

EURADOS comparison exercise on neutron spectra unfolding in Bonner spheres spectrometry (BSS)

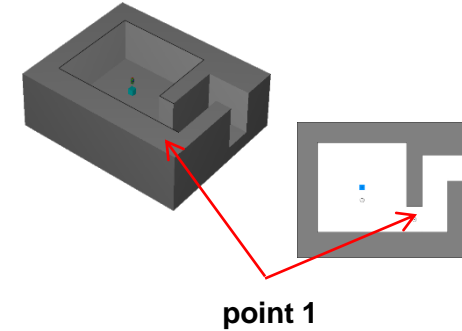
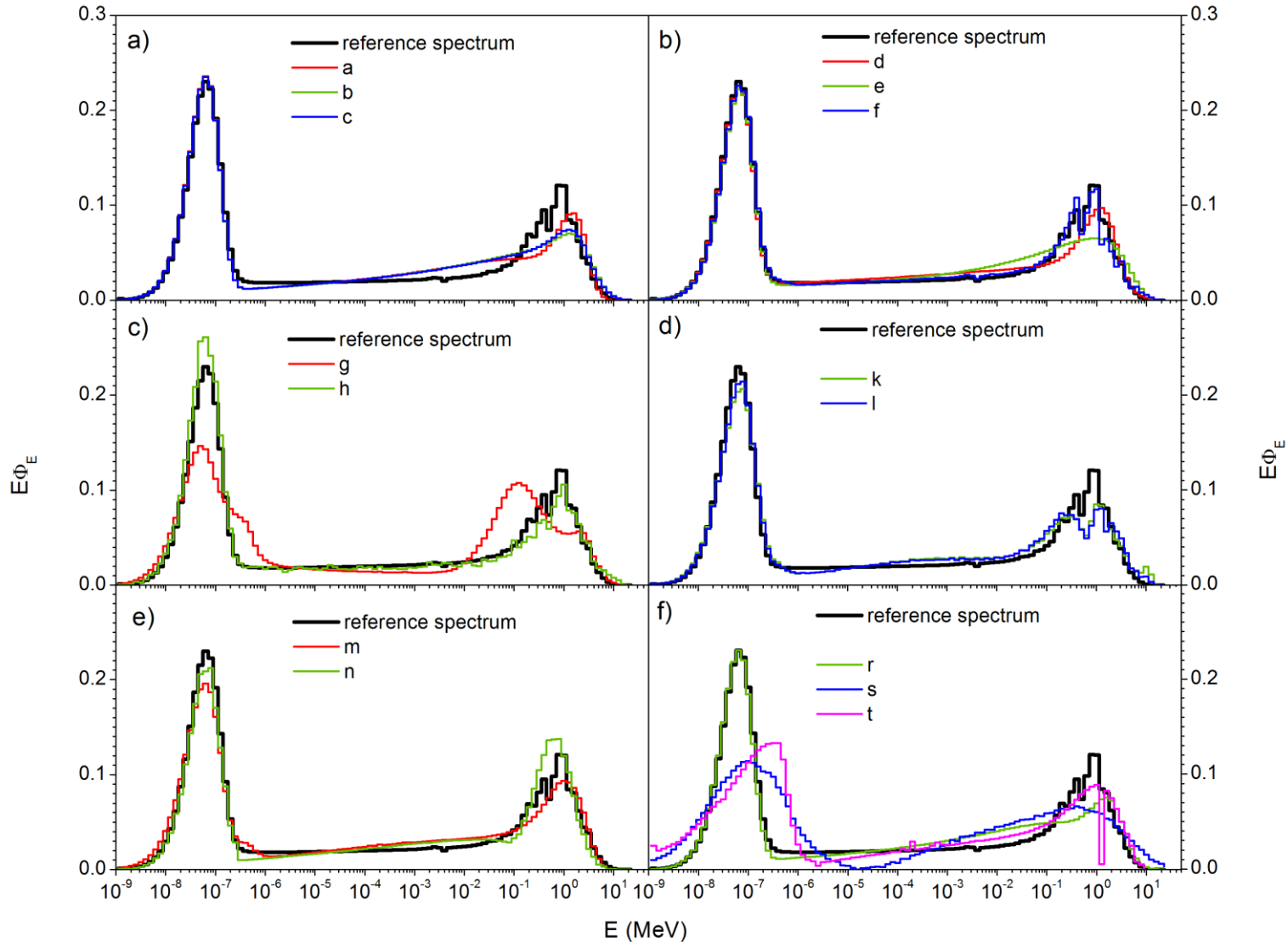
Analysis of the EURADOS exercise solutions

Participation and submitted solutions

<u>participant</u>	<u>unfolding method</u>	LINAC	<u>workplace</u>	<u>calibration room</u>	<u>skyshine</u>	<u>pre-information</u>
a	B-UNCLE	x	x	x	x	<u>not clearly indicated</u>
b	FRUIT	x	x	x	x	<u>choice of parametric model</u>
c	FRUIT	x	x	x	x	<u>choice of parametric model</u>
d	FRUIT	x	x	x	x	<u>missing information</u>
e	GRUPINT, ANGELO, ZOTT99	x	x	x	x	MCNP6
f	UMG 3.3	x		x		MCNP6
g	UMG 3.3	x				<u>default spectrum from literature</u>
h	UMG 3.3	x	x	x	x	MCNPX 2.5
i	UMG 3.3		x	x	x	MCNP6
j	UMG <u>package: MXD_FC33</u>		x	x		MCNP6
k	MAXED	x	x	x	x	<u>problem dependent</u>
l	GRAVEL	x	x	x	x	<u>problem dependent</u>
m	MXD_FC33 and IQU_FC33	x	x	x	x	<u>problem dependent</u>
n	MAXED	x	x	x	x	MCNP5
o	MAXED / UMG			x		MCNP5
p	MAXED 2000			x		<u>not clearly indicated</u>
q	MSITER / MIEKE		x	x		MCNP5
r	<u>WinBUGS</u>	x	x	x	x	<u>choice of parametric model</u>
s	<u>basic Tykhonov method</u>	x	x	x	x	<u>none</u>
t	<u>self-made</u>	x	x	x	x	<u>none</u>

