Comment to crystal collimation data from colliders

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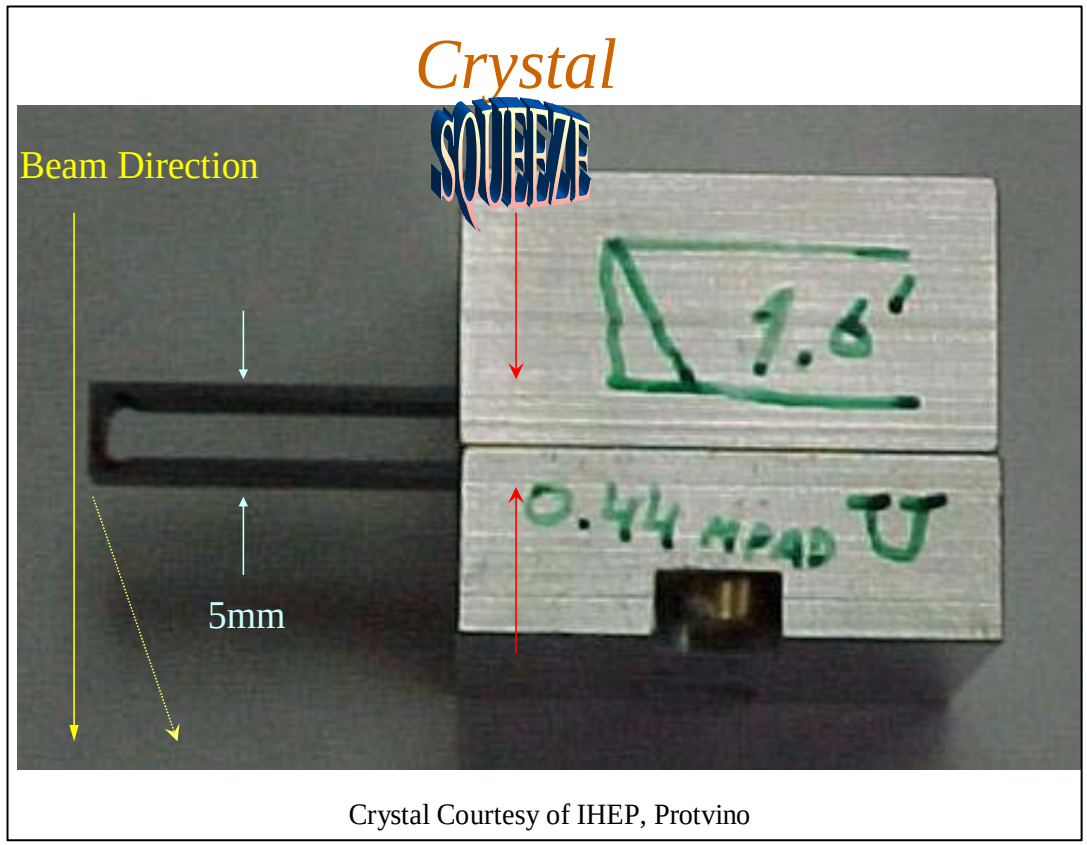
Slide taken from report to EPAC02 (Paris, France) on Crystal Collimation at RHIC

Made in PNPI (1999)

Used for experiments on Crystal Collimation at RHIC (2001-2003) and Tevatron (2005)

