



WRMISS



Dose mapping by SSNTD inside the Columbus module of the ISS – DOSIS project

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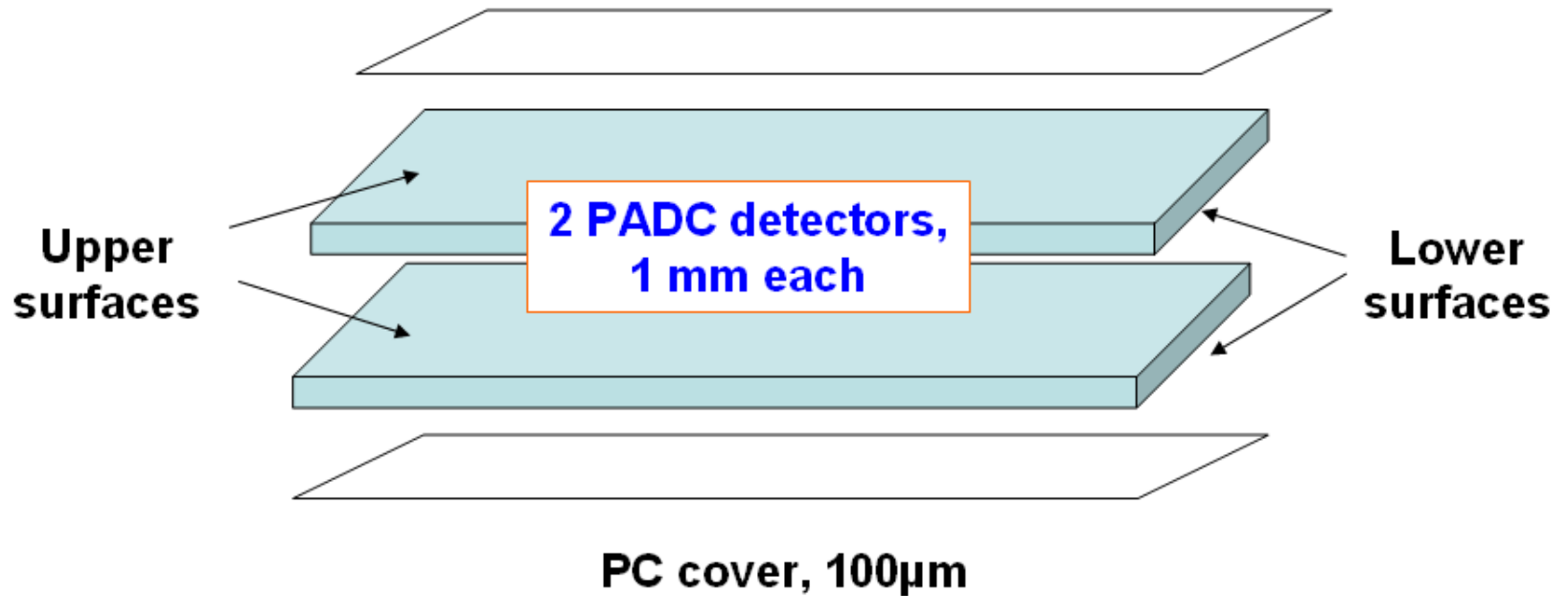
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AERI DOSIS-1 stack composition