20 participants from **15 countries**

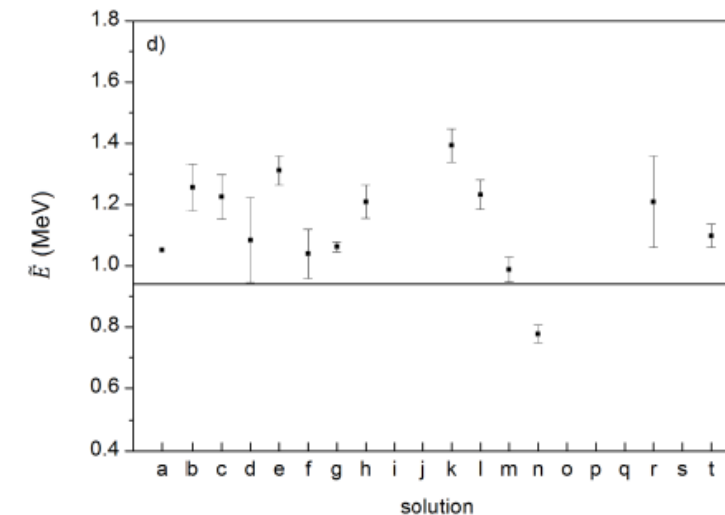
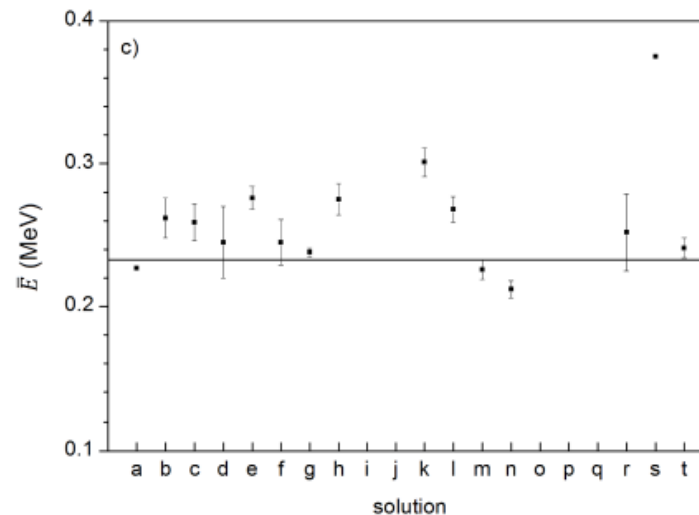
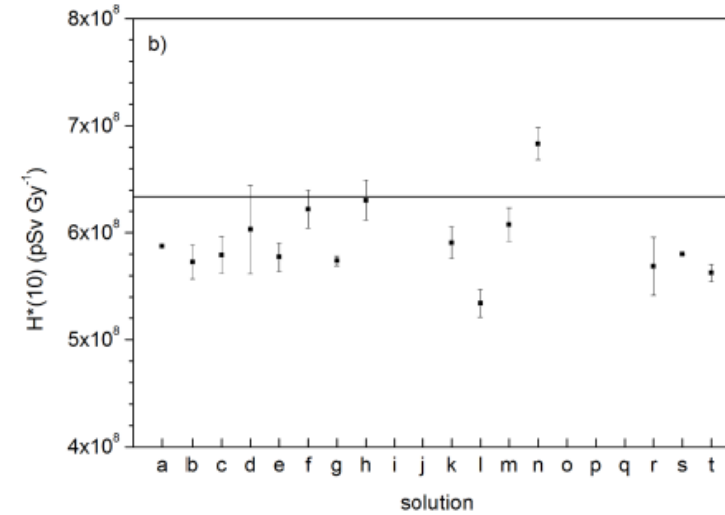
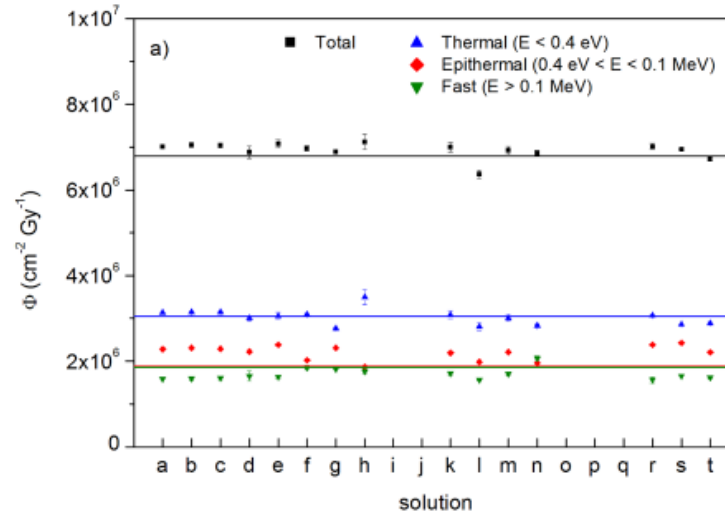
Submitted solutions, LINAC p1: 15



