



Wir schaffen Wissen – heute für morgen



Laboratory for
Nuclear Materials

Nuclear Energy
and Safety

The fifth irradiation experiment at the Swiss spallation neutron source: STIP-V

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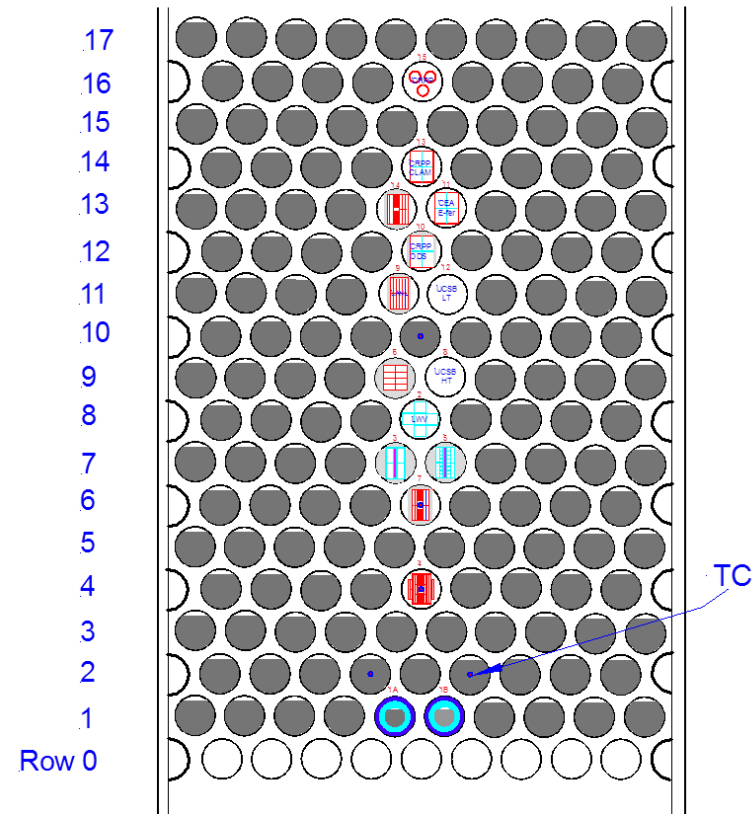
⁴ China Institute of Atomic Energy

Irradiation in SINQ Target-7

The irradiation was conducted in SINQ Target-7 in 2007 and 2008.
A total proton charge of 9.56 Ah was received.



STIP-V (Target-7)



Y.Dai, 18.12.2006

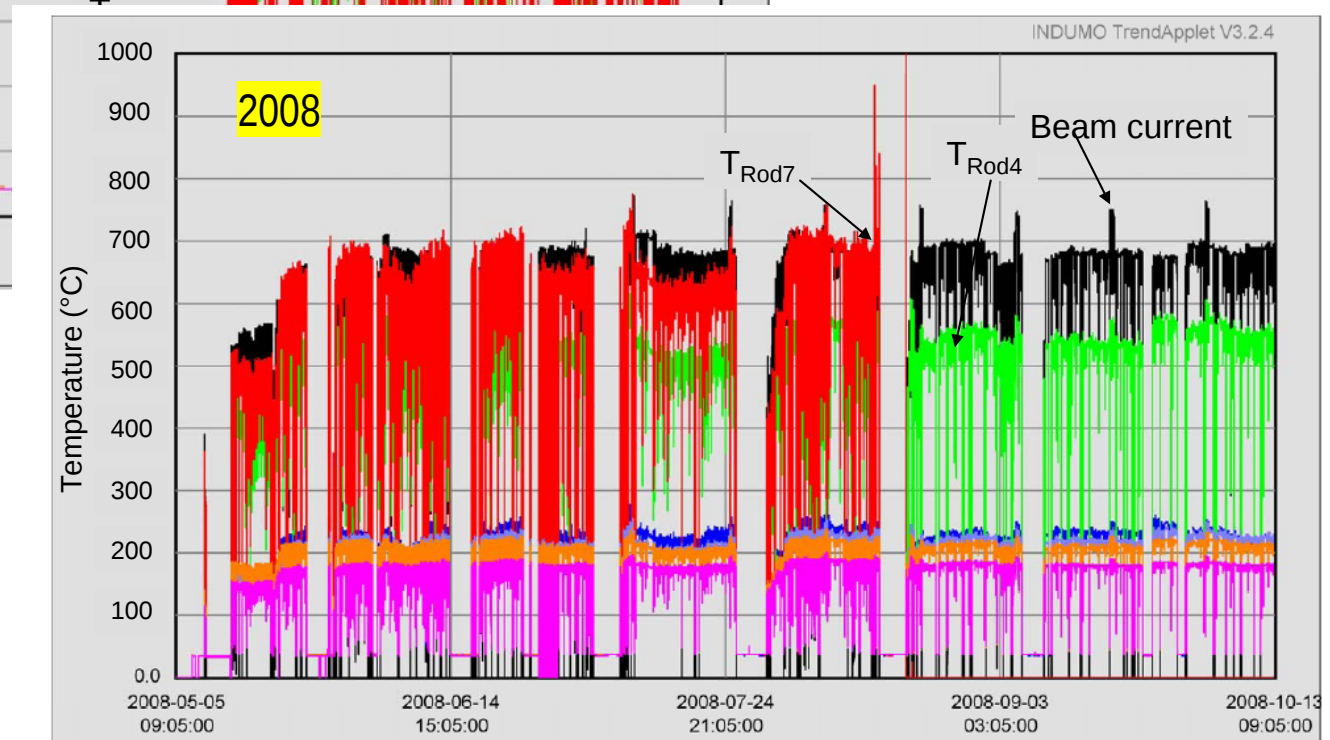
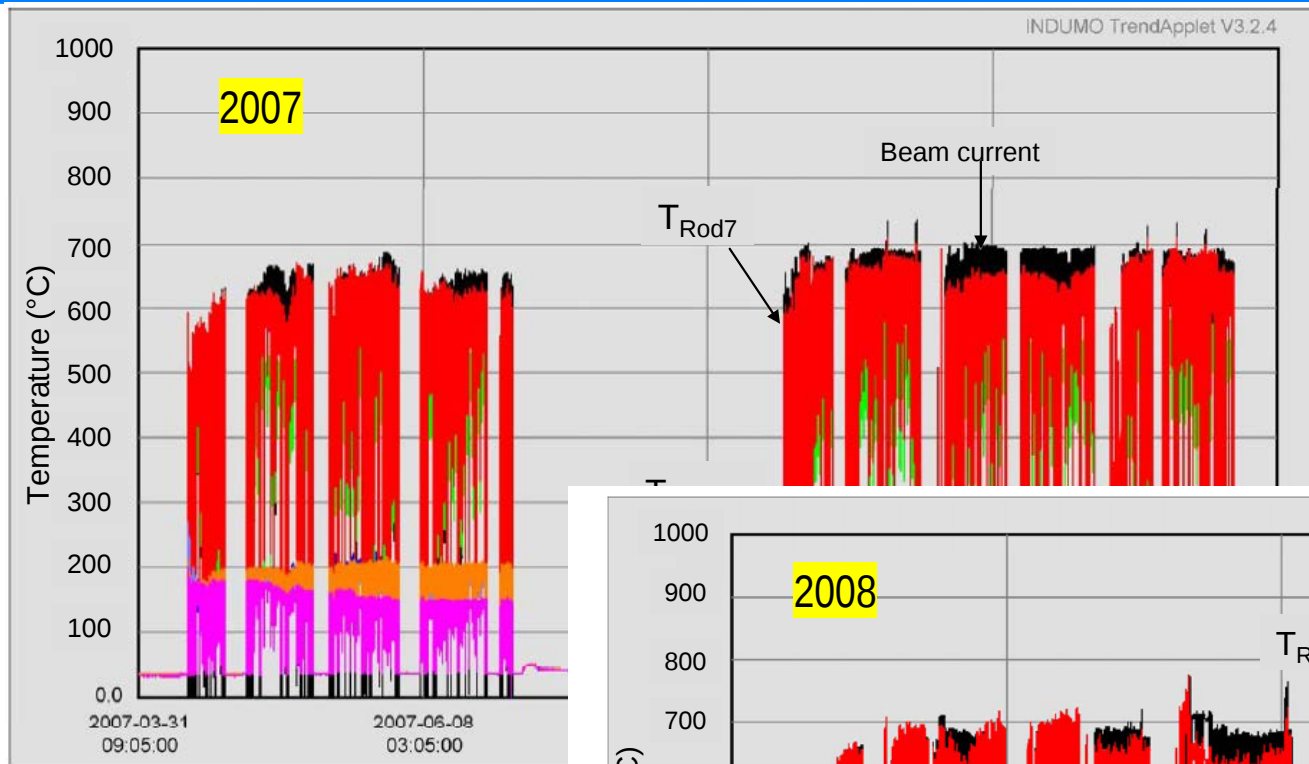
Irradiation matrix