PC cover, 100 μ m



PC cover, 100 μ m

Etching in 6 N NaOH at 70 ± 0.1 °C, N₂ bubble stirring applied

1st step: 6 h, ~8 μm removal

2nd step: 15h, ~20 μm removal

Controlled by standardized Po alpha source

LET spectra corrected for critical angle and background

Semi-automated track analysis

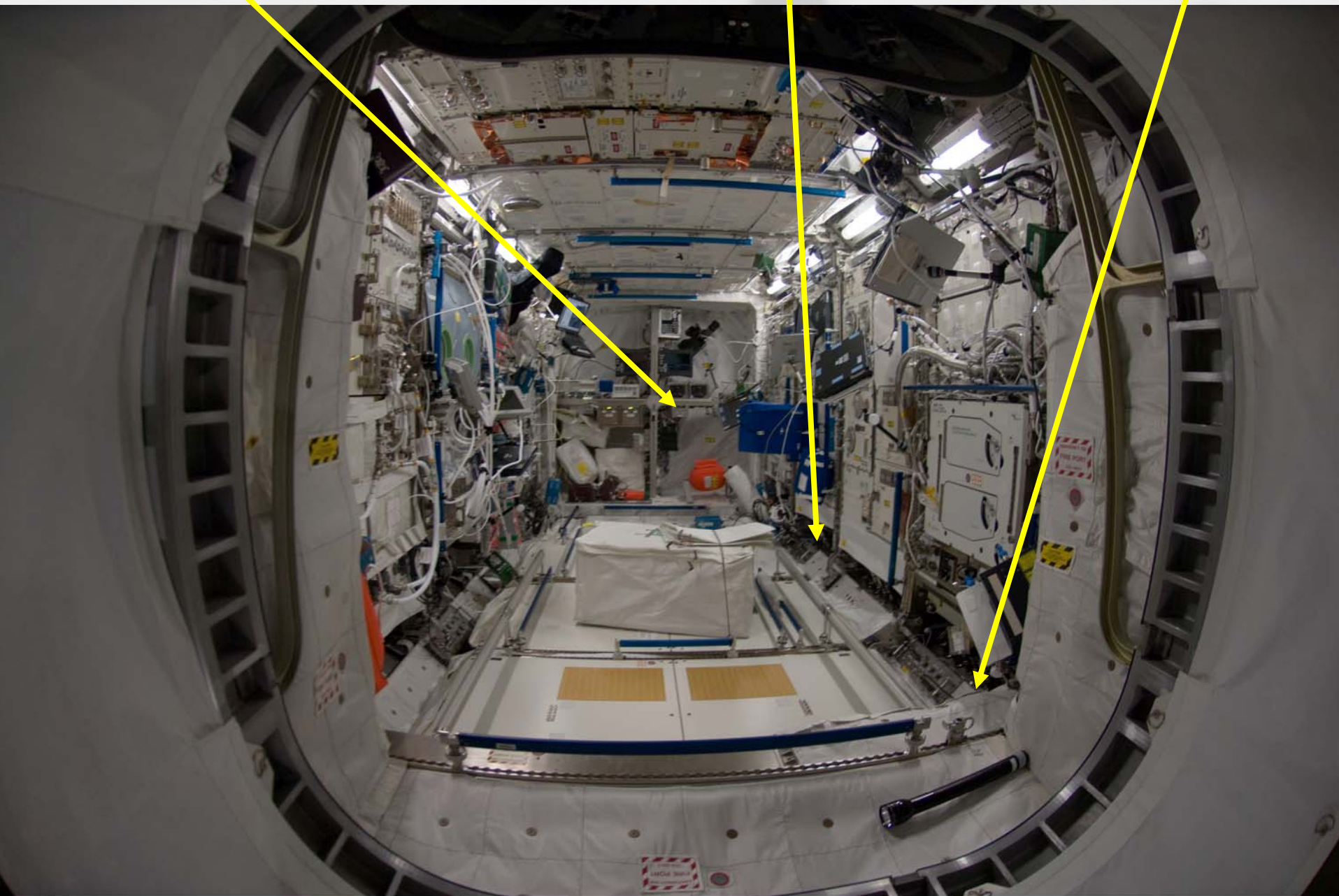
Long range particles' parameters measured manually

