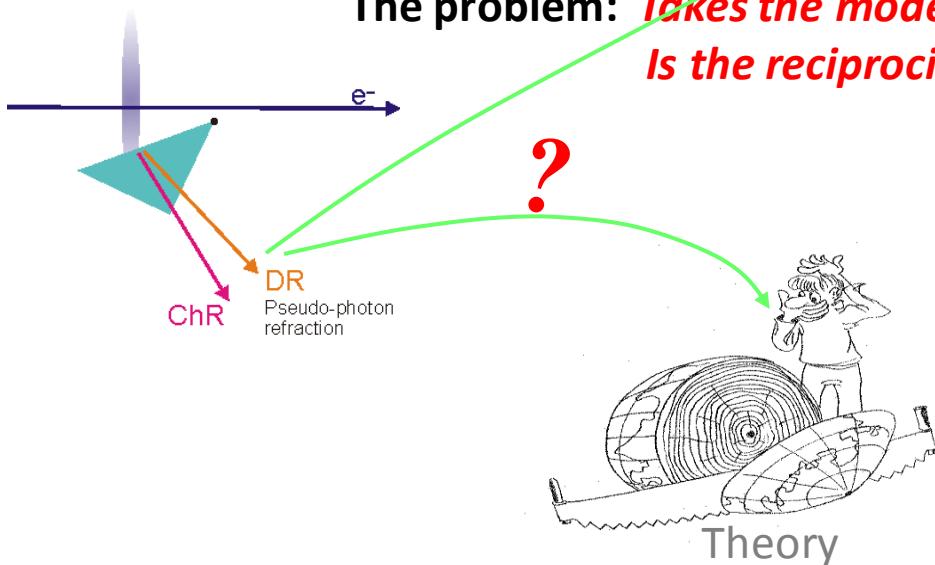
## Peak position

A small discrepancy



## Peak intensity

The problem: *Takes the model into account whether DR?*  
*Is the reciprocity theorem applicable in this model?*



**Thank you for attention**



TR from output window ( $r=20\text{mm}$ ) in comparison with electron field at the distance 300 mm.  $h$  is impact-parameter