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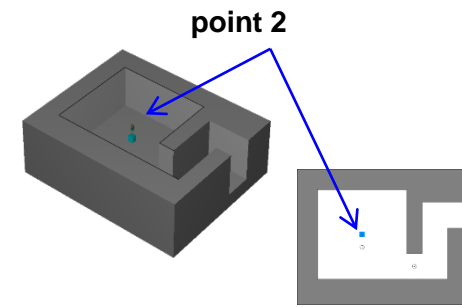
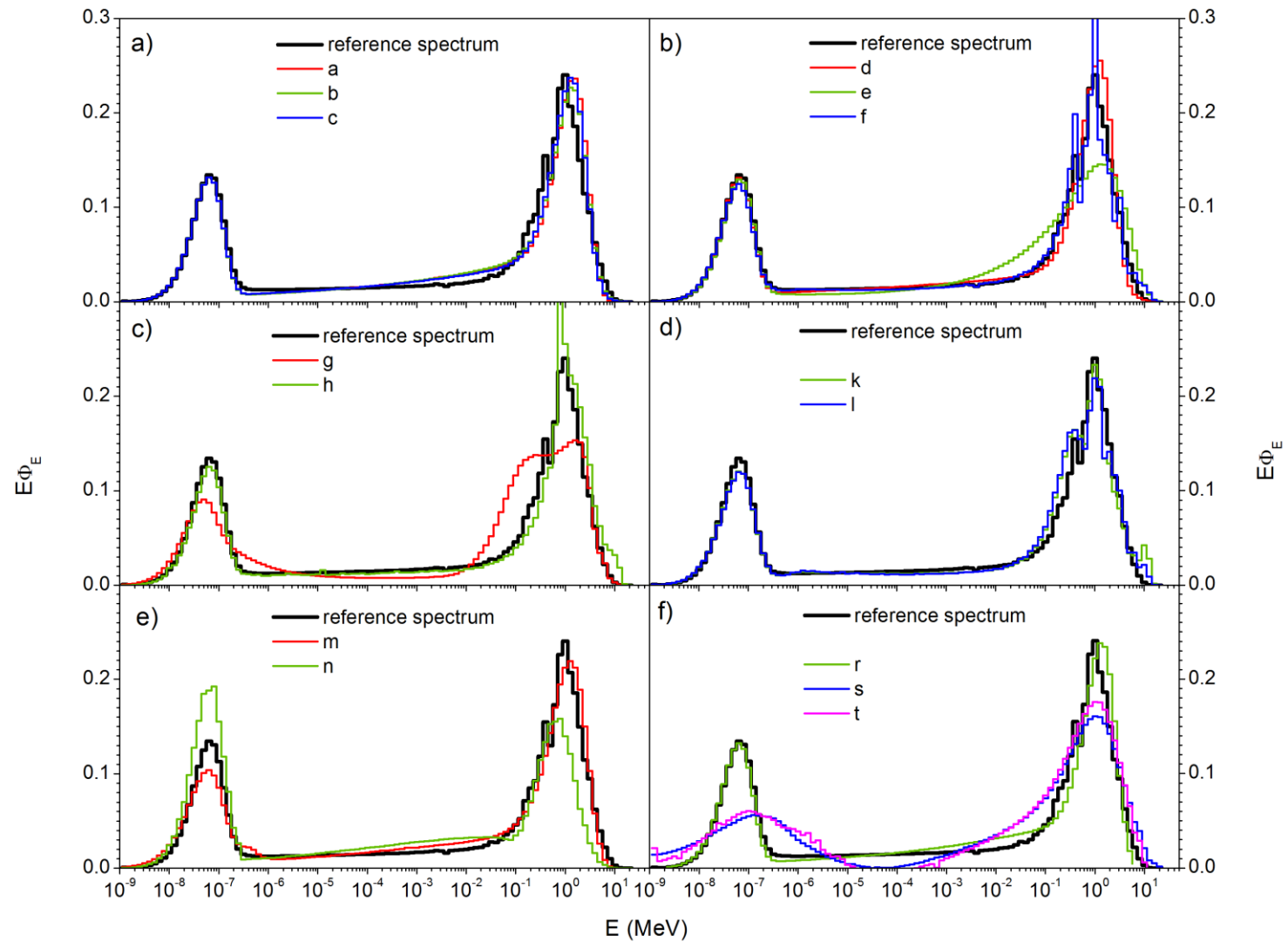
Integral quantities:

- a) Fluence for three energy groups
- b) Ambient dose equivalent rate $H^*(10)$
- c) Fluence-averaged-energy \bar{E}
- d) $H^*(10)$ -averaged-energy \tilde{E}



General tendency to overestimate epithermal fluence and underestimate fast fluence, therefore $H^*(10)$ is also underestimated.