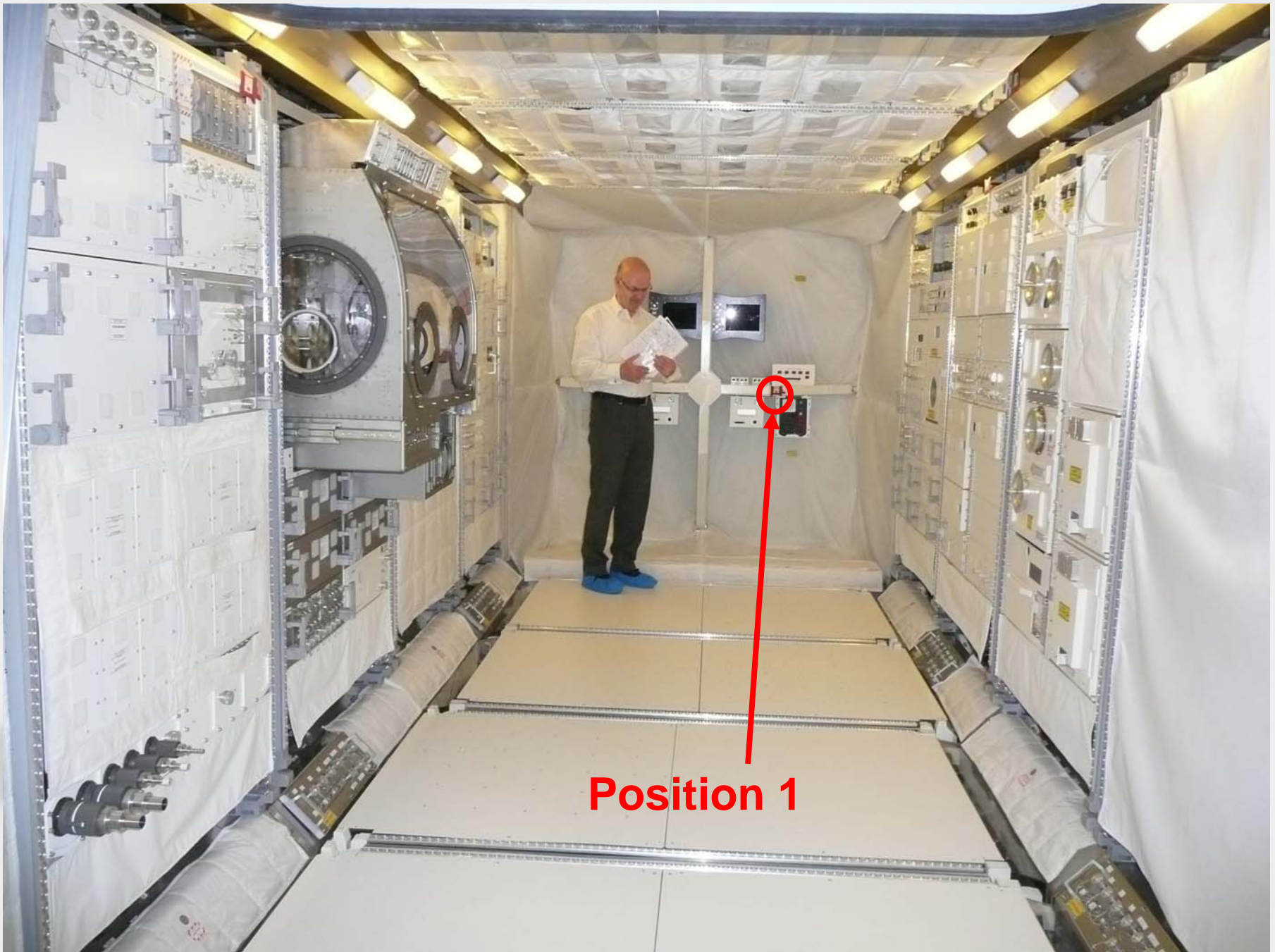
Short & Long etch LET spectra were combined