Irradiation Matrix of STIP-V (Target-VII)

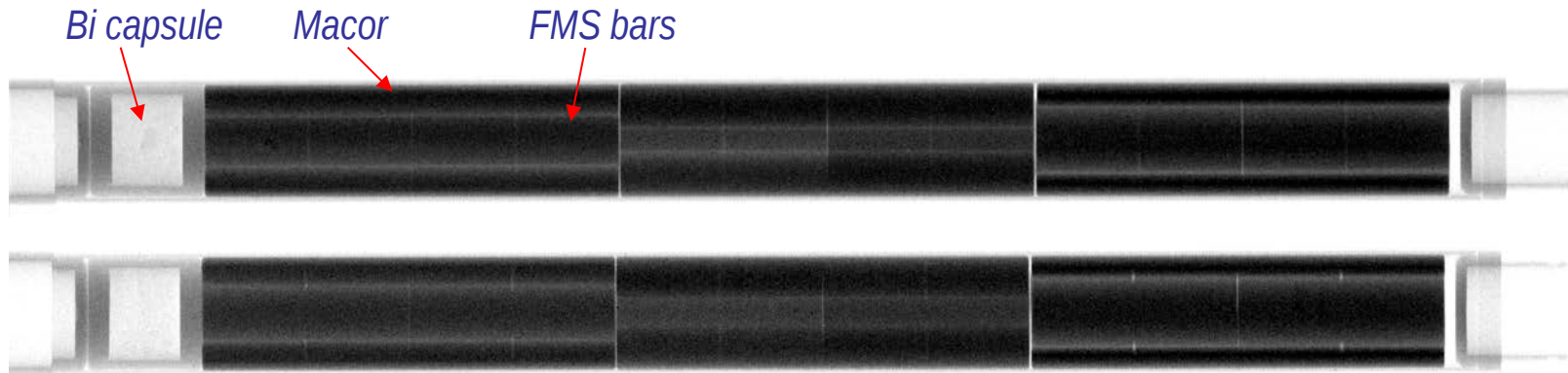
ID	Materials	Tensile S	Tensile L	Bend bar-A	HT-1/3 CVN	KLST Charpy	SP	TEM	SANS	Compression	Complete rod	Supplier	Sum
A	T91	8				8	8	8				CEA	32
B	Eurofer ODS	8				8	8	8				CEA	32
C	Eurofer	12				8	12	8				CEA	40
D	Eurofer "F"	4						8				CEA	12
E	Iron							7				CEA	7
F	Eurofer 97									15		CRPP	15
G	Fe-9Cr MA	16						6	3	15		CRPP	40
H	Fe-9Cr-0.1C MA	16						16	3	15		CRPP	50
J	CLAM	16				16		18	2			CRPP	52
K	Eurofer 97 ODS	12				16		21	2			CRPP	51
L	ODS Eurofer-FZK	30	12		12		16					PSI (ASQ)	70
M	ODS Eurofer-PL	18	12		12		16					PSI (ASQ)	58
N	12CrWTi ODS	12	12		12		12					PSI (ASQ)	48
P	PM2000	12	12		12		7					PSI (ASQ)	43
IH	Inconel 718	8						8				PSI (ASQ)	16
II	Inconel 718 EBW	4						4				PSI (ASQ)	
O	TZM		12									PSI (ASQ)	
IQ	C/C-SiC			6							2	PSI (ASQ)	8
IS	SiC/SiC TySA-CVI-Ref			6								PSI/ORNL	6
	SiC/SiC TySA-CVI-Ref				12							ORNL/PSI	12
IT	SiC/SiC TySA-NITE				8							ORNL/PSI	8
IU	SiC/SiC CVD SiC				32							ORNL/PSI	32
IV	SiC30										1	PSI (LWV)	1
IK	DIN1.4313		18	4								PSI (LWV)	24

ID	Materials	Tensile S	Tensile L	Bend bar-A	HT-1/3 CVN	KLST Charpy	SP	TEM	SANS	Compression	Complete rod	Supplier	Sum
	MF steels										2	UCSB	
Q	Crofer APU22		12					12				LANL	24
S	MA957		12					12				LANL	24
T	MA956		12					12				LANL	24
U	316L-GS							20				LANL	20
V	HT9-GS							23				LANL	23
IA	Ceramic							6					6
ID	HT9-WO		6									LANL	6
IE	HT9-Shot		6									LANL	6
IF	T91-Shot		6									LANL	6
IO	T91-LP							12				LANL	12
IP	HT9-LP							12				LANL	12
IM	MA956 Weld		6									LANL	6
IN	MA956-316L W		6									LANL	6
W	9Cr2WVTa		9					14	8			CIAE	31
X	HCLAM								8			CIAE	8
Y	SS316LN		9					16				CIAE	
	W-26%Re		6									CSNS	
IB	SS316L base metal							8				JAERI	
IB	SS316 base metal							8				JAERI	
IC	SS316L GBE metal							8				JAERI	
IC	SS316 GBE metal							8				JAERI	
	Sum	176	168	16	100	56	79	283	26	45	5		871

