

IPSSC +  
CMBO

# STUDENTS' CONFERENCE

Jožef Stefan International Postgraduate School  
and Young Researchers' Day CMBO

*19 and 20 April*

## Improved gamma detector calibration

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Poster number: 22

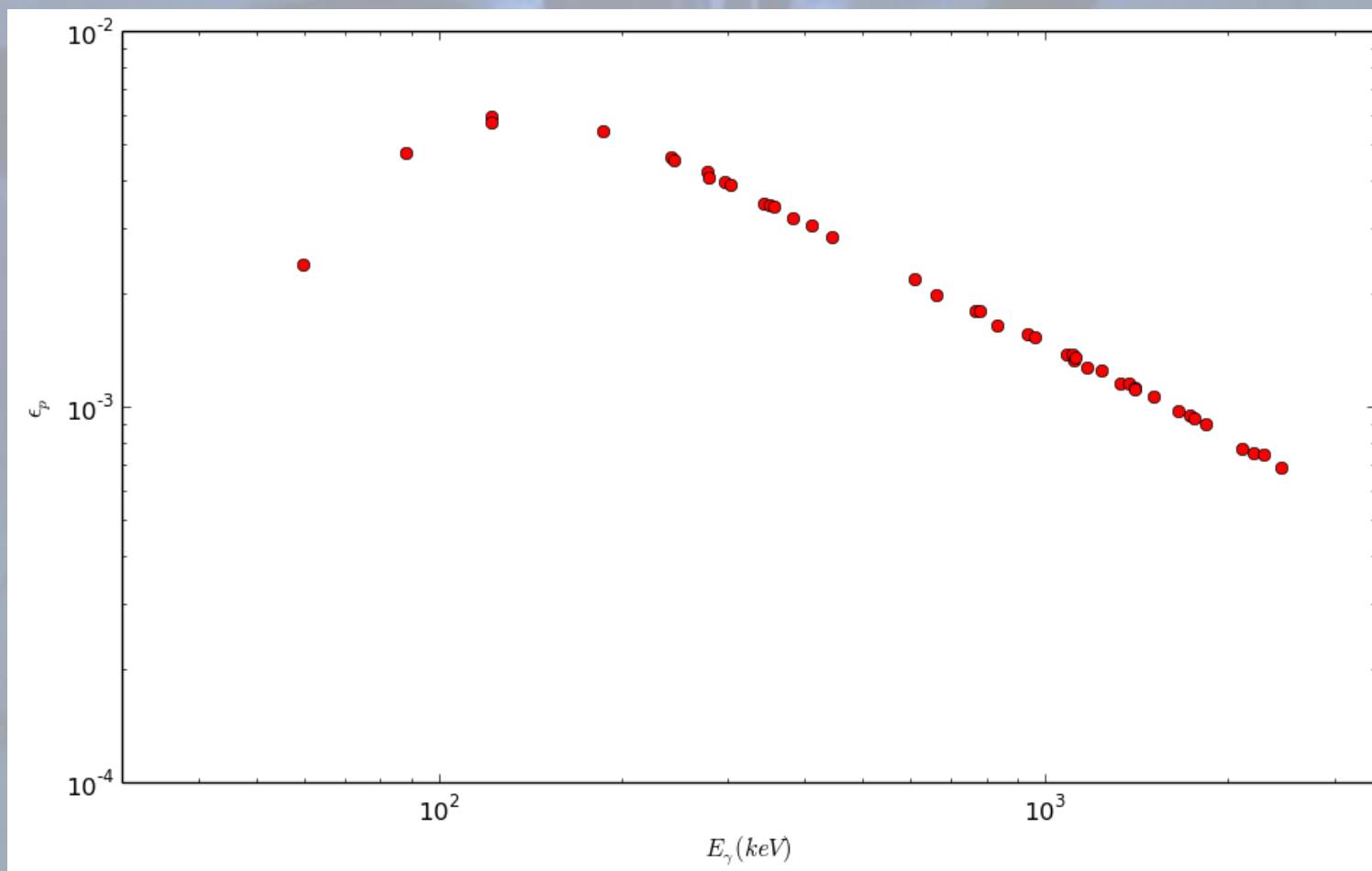


# $k_0$ Instrumental Neutron Activation Analysis

- Irradiate sample
- Measure gamma activity intensity
- Calculate elemental concentrations
  - Detector gamma sensitivity must be known