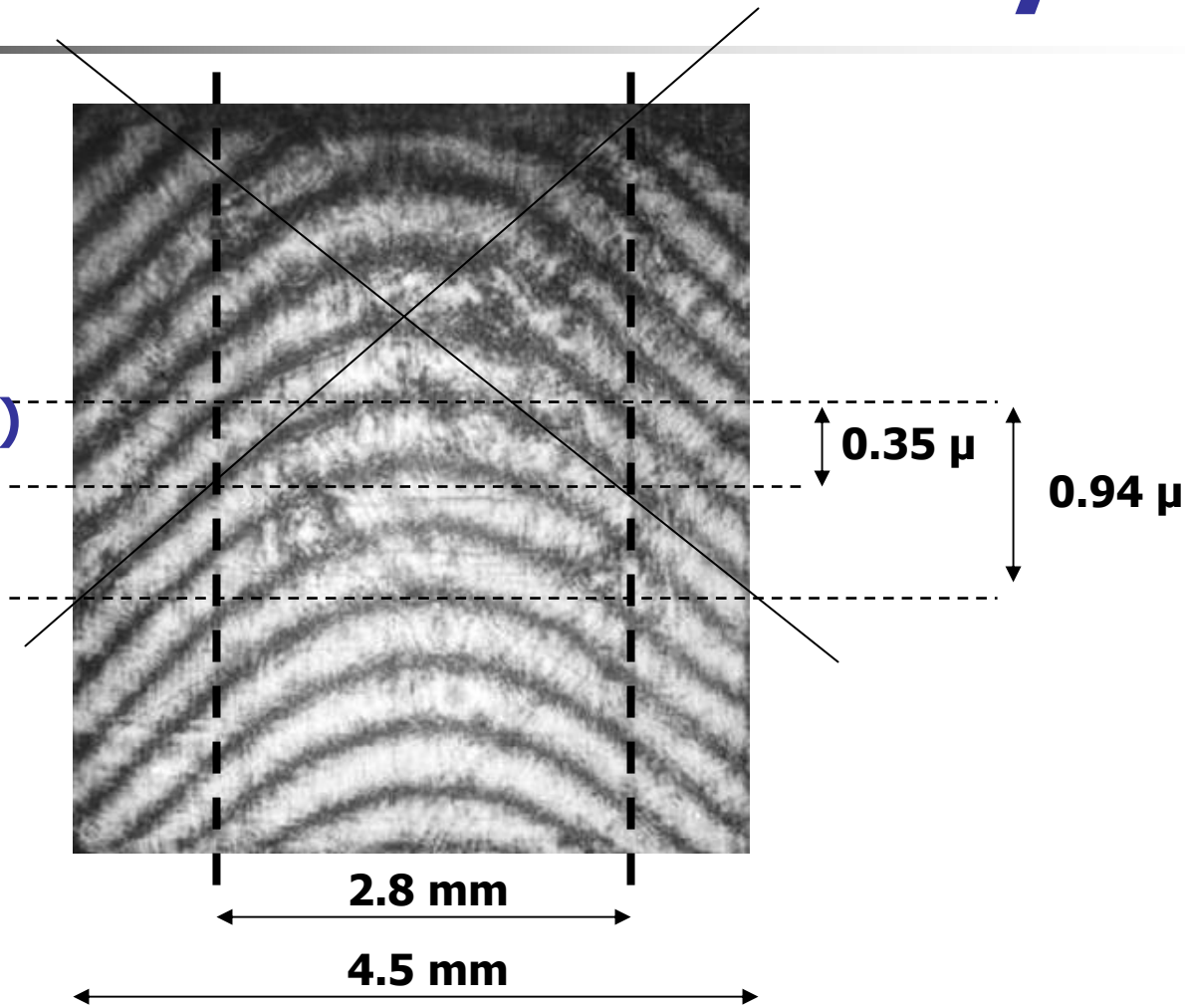


Crystal Courtesy of IHEP, Protvino

Typical interference pattern from bent face of the crystal

Bending = 1 mrad

(8 x 0.35 / 2.8 = 1)



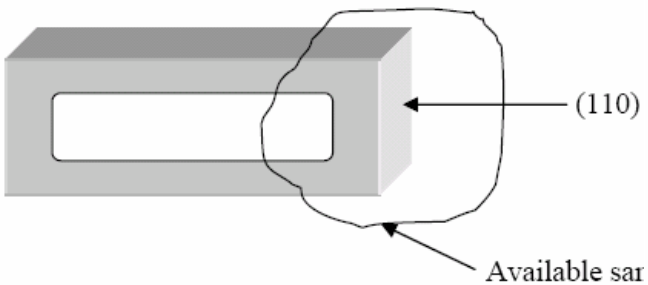
RBS measurements at LNL (A.Vomiero, V.Guidi)

