Progress Report to WPEC SG25 Meeting (3 May, 2006)

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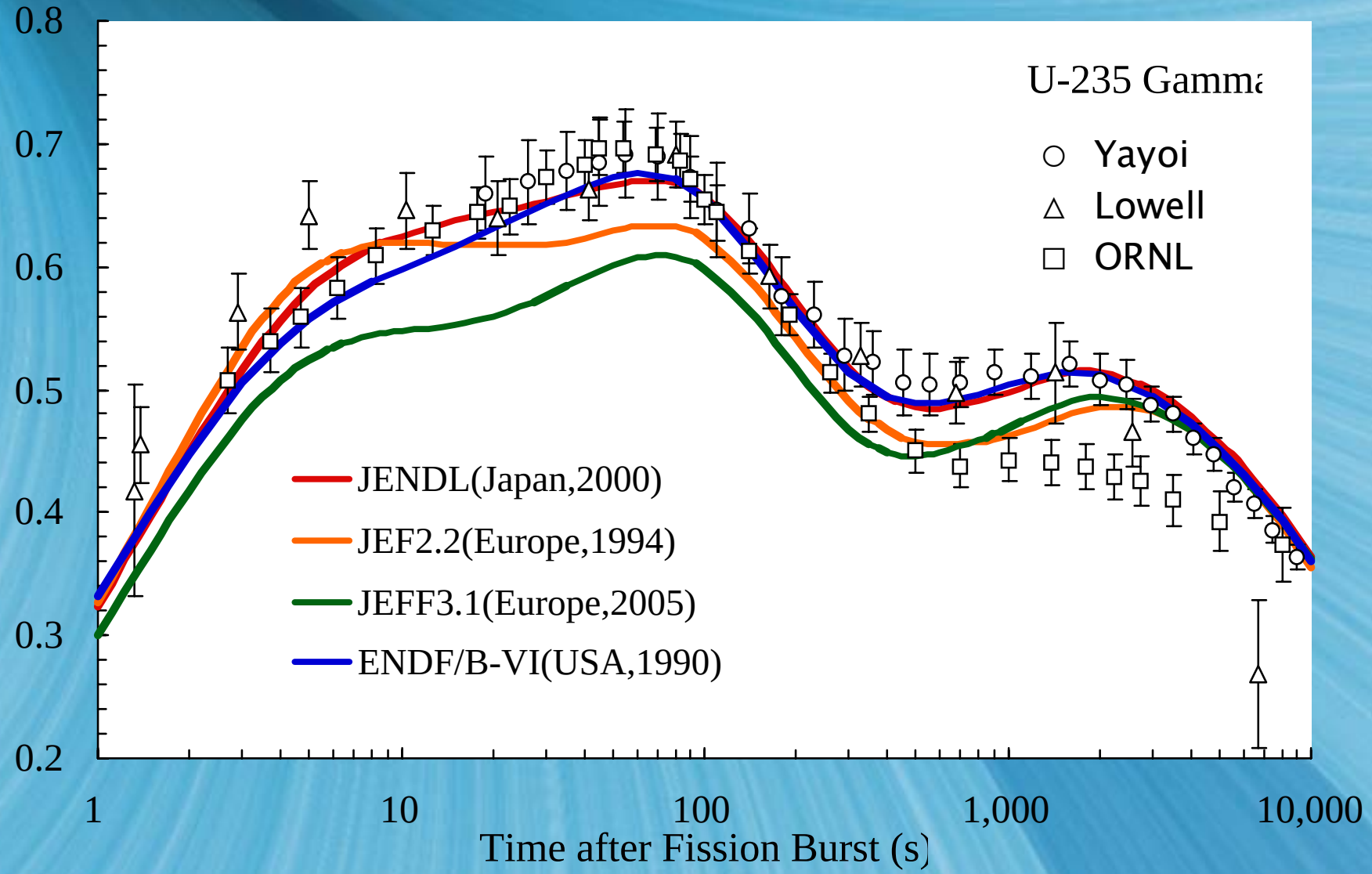