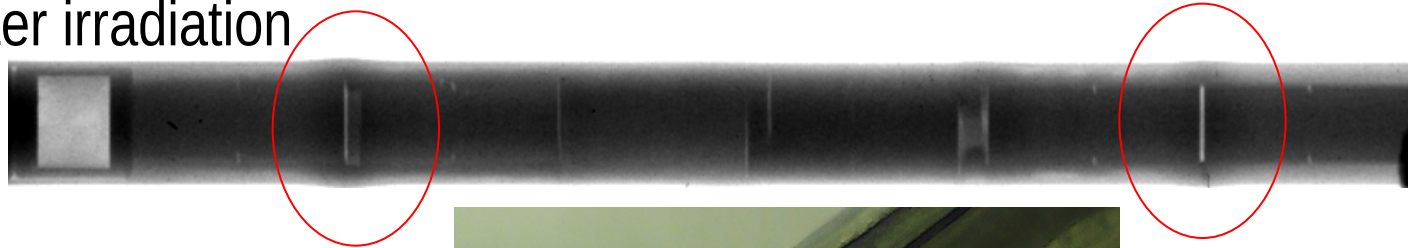
Irradiation history



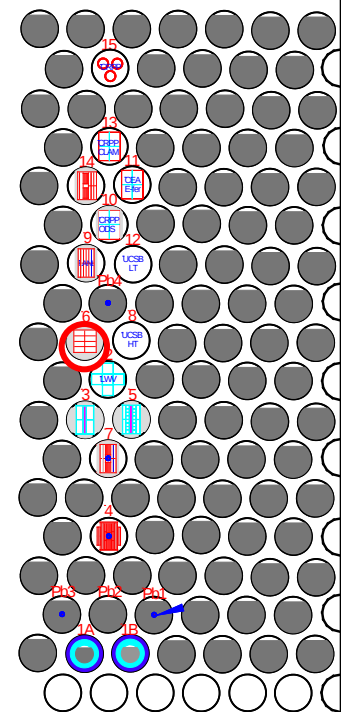
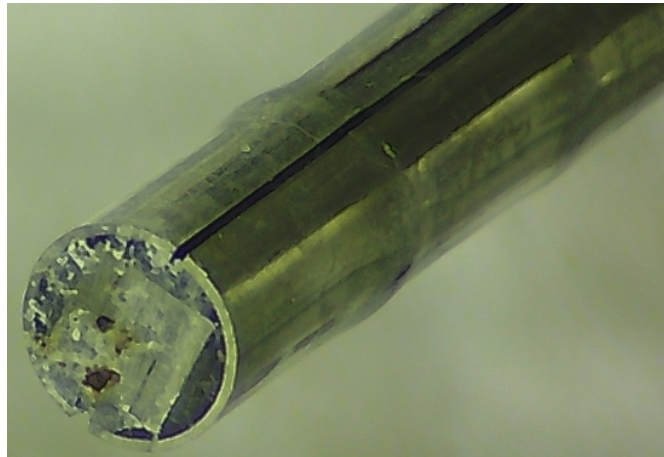
Before irradiation



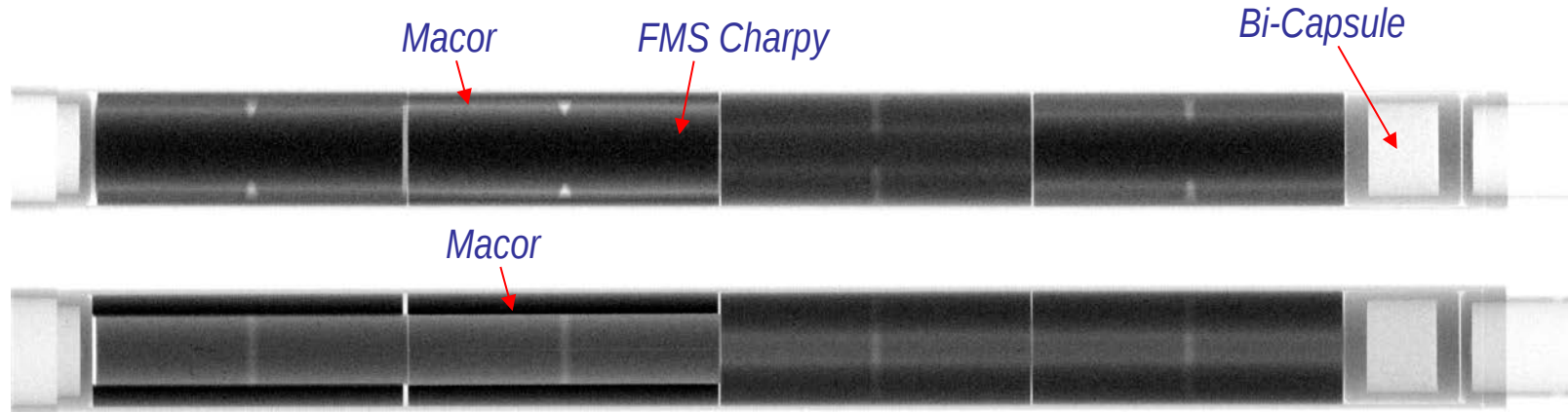
After irradiation



Rod 6



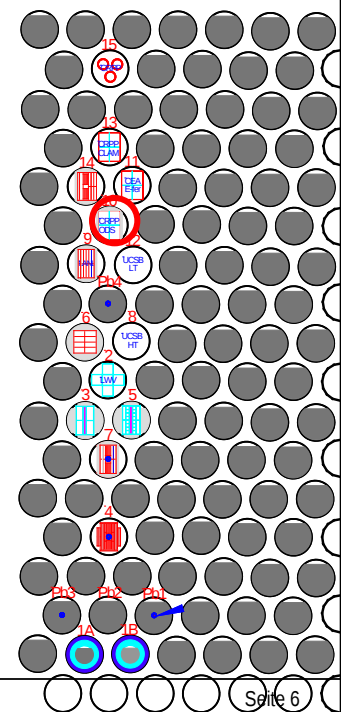
Before irradiation



After irradiation



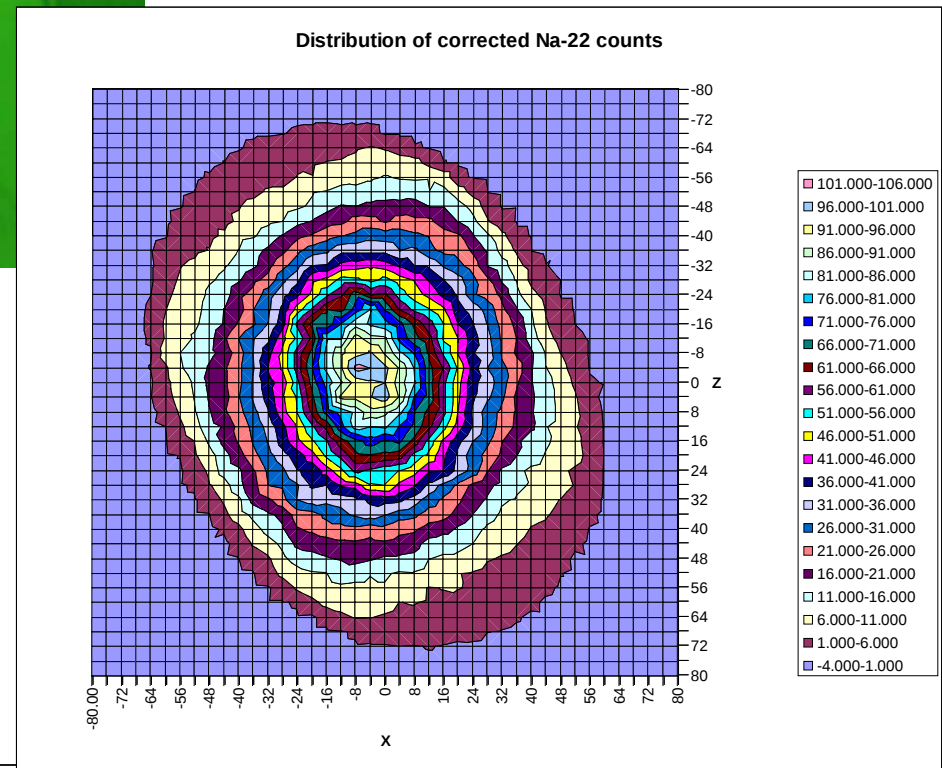
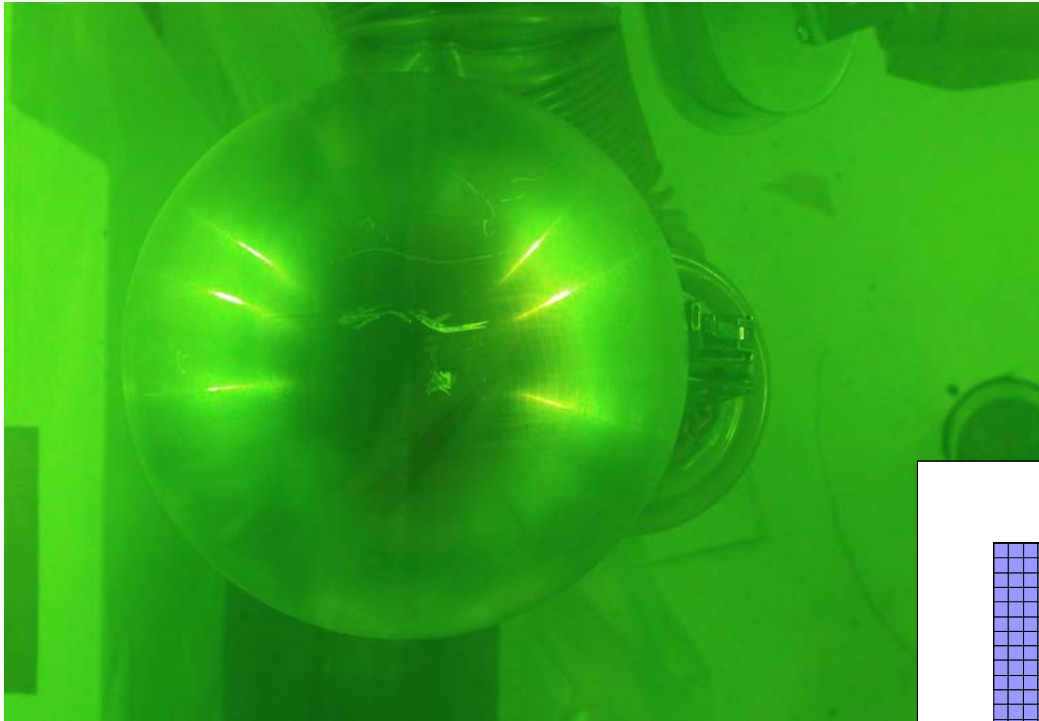
Rod 10