# Detector calibration

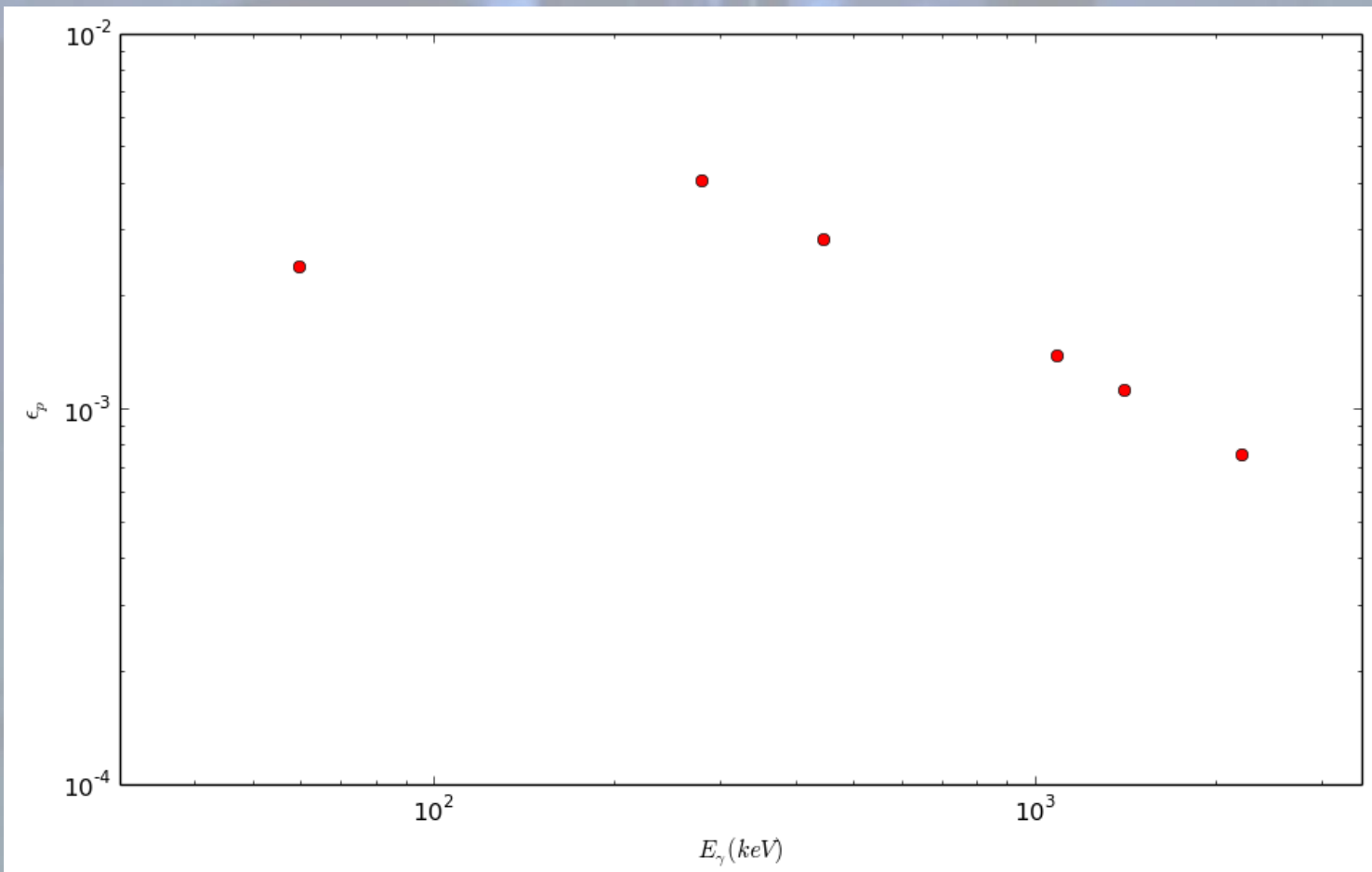
- Determine efficiency for few discrete energies
- Extrapolate to other energies - curve fitting