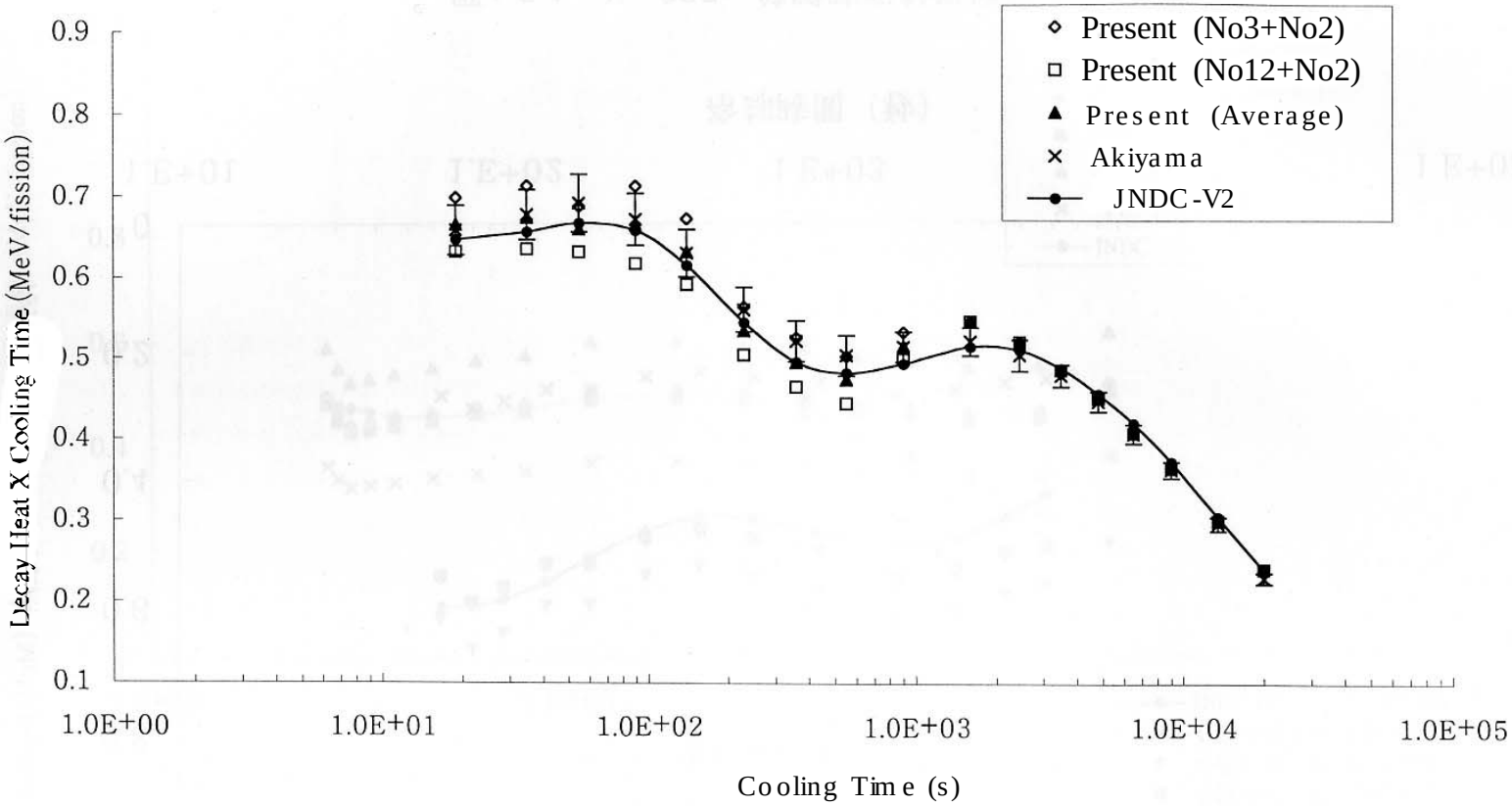
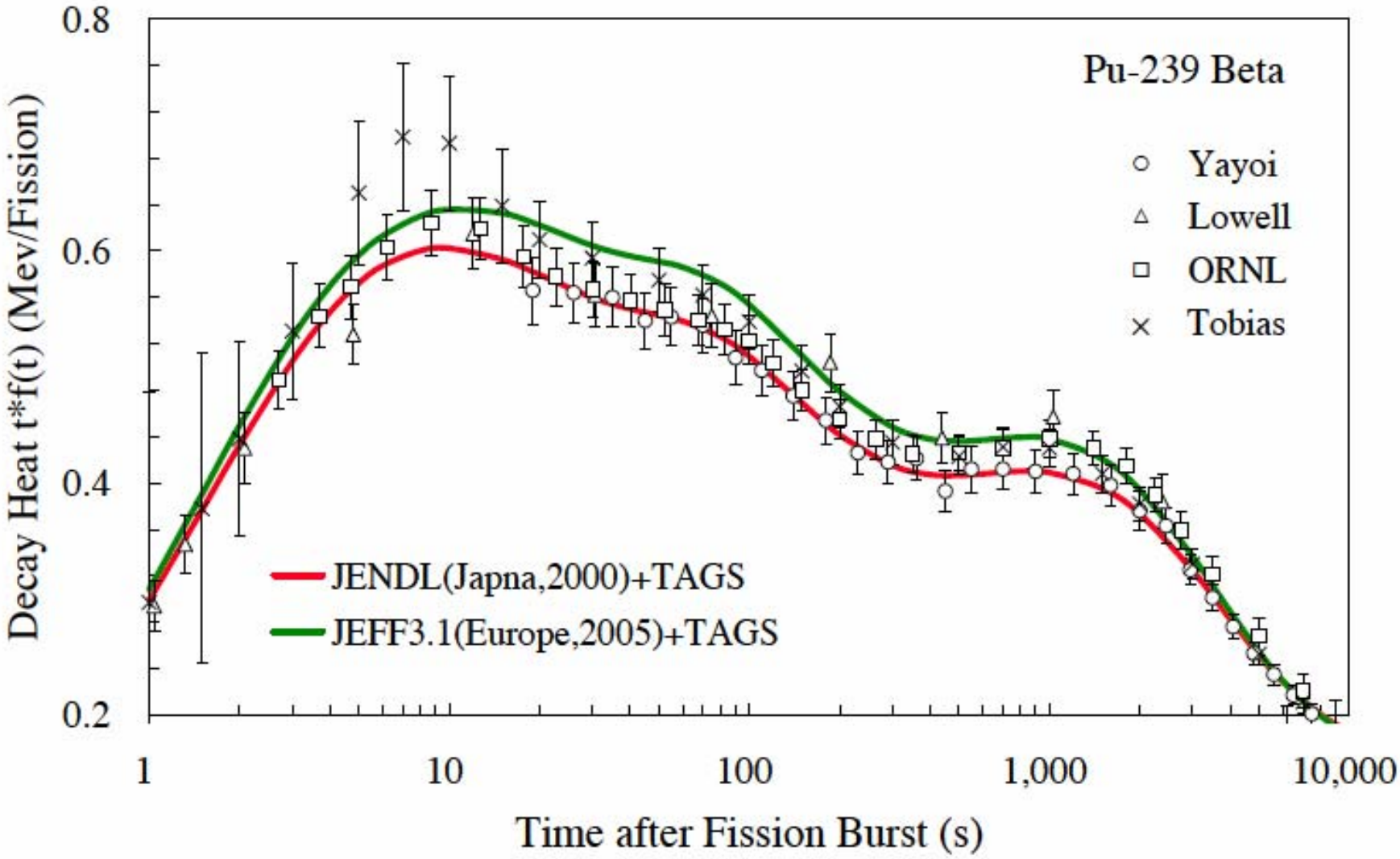
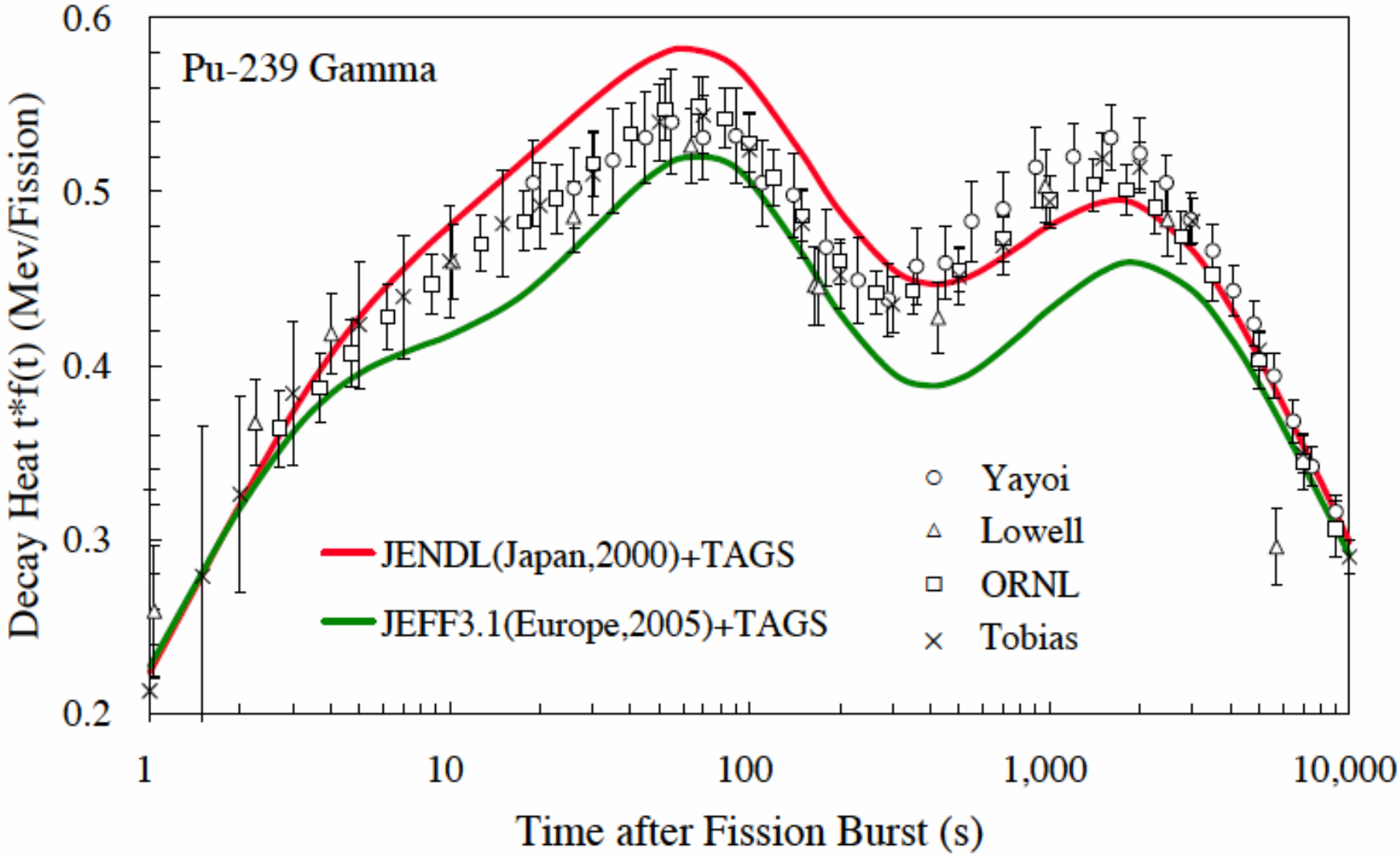
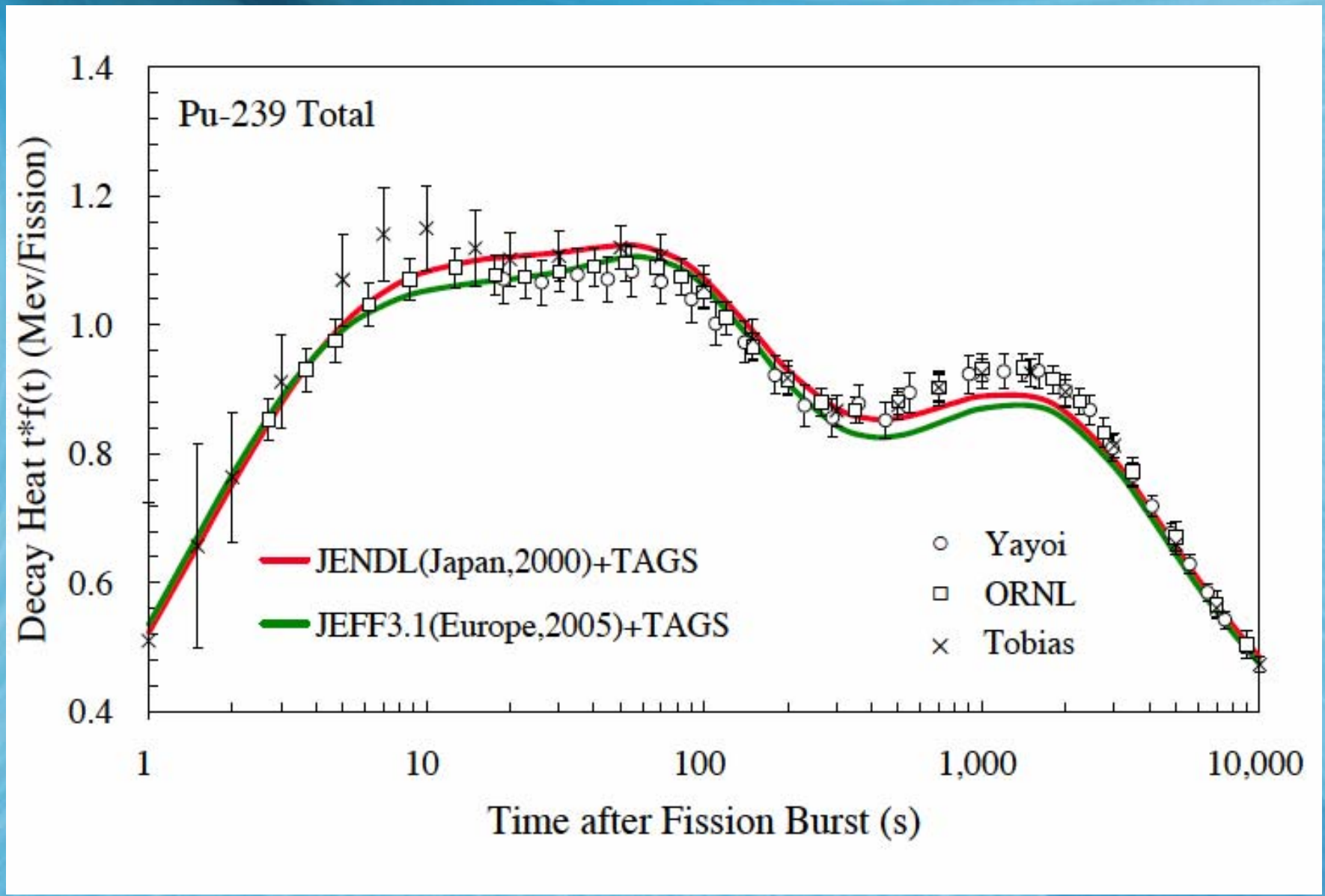
- On the discrepancy of U235 decay heat
- Tobias' evaluation of measured decay heat compared with recent calculations
- Contributions from the light and the heavy peaks of the fission yield curve (after Bersillon)
- BNL/JNDC Ratios of Elp and Eem derived from the Idaho TAGS data