Sample produced in 2003

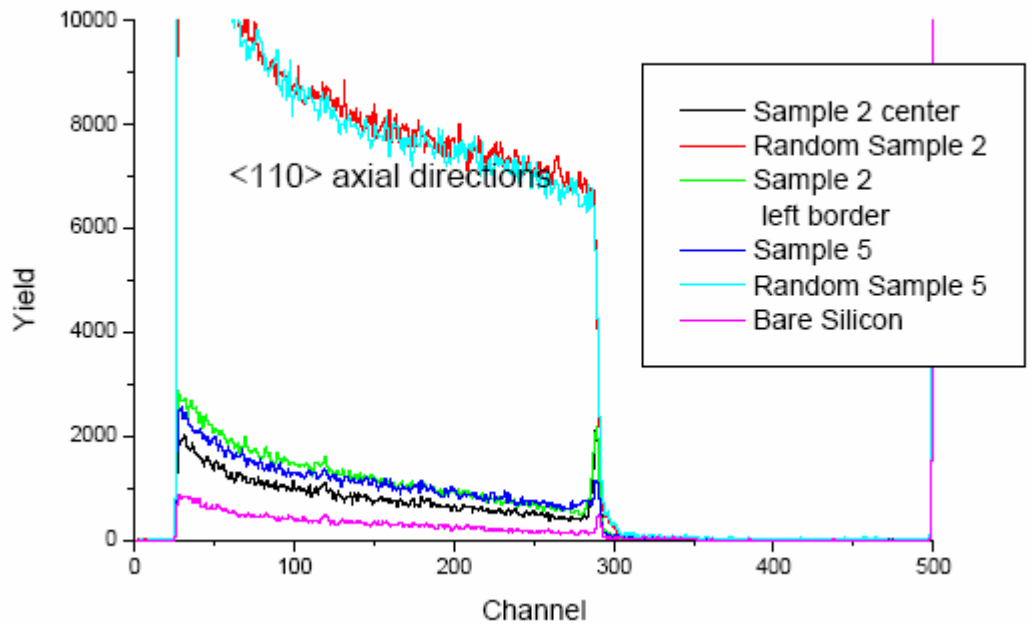
Sample 2 ("O-shaped")

Sample produced in 1999

Sample 5 (fragment from old "O-shaped")



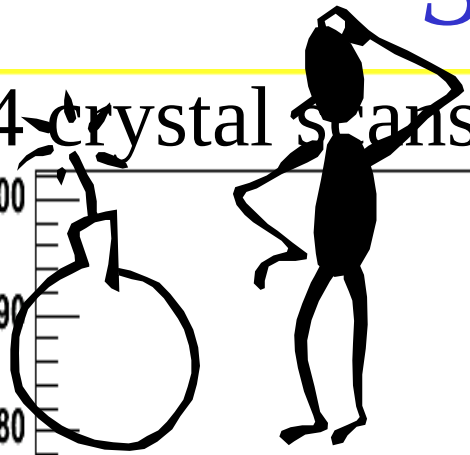
O-crystals should channel high energy protons practically starting from the very surface