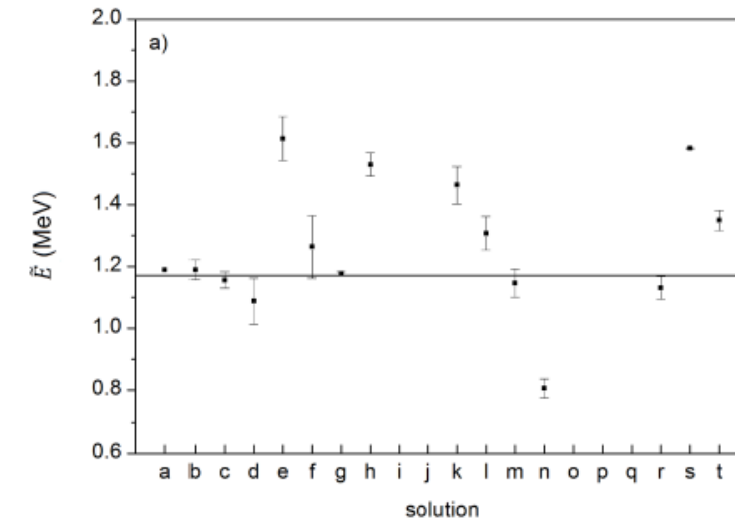
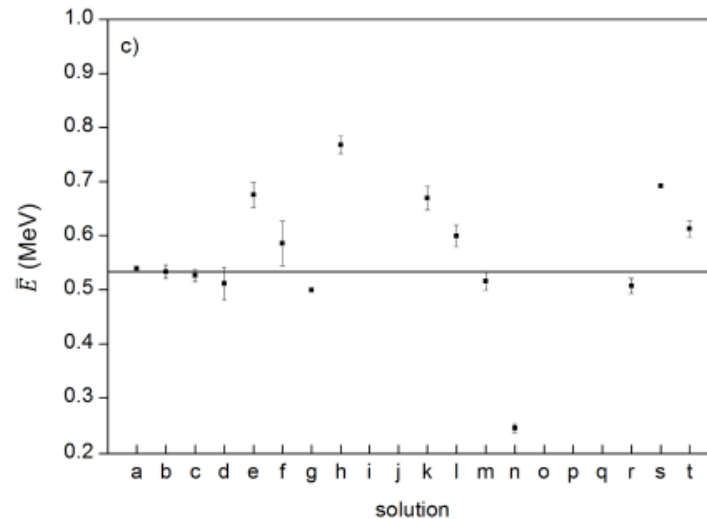
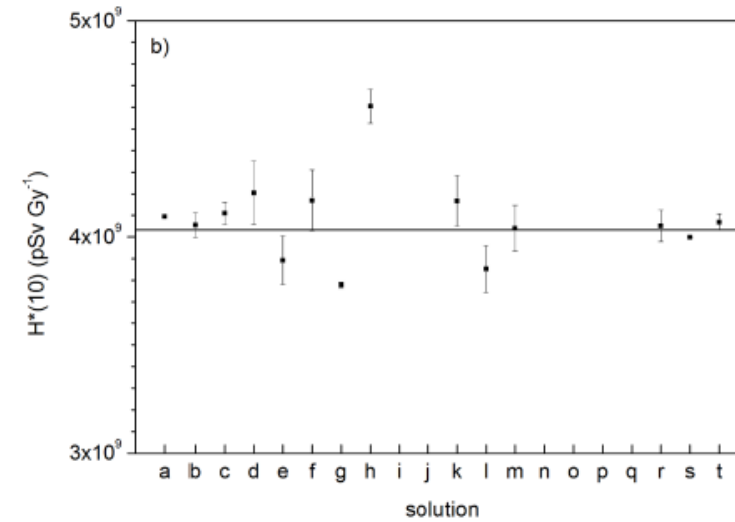
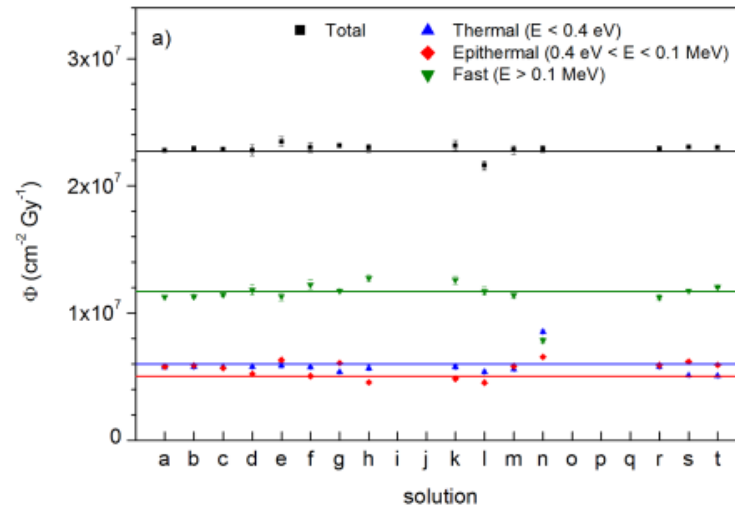
Submitted solutions, LINAC p2: 15