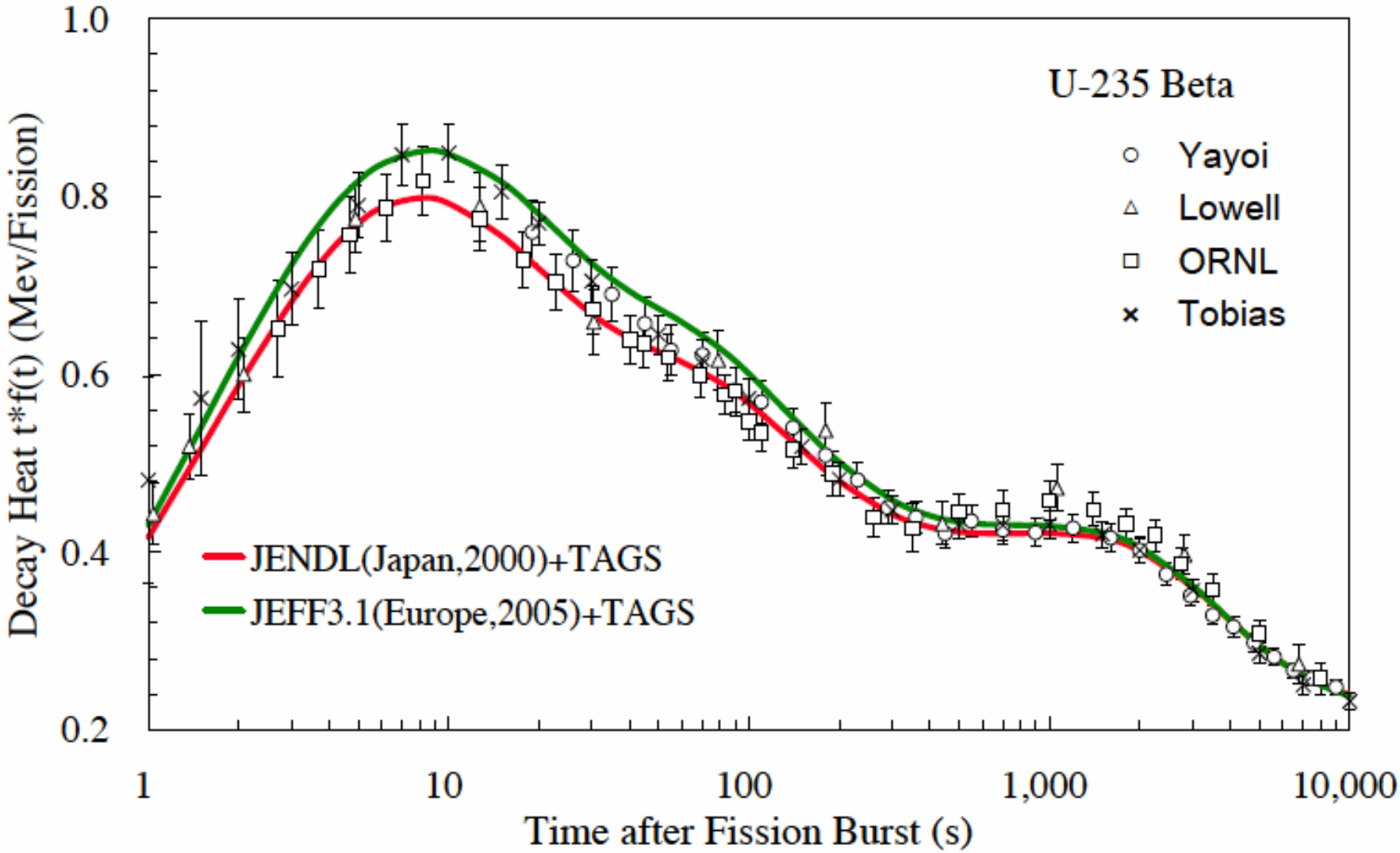

U-235 Gamma
Yayoi
Lowell
ORNL
JENDL(Japan,2000)
JEF2.2(Europe,1994)
JEFF3.1(Europe,2005)
ENDF/B-VI(USA,1990)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
1
10
100
1,000
10,000
Time after Fission Burst (s)