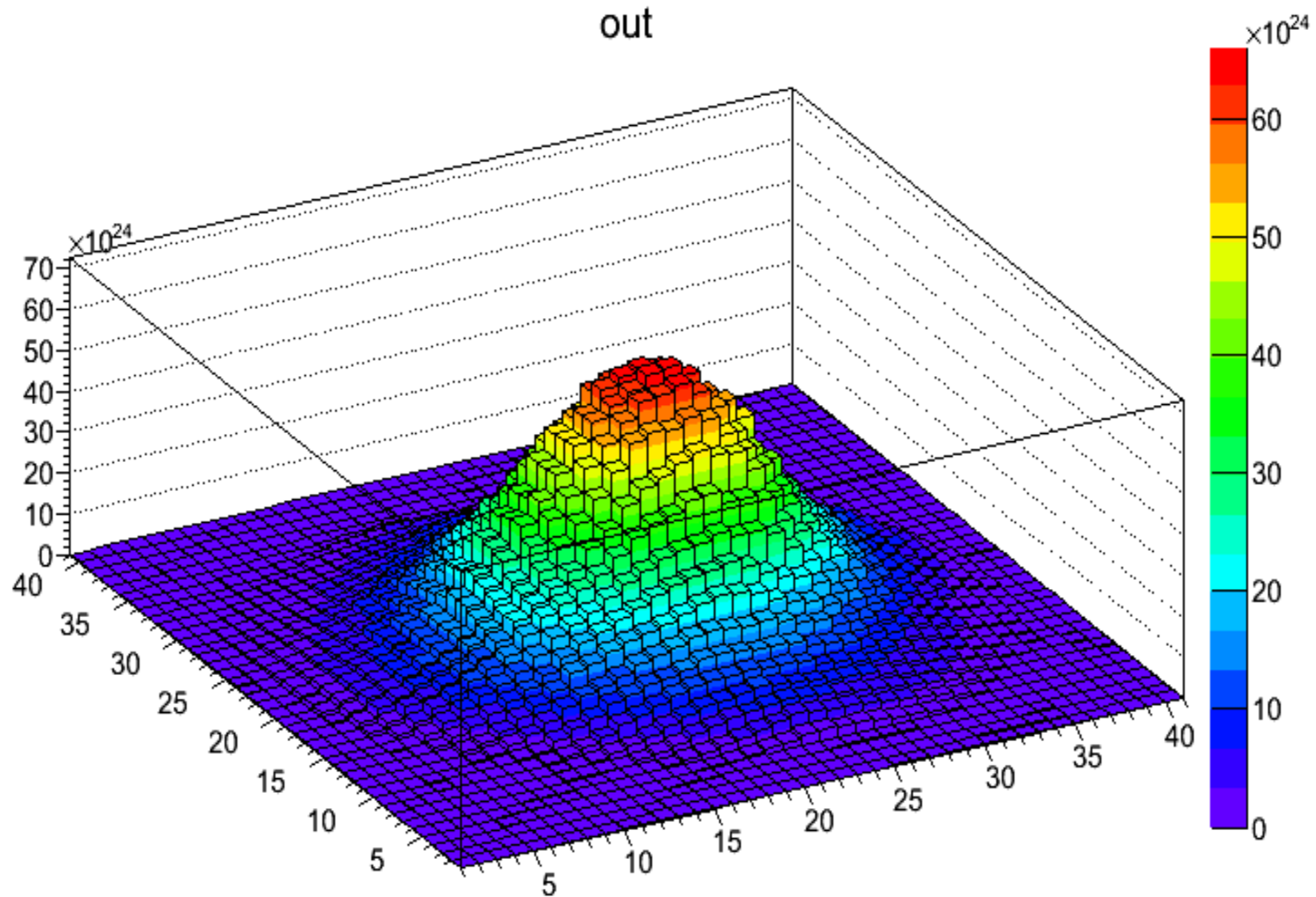
FMS Charpy



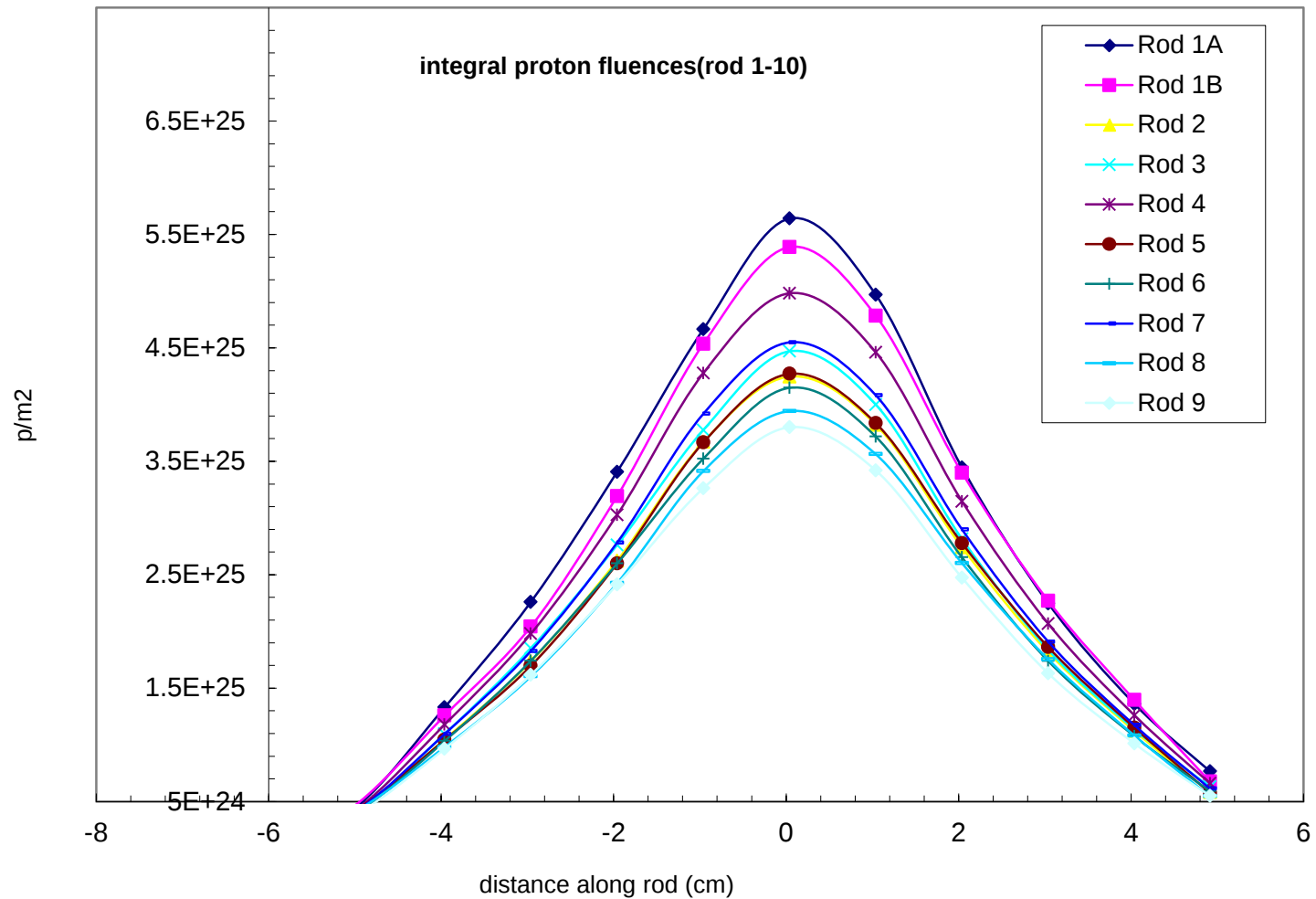
Gamma mapping



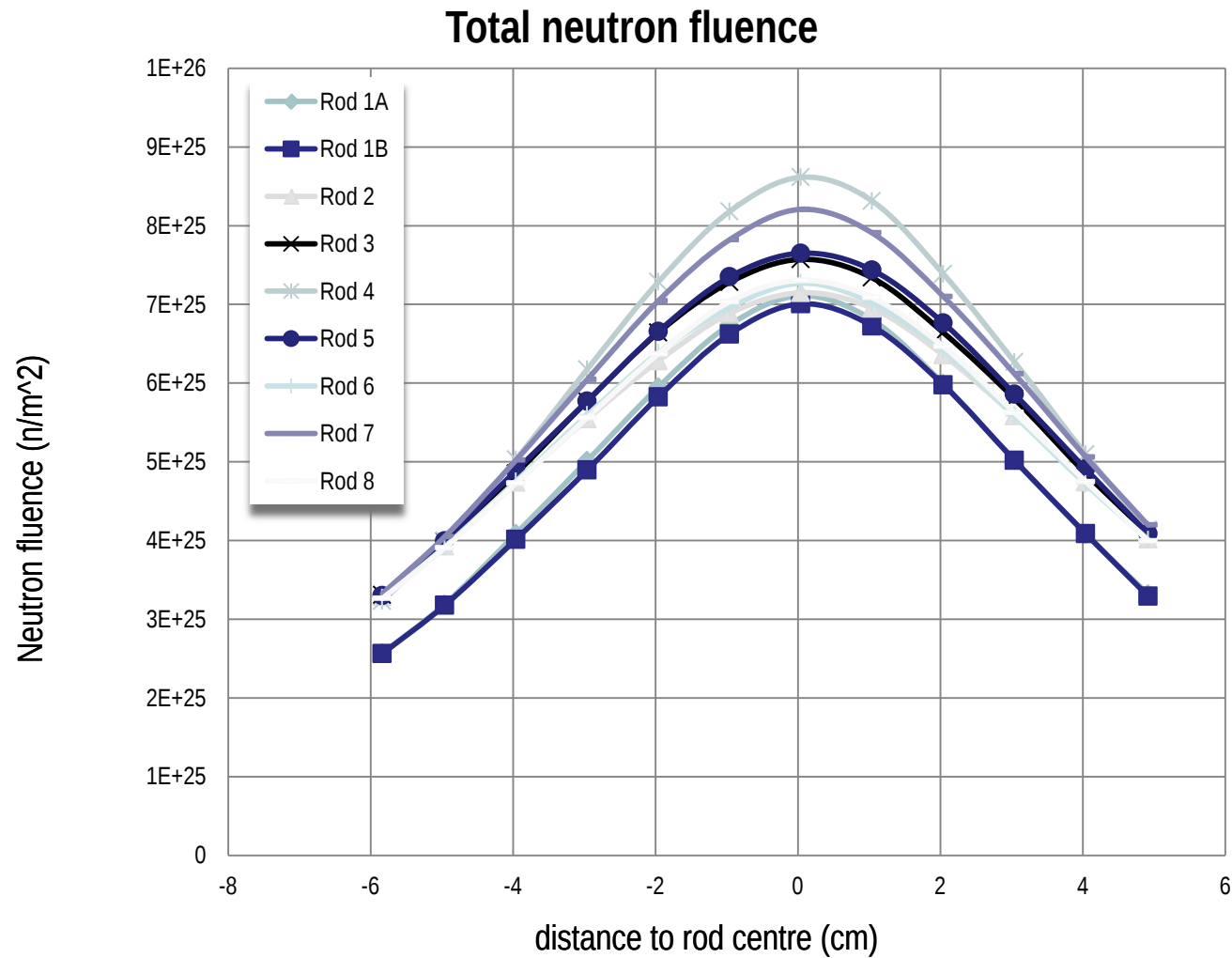