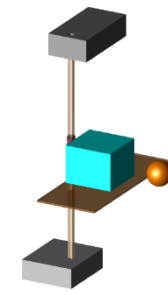
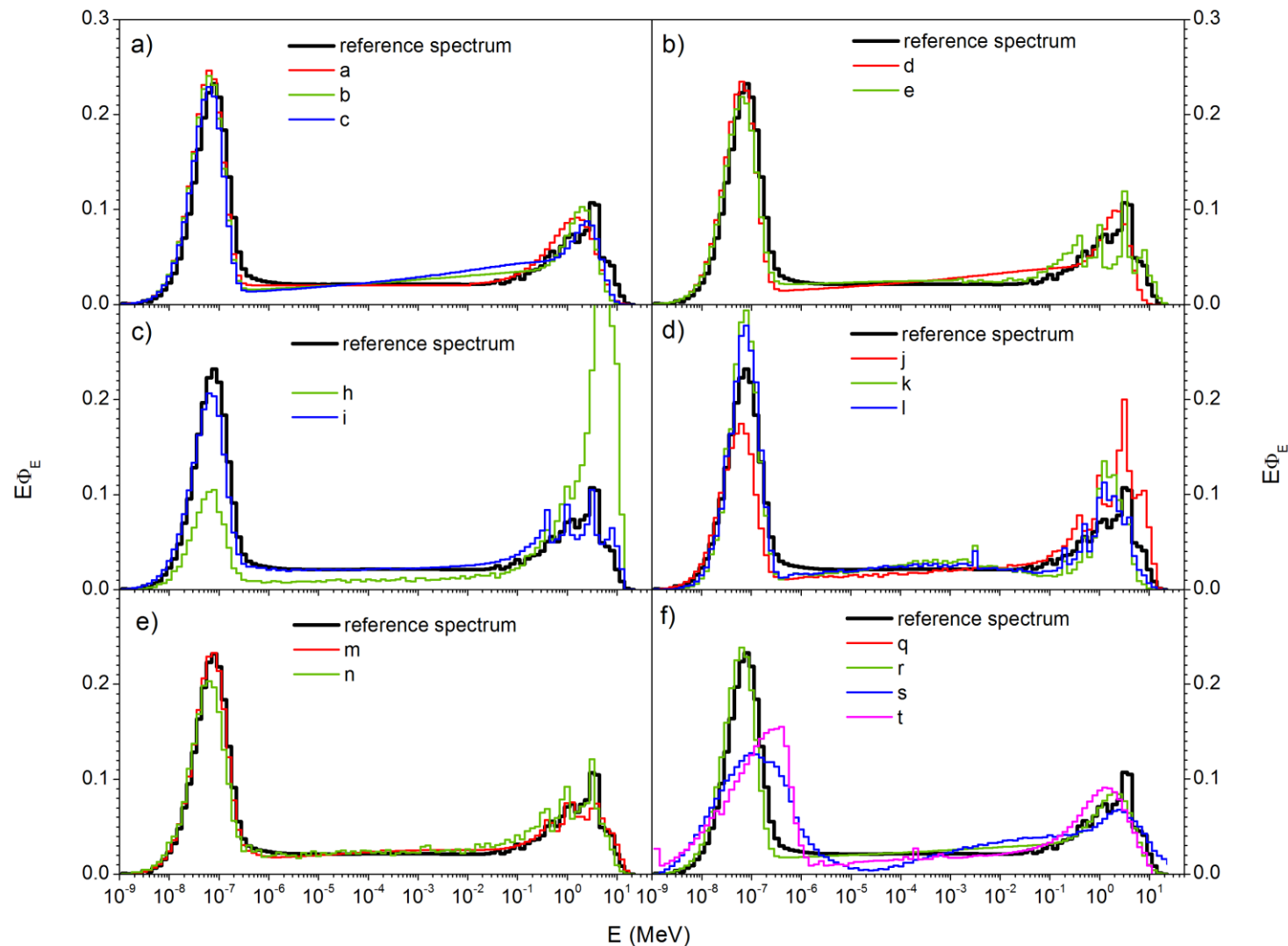
Submitted solutions, LINAC p2: 15