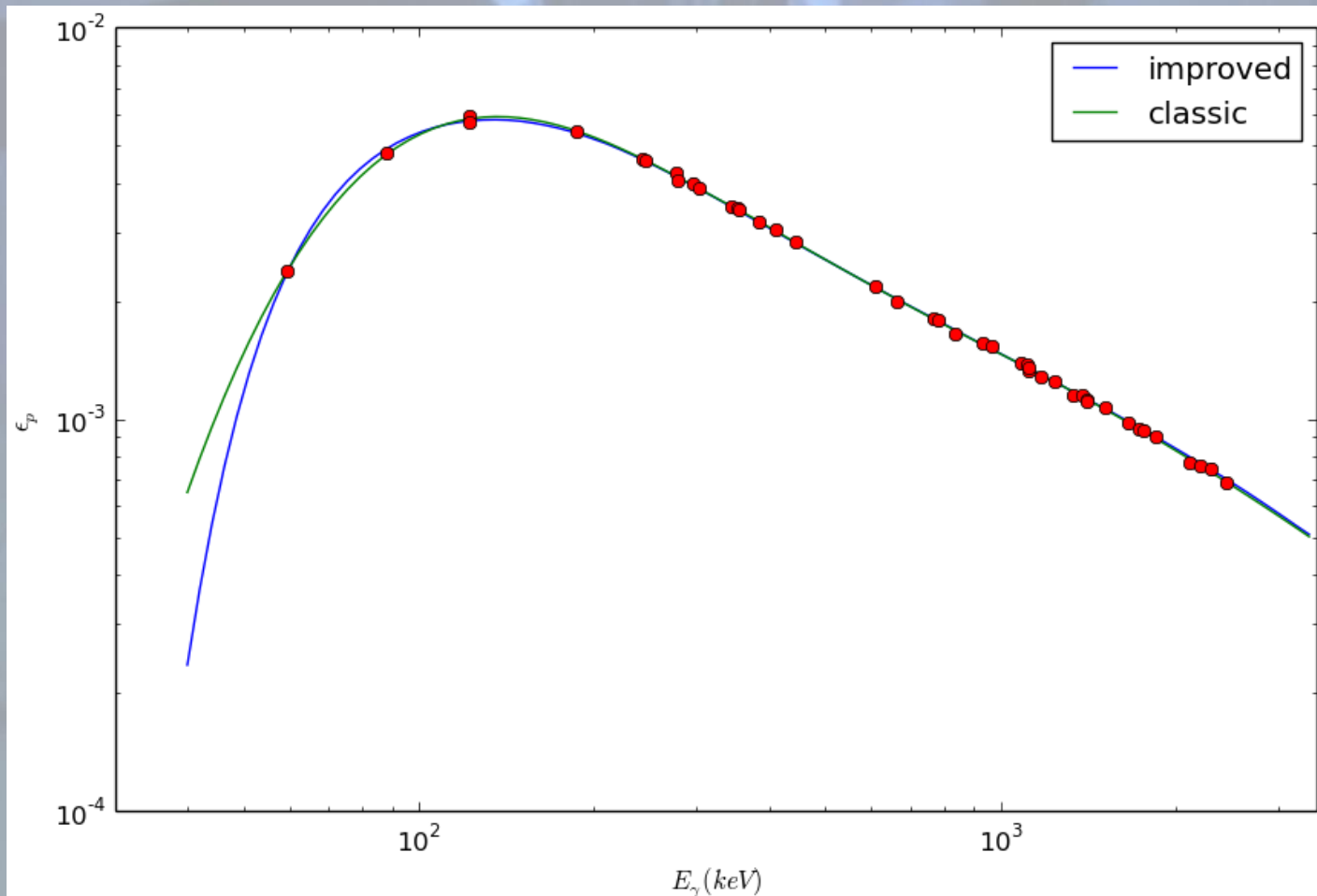
# Detector calibration

- Determine efficiency for few discrete energies
- Extrapolate to other energies - curve fitting
- Choose the right curve



# Advanced fitting

- Instead of polynomial, get curve from physical model (Geant4)
- Fit to experiment



# Advanced fitting

- Fit is robust - free parameters reduced from 12 to 3
- Can 'guess' missing data
- Improved confidence and energy range