Proton fluence distribution on beam window



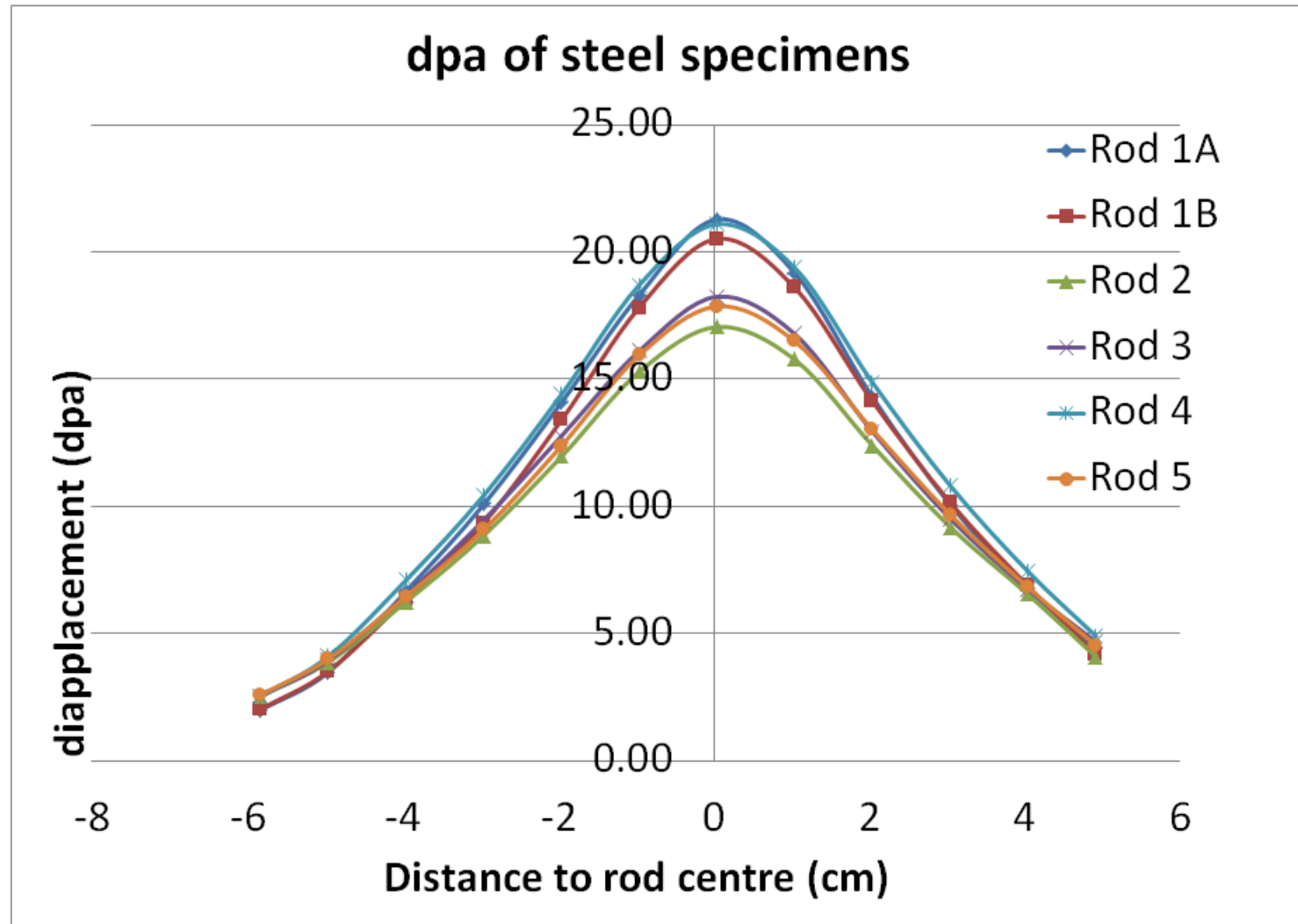
Proton fluence distribution of Rods 1-10