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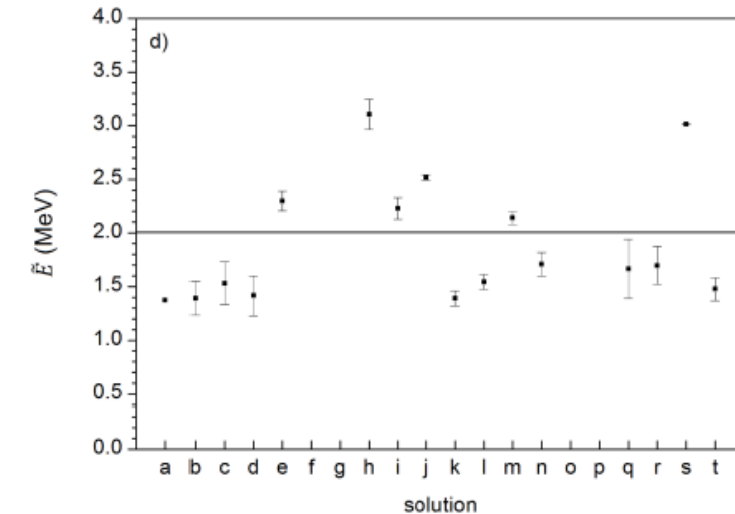
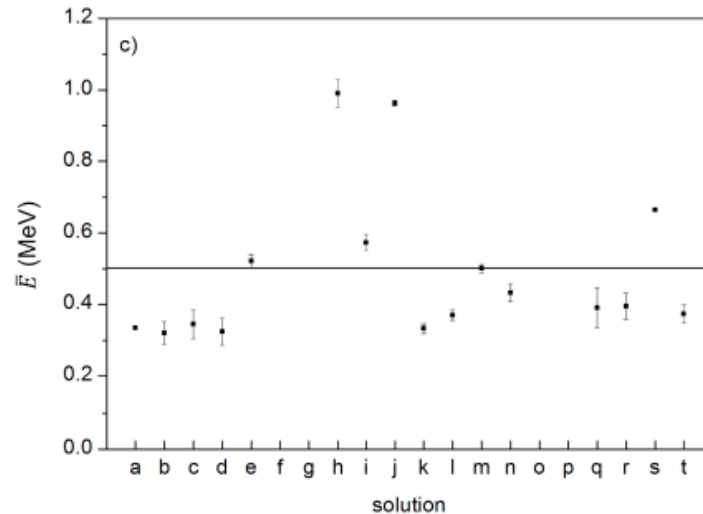
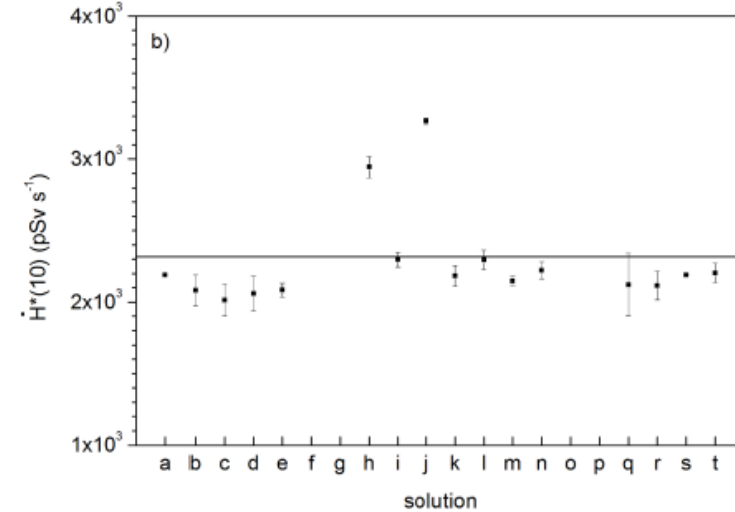
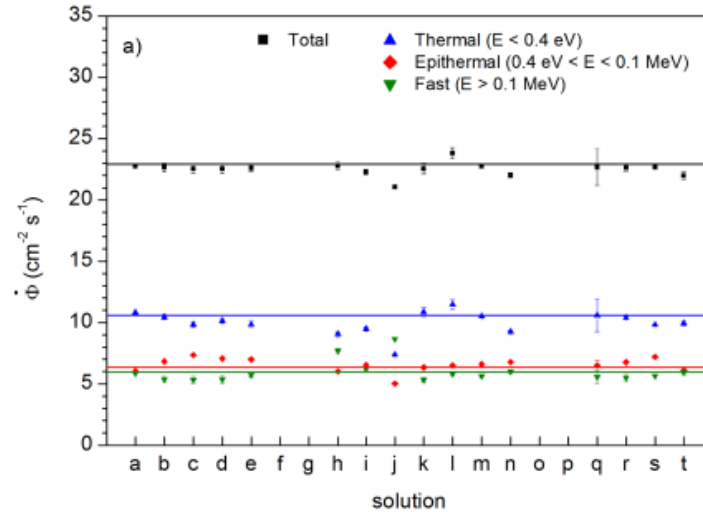
Submitted solutions, simulated workplace field: 16



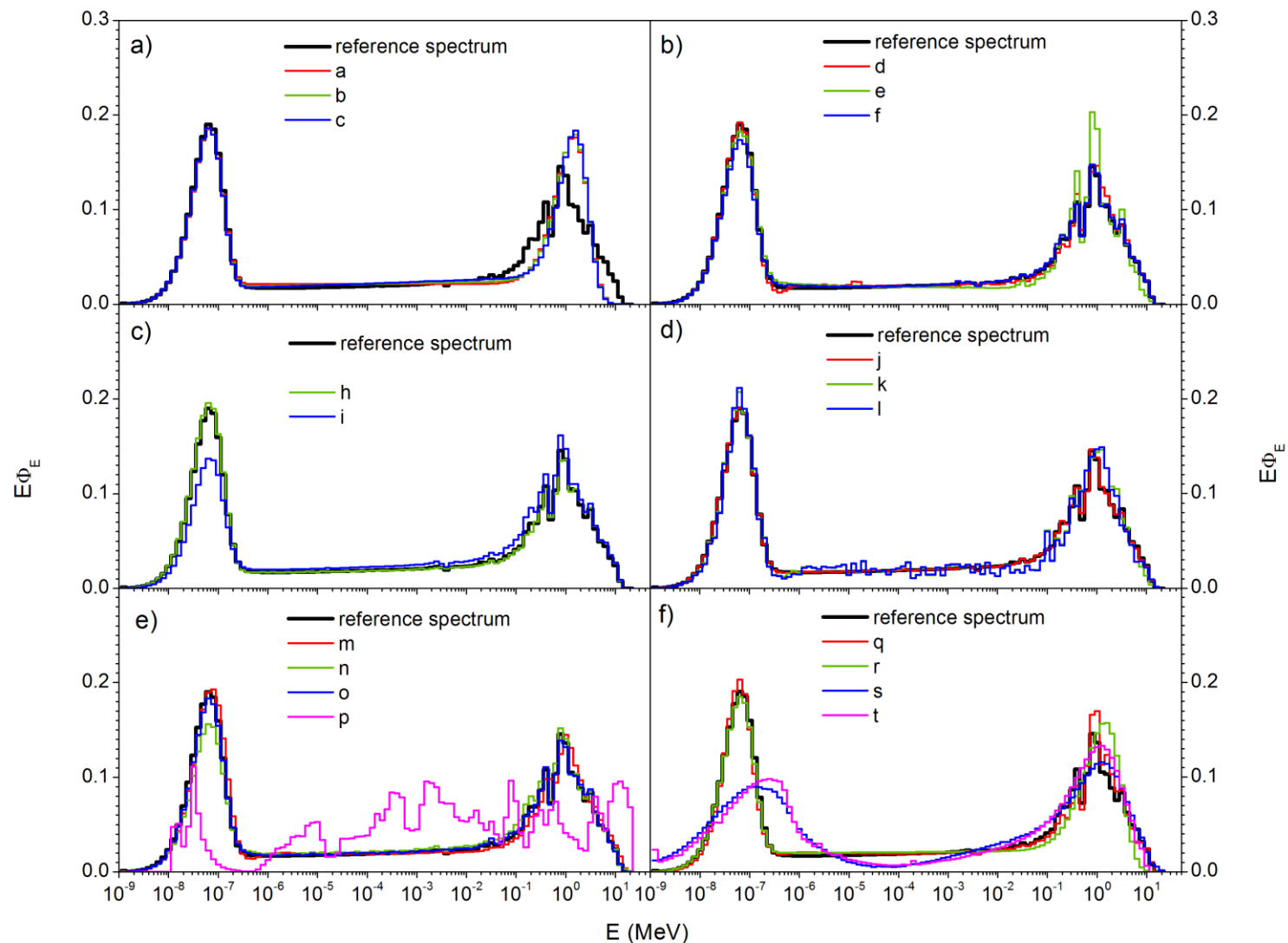
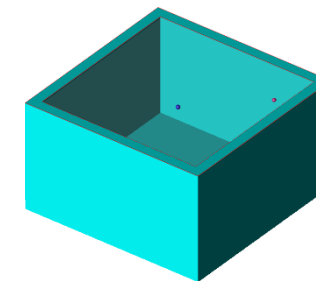
Submitted solutions, simulated workplace field: 16