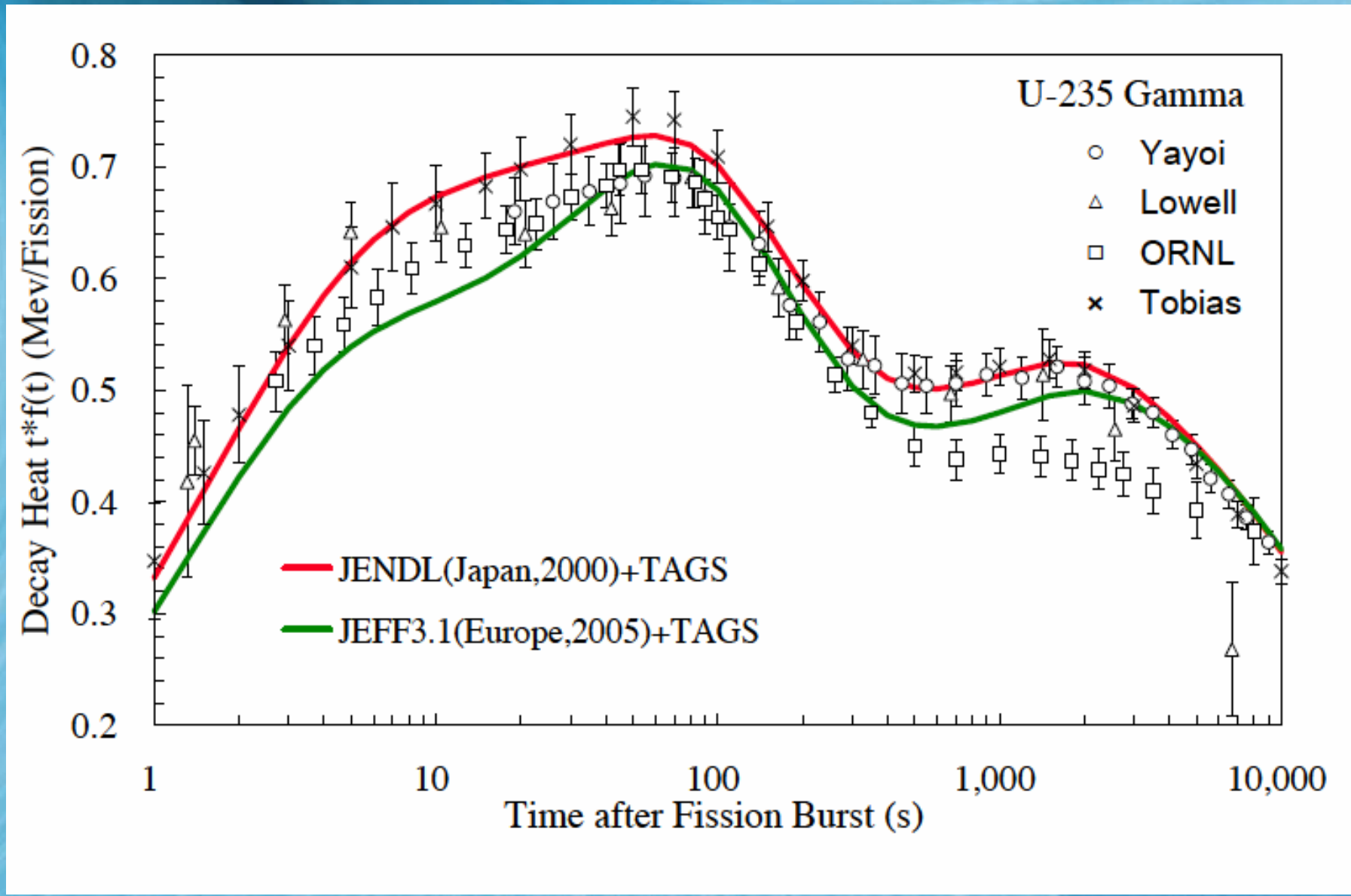

Present (No3+No2)
Present (No12+No2)
Present (Average)
Akiyama
JNDC-V2
Decay Heat X Cooling Time (MeV/fission)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
1.0E+00
1.0E+01
1.0E+02
1.0E+03
1.0E+04
1.0E+05
Cooling Time (s)