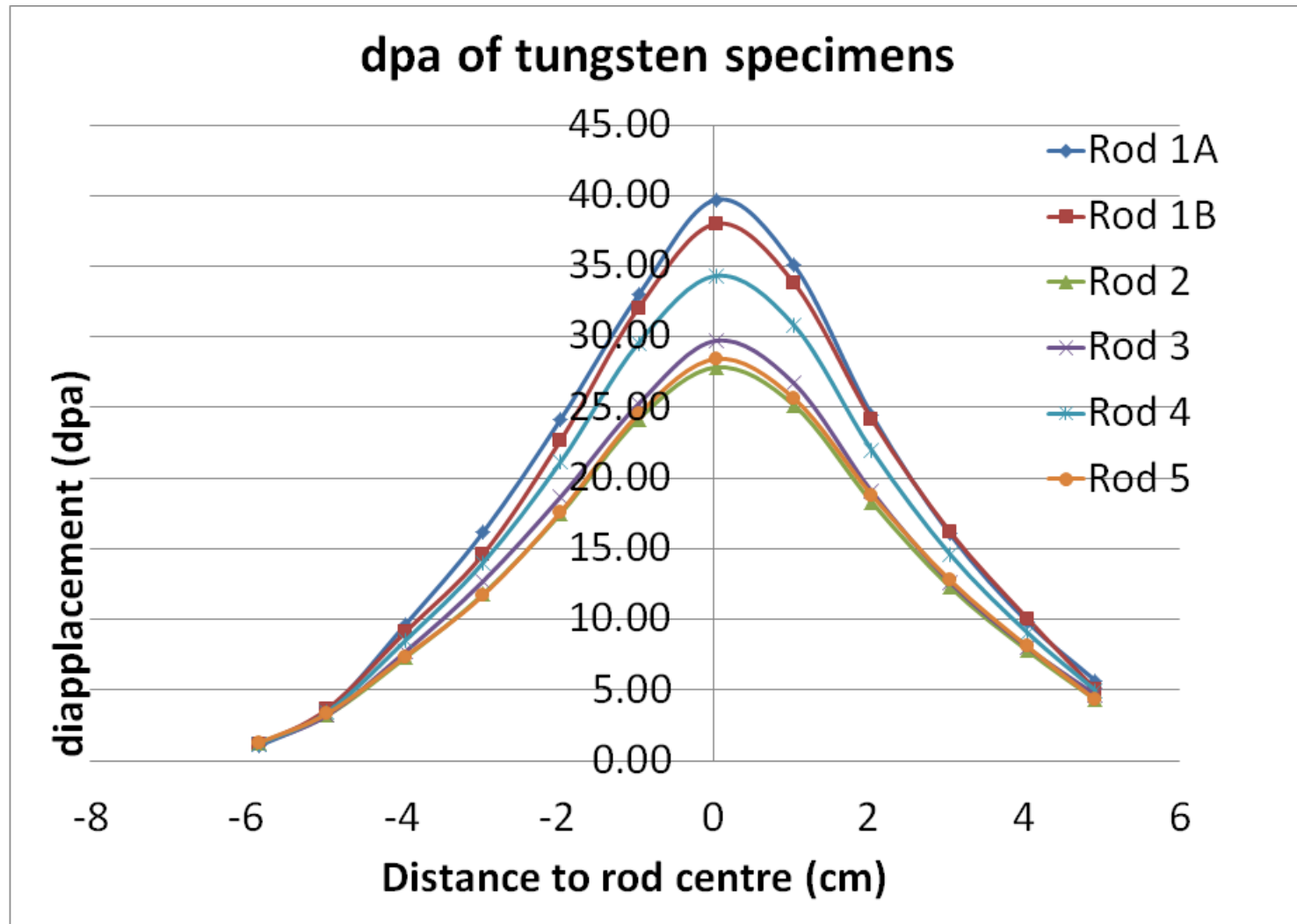
Neutron fluence distribution of Rods 1-10



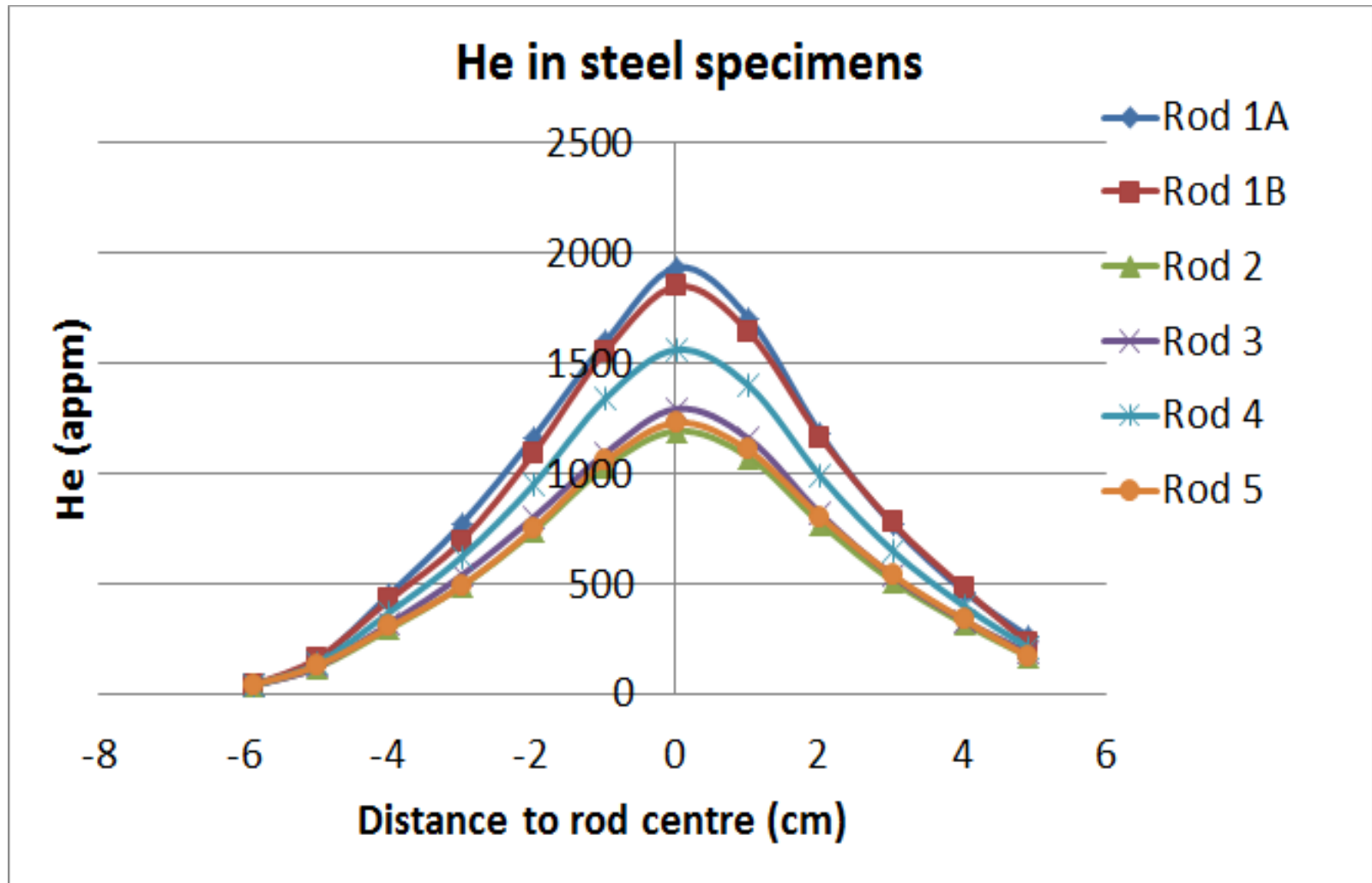
Dose distribution of Rods 1-5 for steels