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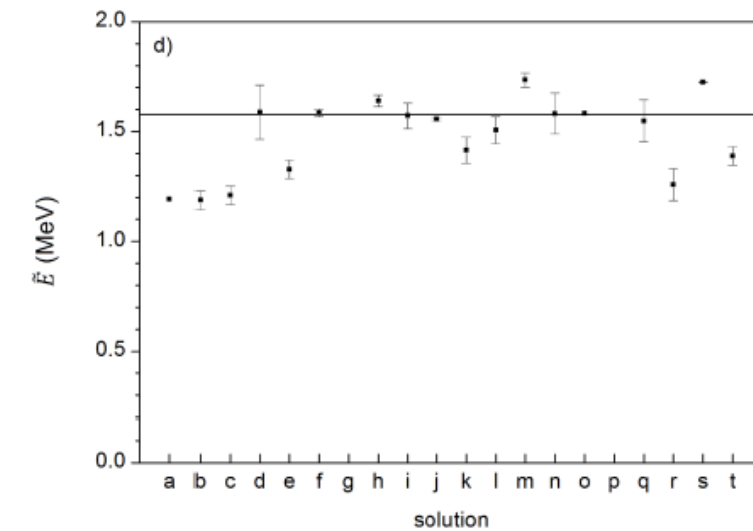
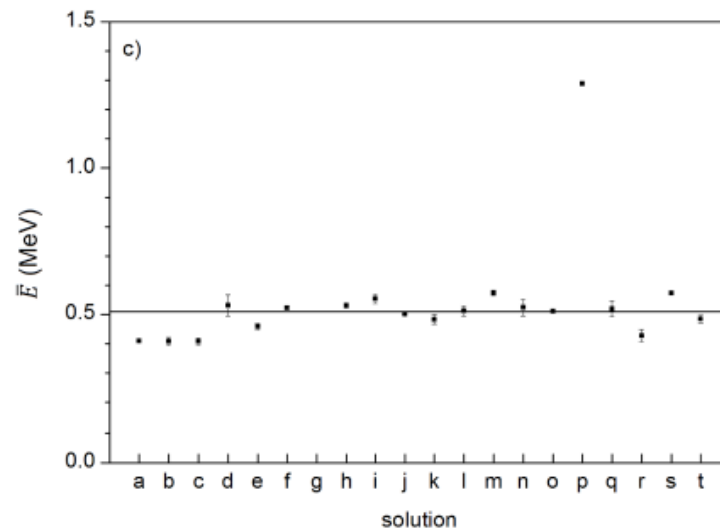
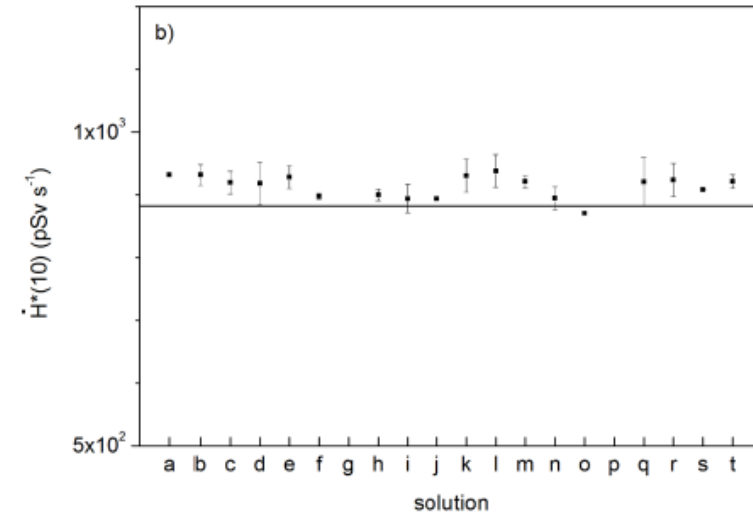
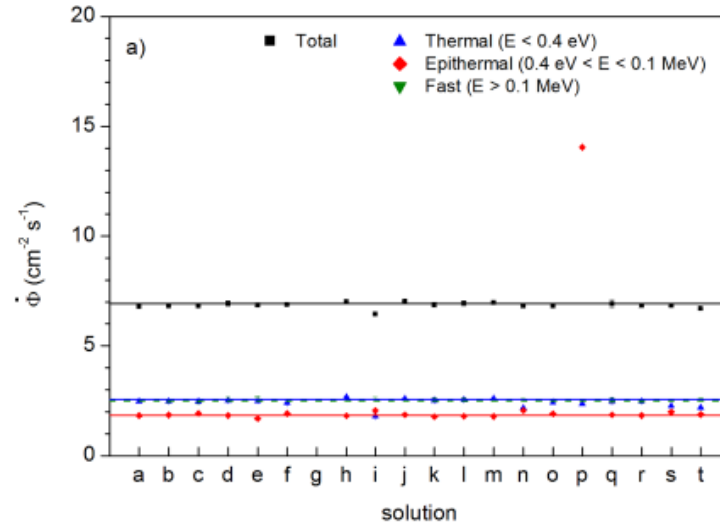
Submitted solutions, calibration facility: 19