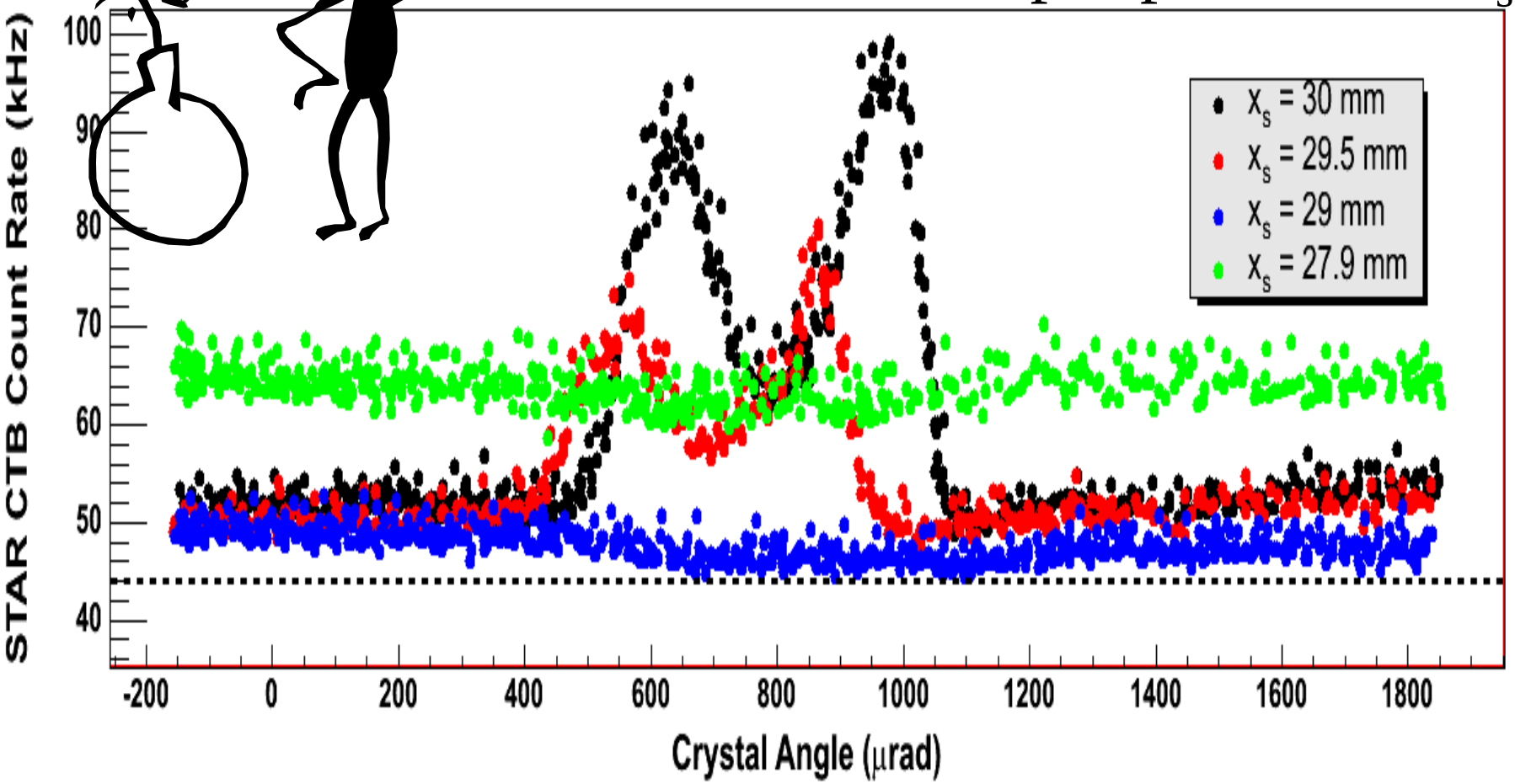


Taken from report of A.Drees to CC-2005 at CERN, March 7-8, 2005

STAR Background

4 crystal scans with different scraper positions - x_s



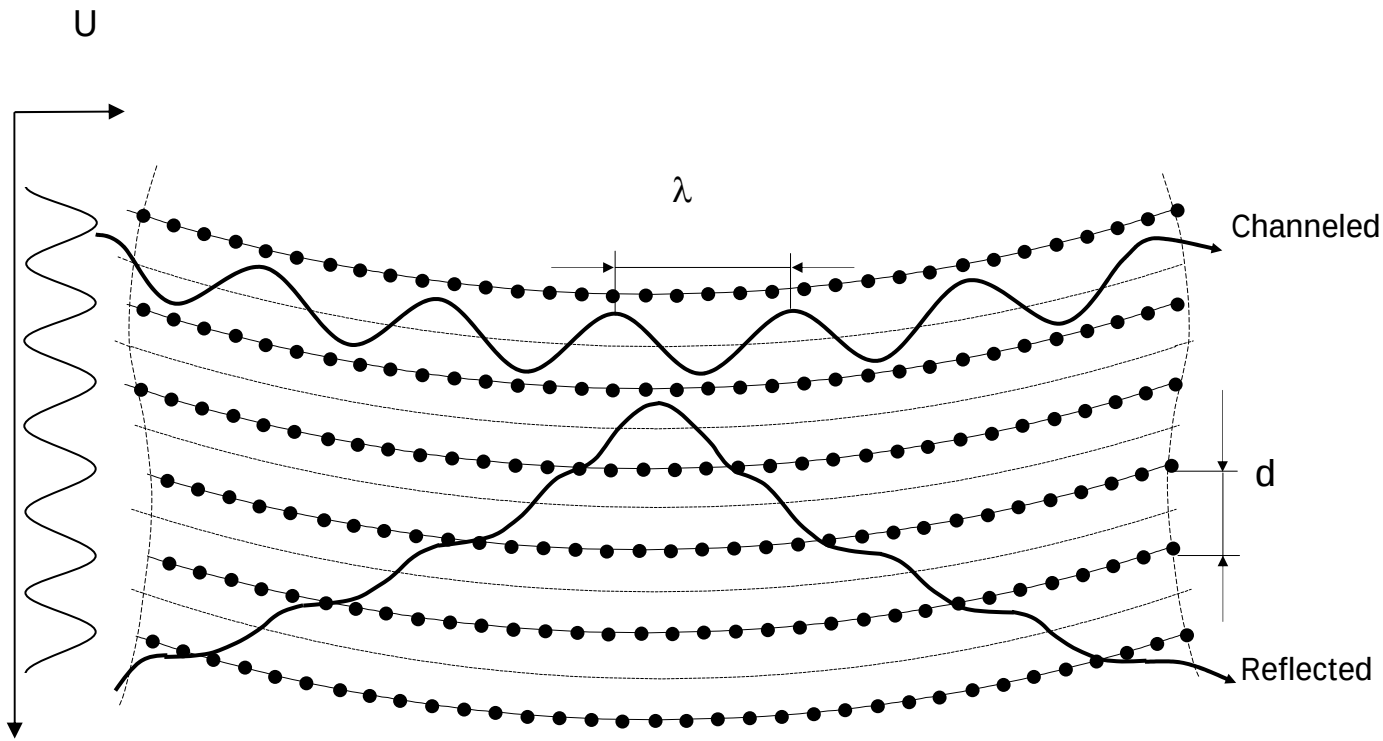


Crystal not moved horizontally

RHIC

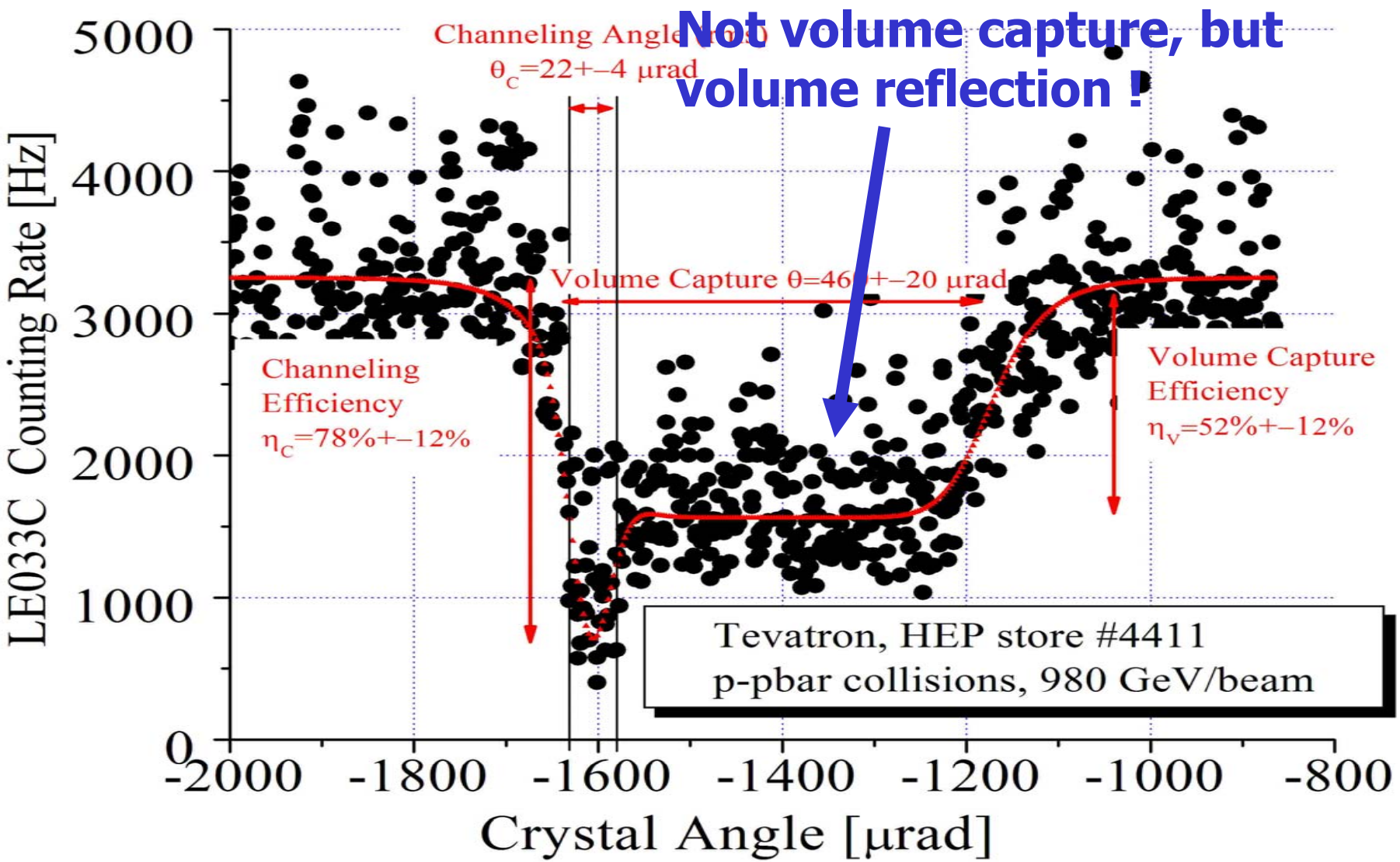