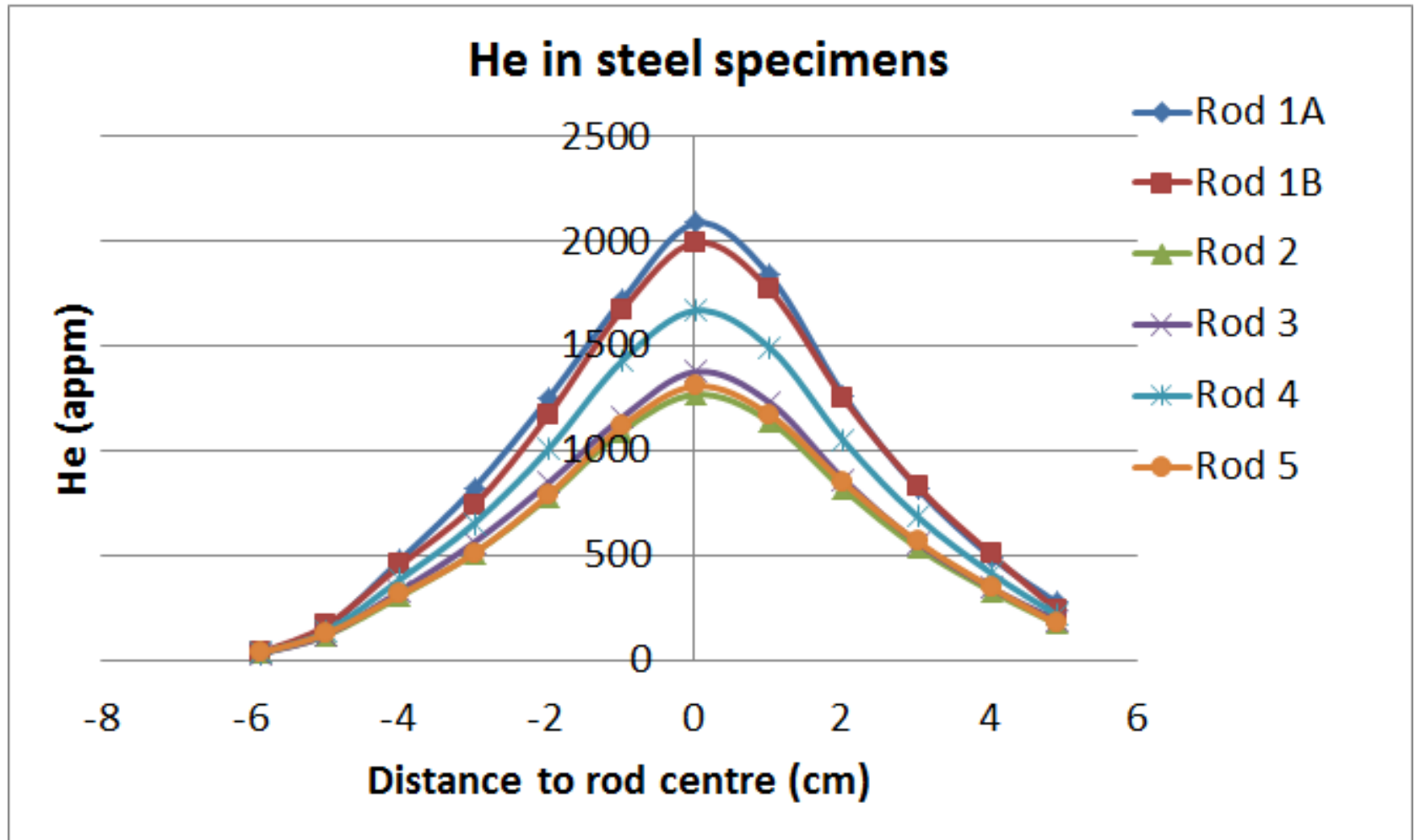
Dose distribution of Rods 1-5 for tungsten