Position 1

Position 3D

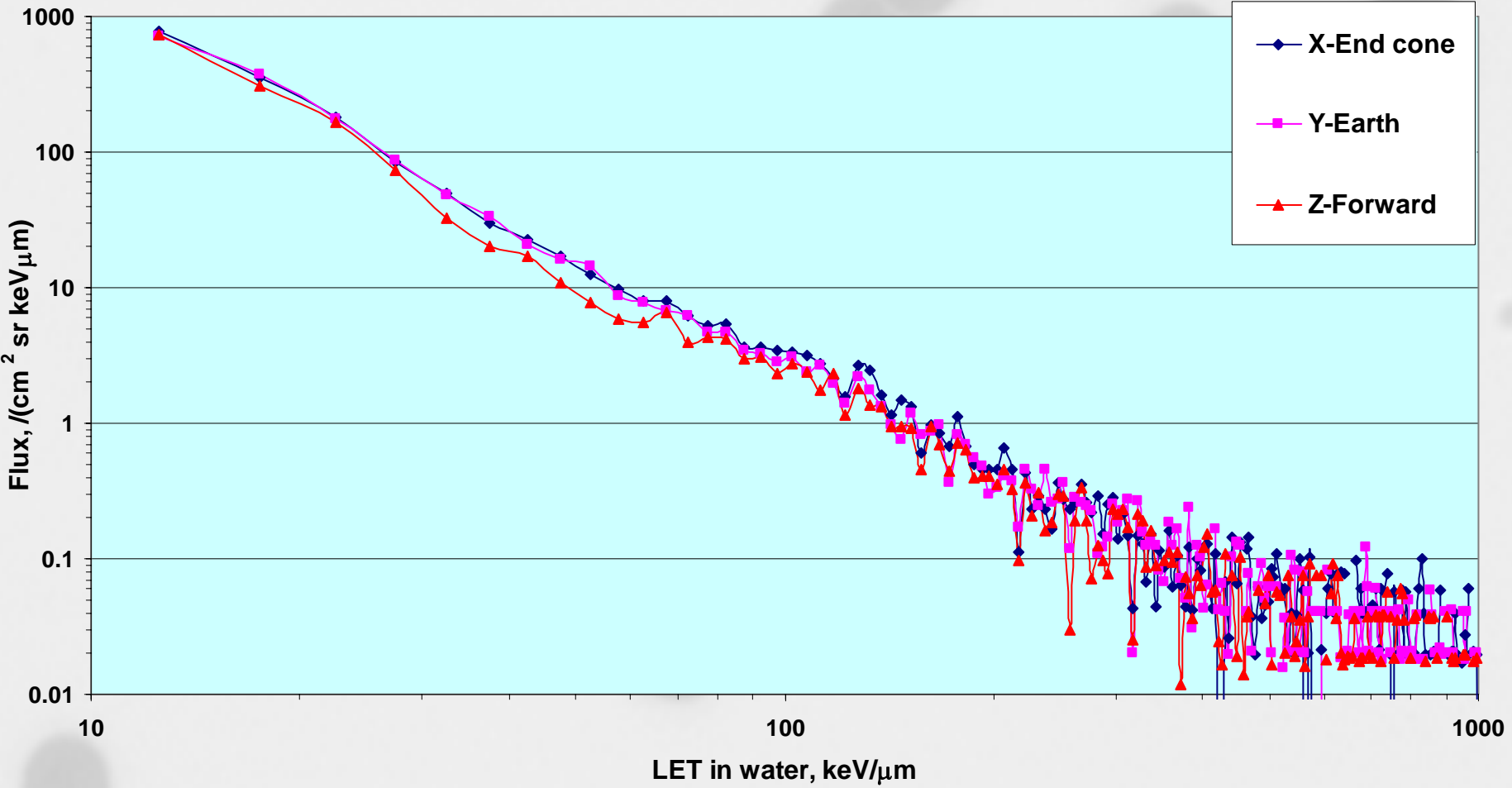
Position 10



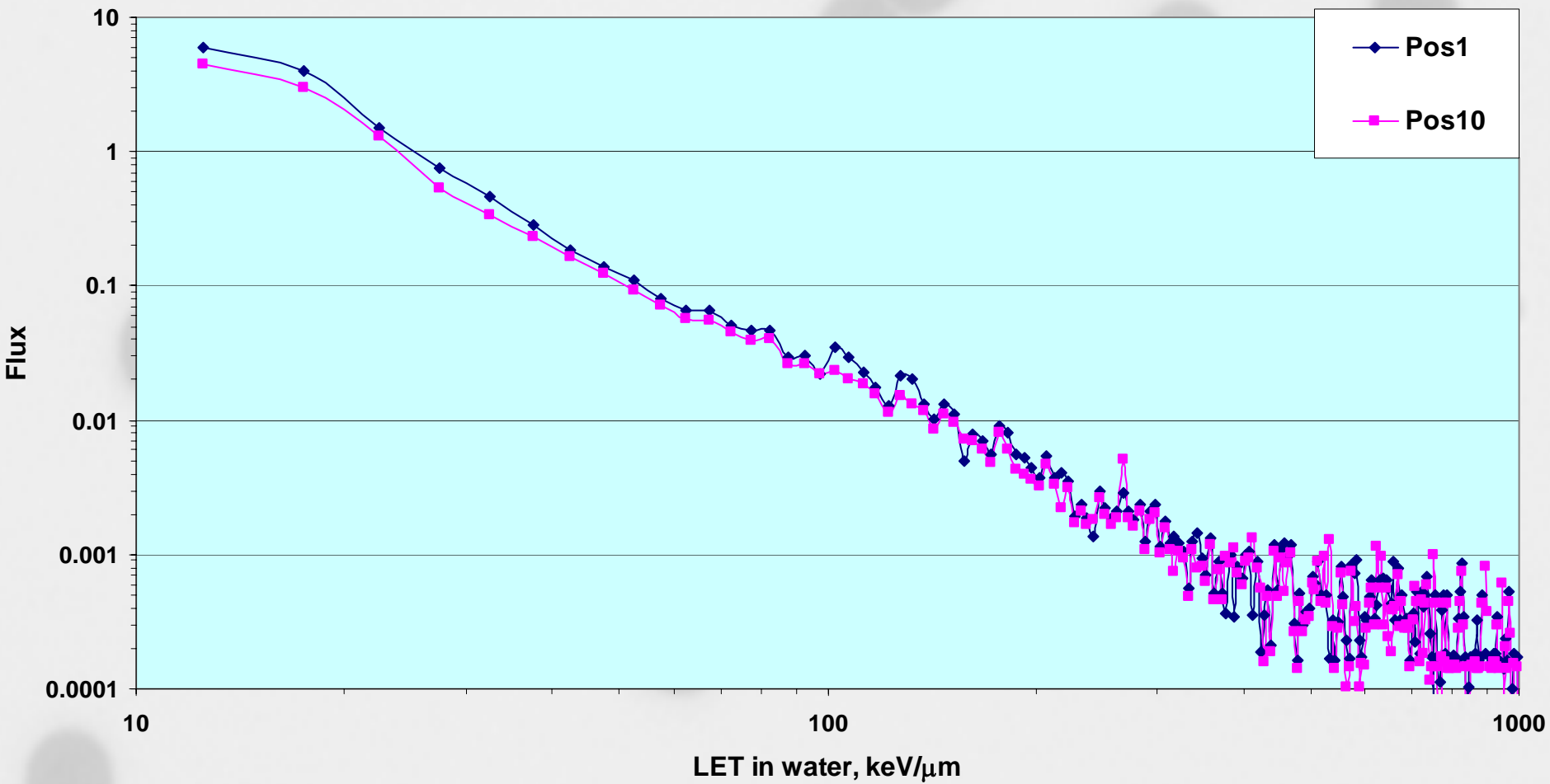


Position 1

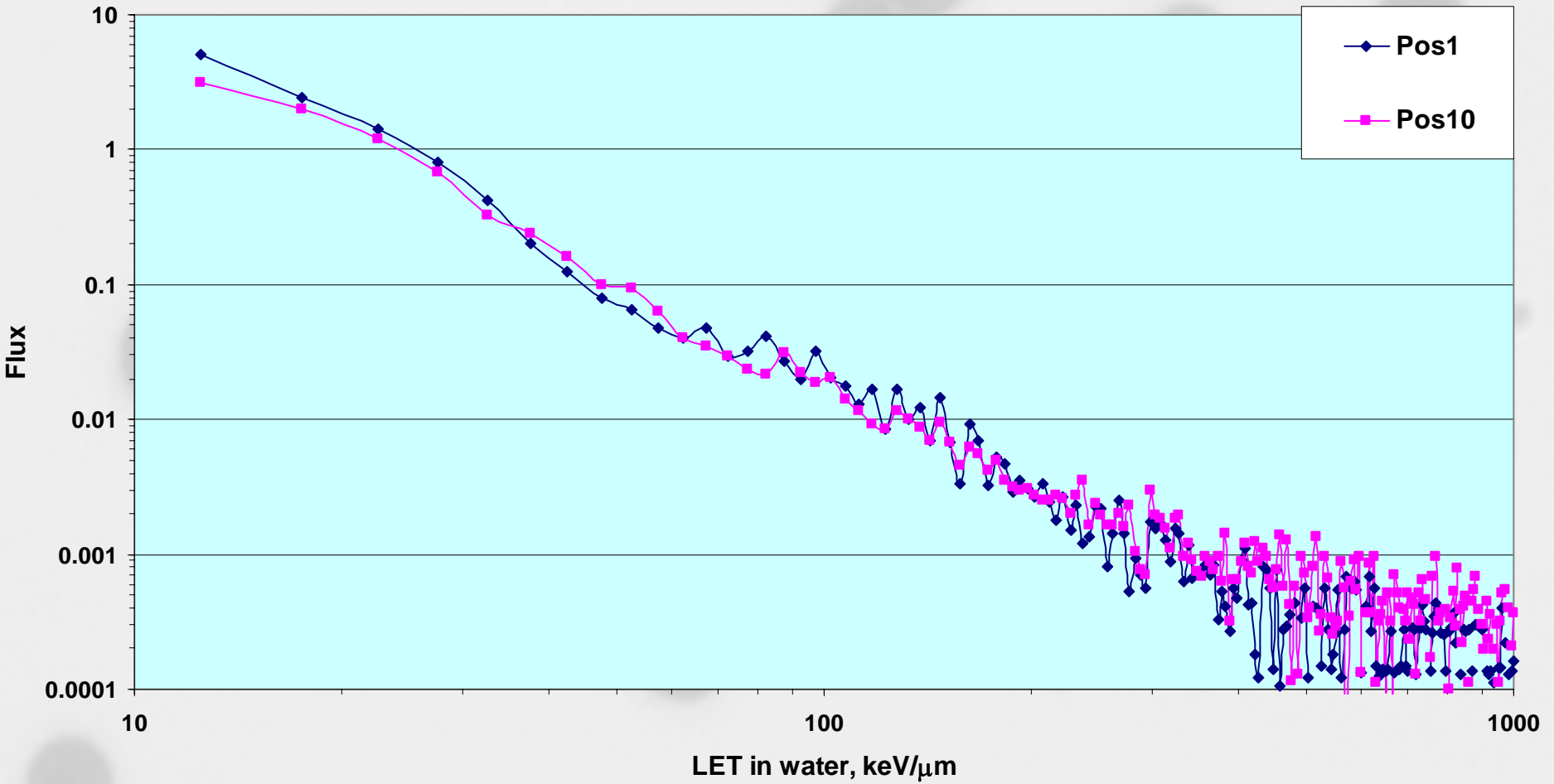
AERI DOSIS-1, 3D



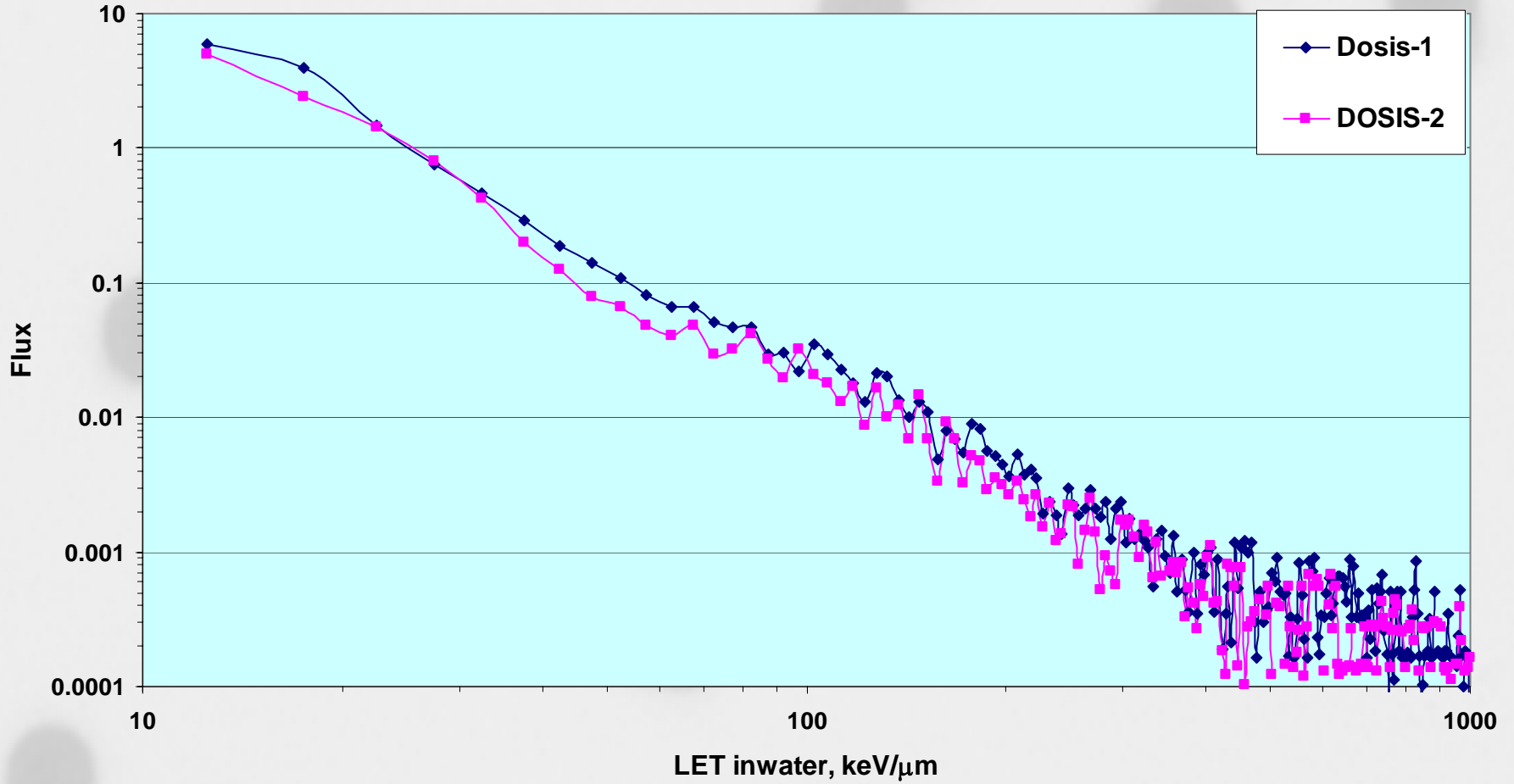
DOSIS-1



DOSIS-2



Position 1, End cone