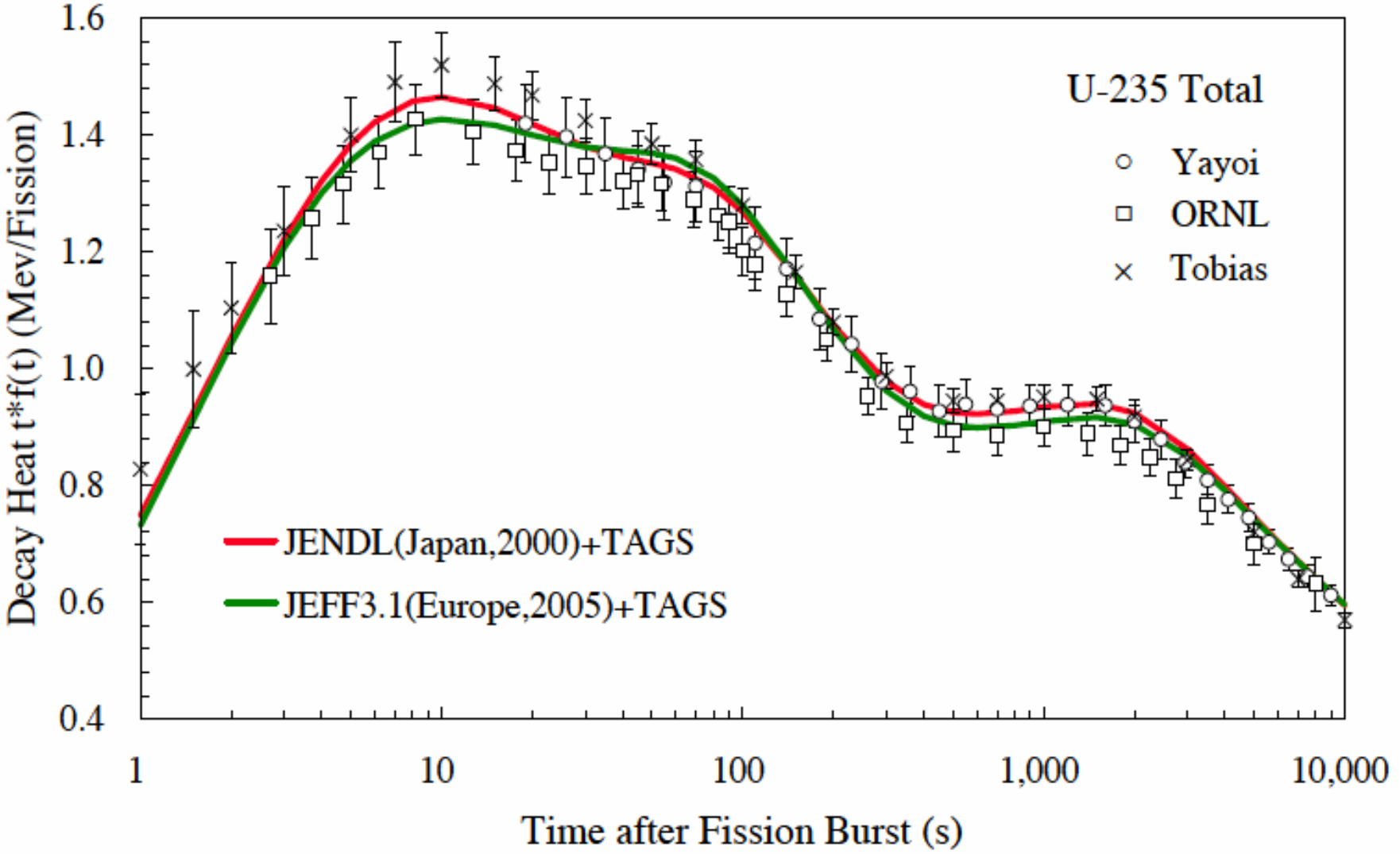

Pu-239 Beta
Yayoi
Lowell
ORNL
Tobias
JENDL(Japna,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Decay Heat t*f(t) (Mev/Fission)
0.8
0.6
0.4
0.2
1
10
100
1,000
10,000
Time after Fission Burst (s)


Pu-239 Gamma
Decay Heat t*f(t) (Mev/Fission)
0.6
0.5
0.4
0.3
0.2
1
10
100
1,000
10,000
Time after Fission Burst (s)
JENDL(Japan,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Yayoi
Lowell
ORNL
Tobias


Pu-239 Total
Decay Heat t*f(t) (Mev/Fission)
1.4
1.2
1.0
0.8
0.6
0.4
1
10
100
1,000
10,000
Time after Fission Burst (s)
JENDL(Japan,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Yayoi
ORNL
Tobias


U-235 Beta
Yayoi
Lowell
ORNL
Tobias
JENDL(Japan,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Decay Heat t*f(t) (Mev/Fission)
1.0
0.8
0.6
0.4
0.2
1
10
100
1,000
10,000
Time after Fission Burst (s)


U-235 Gamma
Yayoi
Lowell
ORNL
Tobias
JENDL(Japan,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Decay Heat t*f(t) (Mev/Fission)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
1
10
100
1,000
10,000
Time after Fission Burst (s)


U-235 Total
Yayoi
ORNL
Tobias
JENDL(Japan,2000)+TAGS
JEFF3.1(Europe,2005)+TAGS
Decay Heat t*f(t) (Mev/Fission)
Time after Fission Burst (s)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
1
10
100
1,000
10,000