He concentration of Rods 1-5 for steels

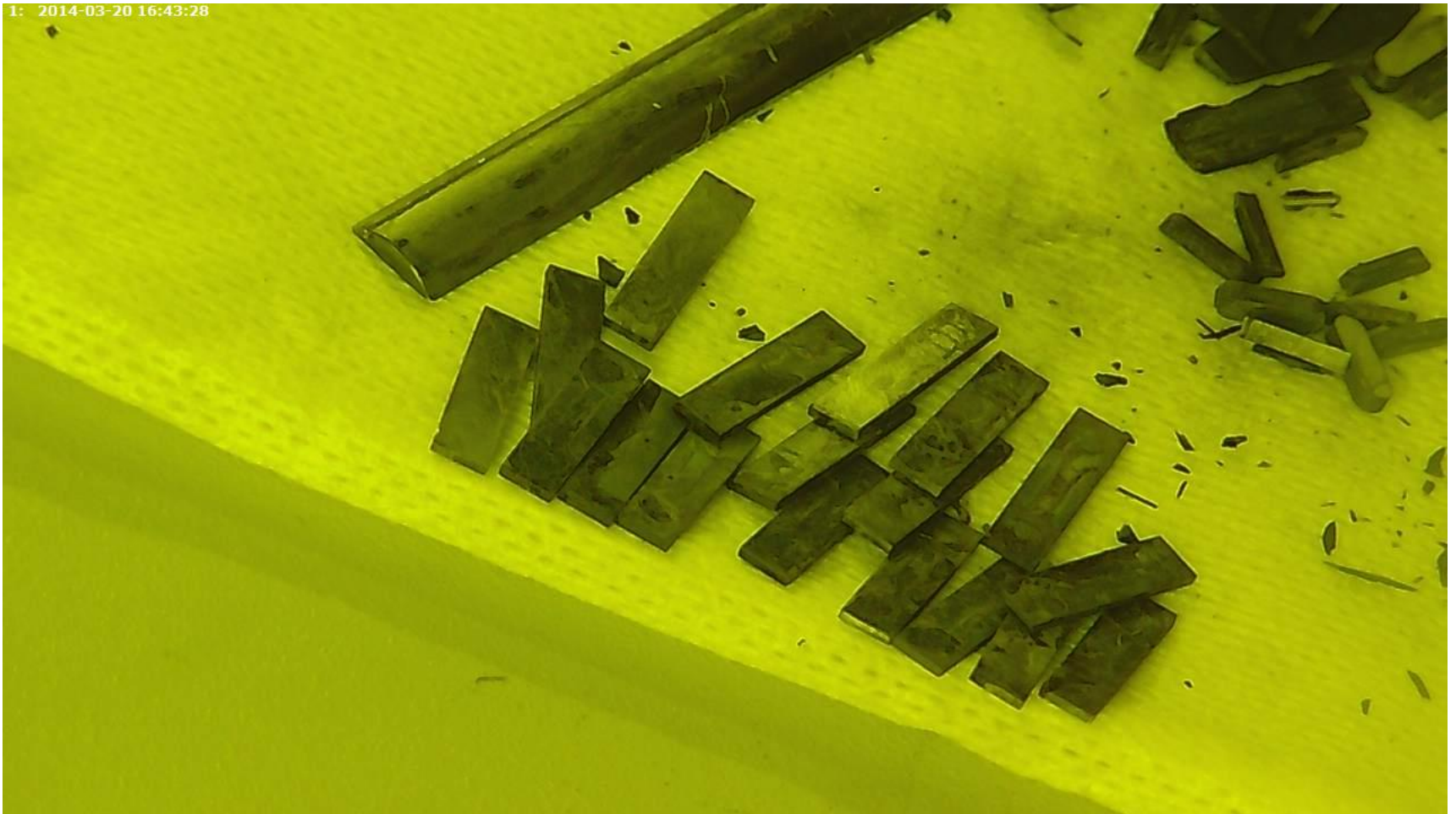


He concentration of Rods 1-5 for tungsten

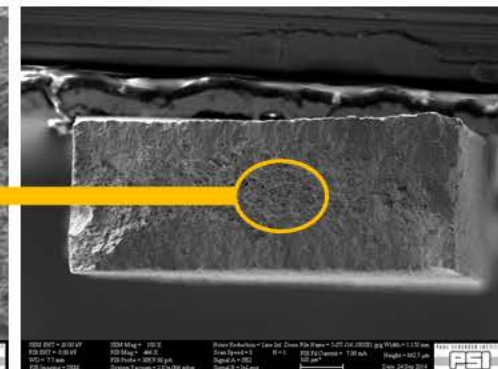
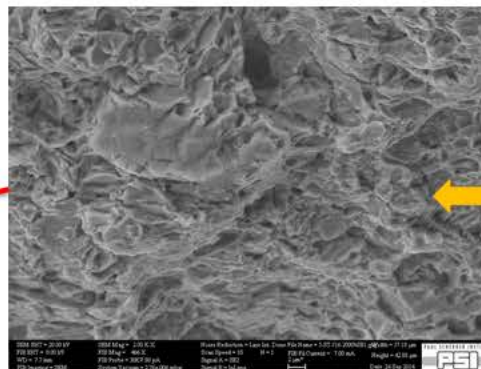
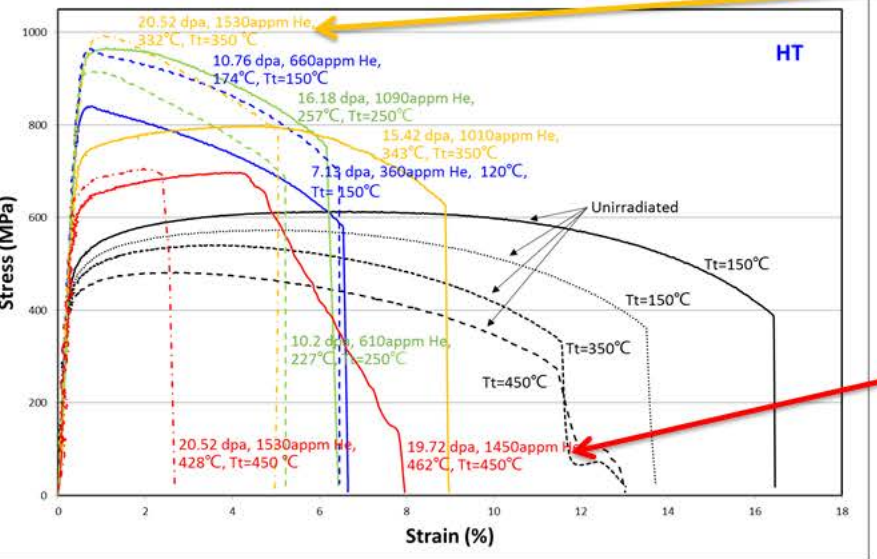
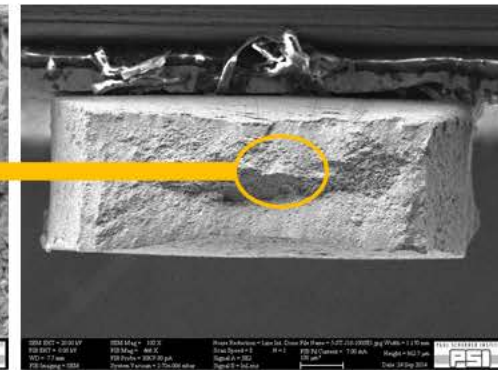
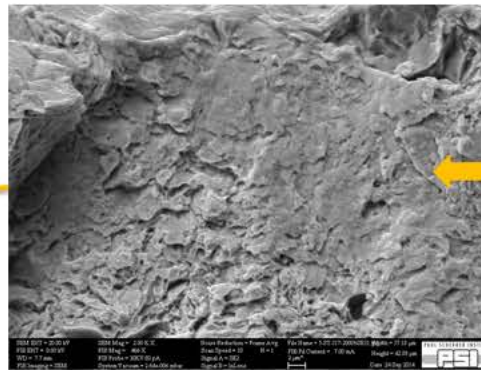
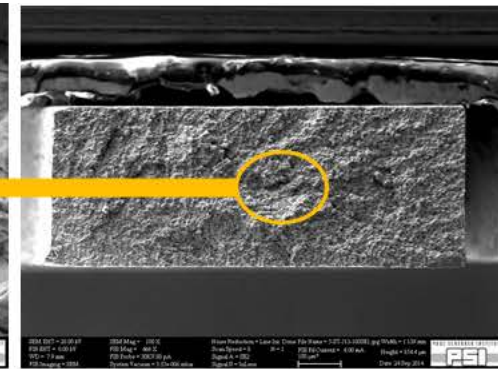
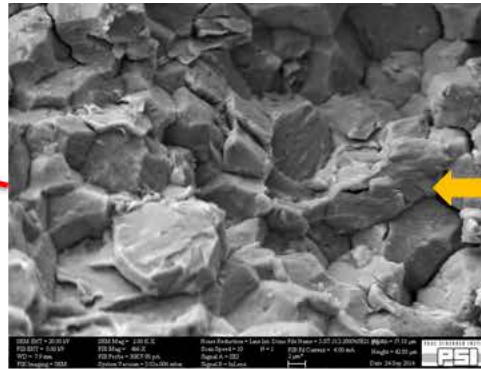
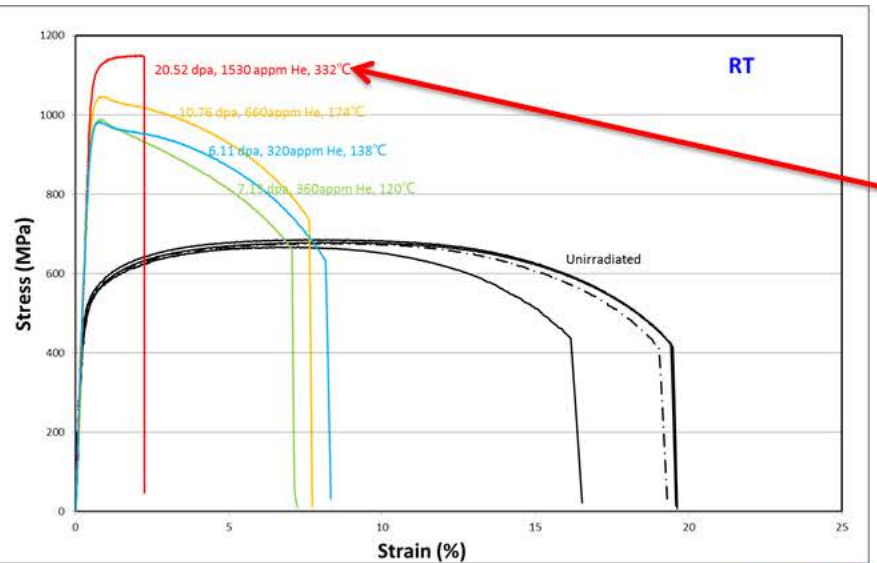


Unpacking samples in hot cell

1: 2014-03-20 16:43:28



First results



O8-1, Lei Peng, Wednesday, Poster 03, Hongen Ge



Thank you