BROOKHAVEN NATIONAL LABORATORY

Channeling and reflection in bent crystal

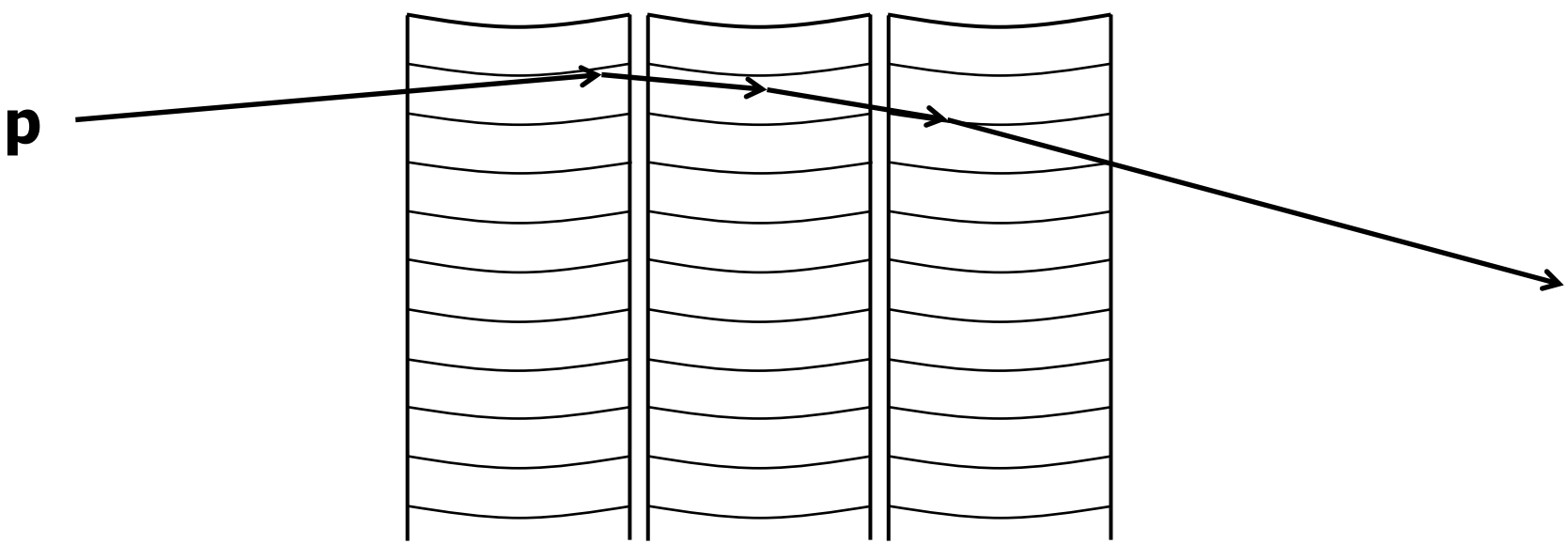


Taken from N.Mokhov's letter

1 TeV Channeling, October 5, 2005



New approach to deflector



Reflection phenomenon + new bending method for Si (111)

1 TeV

Estimated parameters of deflector using reflection:

Number of layers	**5**
Thickness of layer	**0.8 mm**
Angle of deflection	**~50 μrad**
Probability	**~0.99 per 1 passage**

7 TeV

Estimated parameters of deflector using reflection:

Number of layers	**5**
Thickness of layer	**1.5 mm**
Angle of deflection	**~15 μrad**
Probability	**~0.99 per 1 passage**