SSNTD Doses above 10 keV/ μm

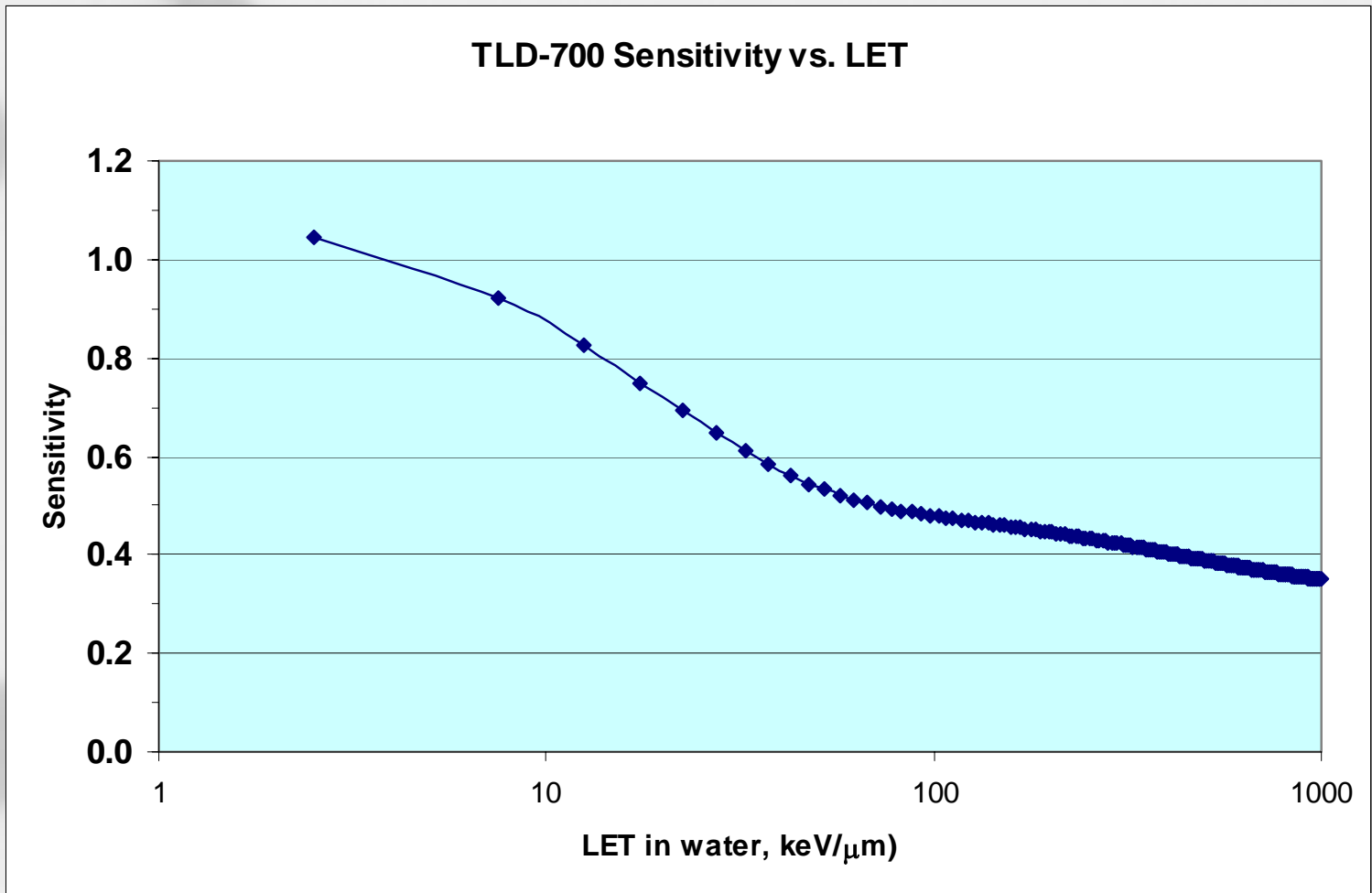
4 detector surfaces were averaged

<i>Experiment / Position</i>	<i>Flux ($\text{cm}^2 \text{ sr keV}/\mu\text{m})^{-1}$)</i>	<i>Dose rate $\mu\text{Gy}/\text{d}$</i>	<i>Dose equivalent rate $\mu\text{Sv}/\text{d}$</i>	<i>Q</i>