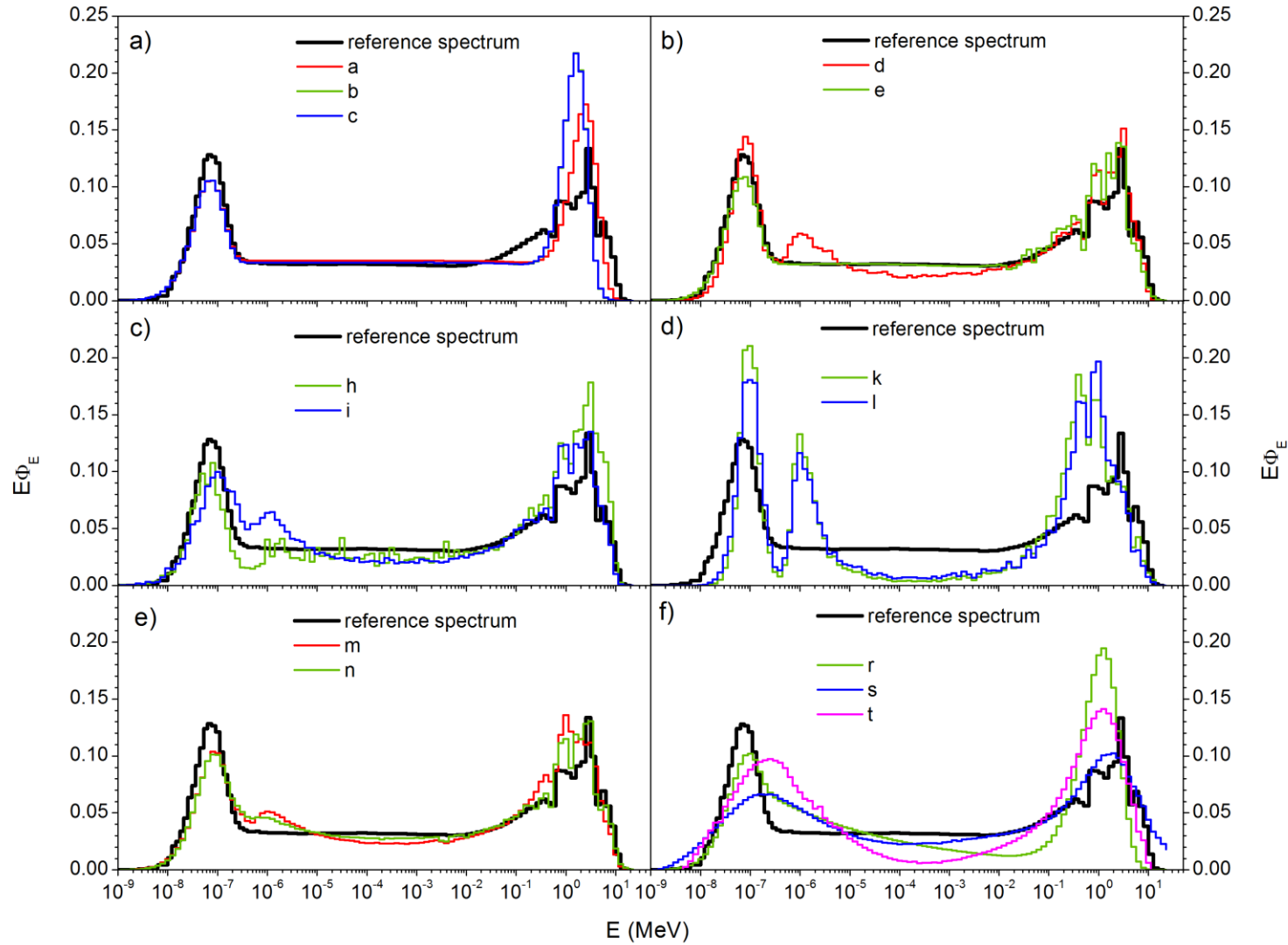
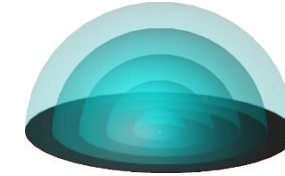
Submitted solutions, calibration facility: 19

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Submitted solutions, skyshine: 14



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- c) Fluence-averaged-energy \bar{E}
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