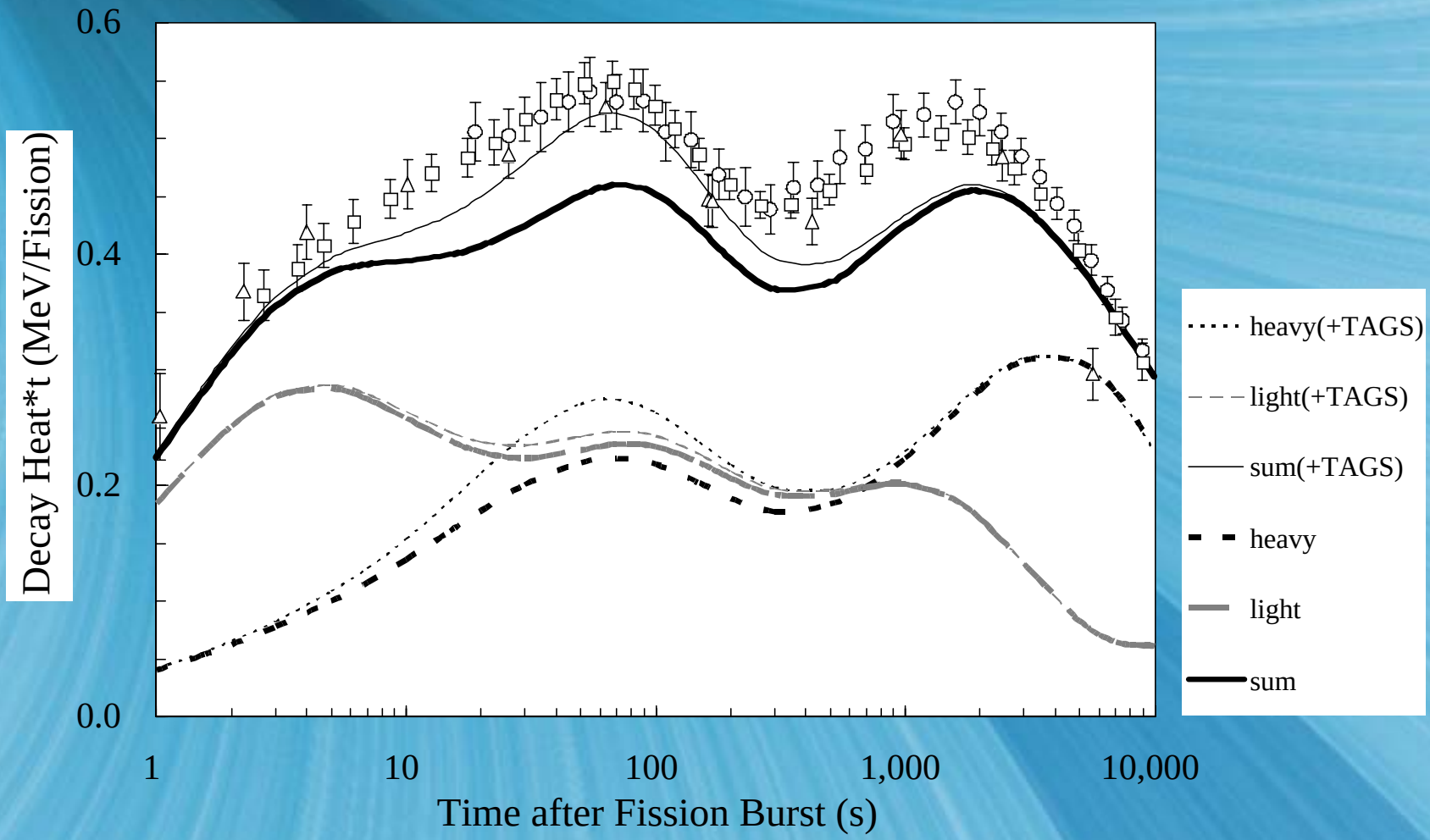

0.6
0.4
0.2
0.0
Decay Heat*t (MeV/Fission)
1
10
100
1,000
10,000
Time after Fission Burst (s)
heavy(+TAGS)
light(+TAGS)
sum(+TAGS)
heavy
light
sum

Table BNL/JNDC Ratios of Elp and Eem derived from the Idaho TAGS (1/2)

Nucleus	lso	EB ENDF/HYT(Jp)	EG ENDF/HYT(Jp)	Notes by Sonzogni	Additional note by Yoshida
89Rb	0	0.9966	0.99939		
90Rb	0	0.99301	1.0007		
90Rb	1	0.9932	0.99921		
91Rb	0	0.99931	1.00042		
93Rb	0	0.98078	0.97941		
93Sr	0	0.99897	0.9998		
94Sr	0	0.99816	0.99999		
95Sr	0	0.99536	1.00034		
94Y	0	0.9934	1.00024		
95Y	0	0.9779	1.03619		
138Cs	0	0.99408	0.99962		
138Cs	1	0.99255	0.86378	Need to add the IT contribution	HYT(Jp) corrected for IT
139Cs	0	0.9919	0.9987		
140Cs	0	0.99114	1.02564		
141Cs	0	0.98847	1.00386		
141Ba	0	0.99526	1.0001		
142Ba	0	1.00049	0.99909		
143Ba	0	0.99598	1.00096		
144Ba	0	0.99877	1.00045		
145Ba	0	1.22677	0.99895	I use Q=5572	We use Q=4923 (TOI 8th)
142La	0	0.98942	0.99822		
143La	0	0.98814	0.96443		
144La	0	1.01006	1.02377		
145La	0	0.99801	1.00013		

Table BNL/JNDC Ratios of Elp and Eem derived from the Idaho TAGS (2/2)

Nucleus	Iso	EB ENDF/HYT(Jp)	EG ENDF/HYT(Jp)	Notes by Sonzogni	Additional note by Yoshida
145Ce	0	0.99831	1.00068		
146Ce	0	1.02152	1.00028		
147Ce	0	1.08272	1.00007	I use Q=3426	We use Q=3290 (TOI 8th)
148Ce	0	1.05719	1.00034	I use Q=2140	We use Q=2060 (TOI 8th)
146Pr	0	1.00133	1.00049		
147Pr	0	1.00388	1.0007		
148Pr	0	0.99547	1.00012		
148Pr	1	0.85869	1.1379	Symmetric Ibeta for Sum=100	SUM I = 126%, Renorm'd
149Pr	0	0.95605	0.99996		
151Pr	0	1.02691	1.00063		
149Nd	0	0.99853	1.00034		
151Nd	0	1.00184	0.99309		
153Nd	0	1.0198	0.87073	Assumed GS gets 71.5 %	Equally shared among the lowest 6 levels
154Nd	0	0.97786	0.99164		
155Nd	0	1.11981	1.02608	I use Q=4500	We use Q=4222 (TOI 8th = 5000)
152Pm	0	1.00109	0.9216	Assumed GS gets 60%	Equally shared among the lowest 2 levels
153Pm	0	0.99821	0.9904		
154Pm	0	0.95371	1.00053	I use Q=3963	We use Q=4044 (TOI 8th = 4050)
155Pm	0	0.99553	1.00068		
156Pm	0	0.98989	0.9996		
157Pm	0	0.94565	1.00049	I use Q=4360	We use Q=4514 (TOI 8th = 4500)
157Sm	0	0.99974	1.00019		
158Sm	0	1.00393	1.0067		
158Eu	0	0.99448	0.99945		