<i>D-1 / Pos 1</i>	12.90	33.01	318.42	9.65
<i>D-1 / Pos 10</i>	10.03	26.87	268.12	9.88
<i>D-2 / Pos1</i>	11.13	27.48	256.57	9.34
<i>D-2 / Pos10</i>	8.47	24.90	255.00	10.24

1 SD < 10%

TLD-700 sensitivity by DLR

$$S = 0.332 + 0.1806 \cdot e^{-0.0023 \cdot \text{LET}} + 0.6089 \cdot e^{-0.0521 \cdot \text{LET}}$$



Total Dose rates on selected places during the DOSIS-1 & 2 investigations

<i>Experiment / Position</i>	<i>TLD Dose rate μGy/d</i>	<i>TLD Dose rate corrected μGy/d</i>	<i>Total Dose rate μGy/d</i>	<i>Dose equivalent rate μSv/d</i>	<i>Q</i>
<i>D-1 / Pos 1</i>	256.8	235.9	268.9	554.3	2.06
<i>D-1 / Pos 10</i>	224.3	207.6	234.5	475.7	2.03
<i>D-2 / Pos 1</i>	244.7	227.0	254.5	483.6	1.90
<i>D-2 / Pos10</i>	211.1	196.0	220.9	451.0	2.04



Thanks for your attention!

