International Chemistry Olympiad

Baku, 20-29 July 2015

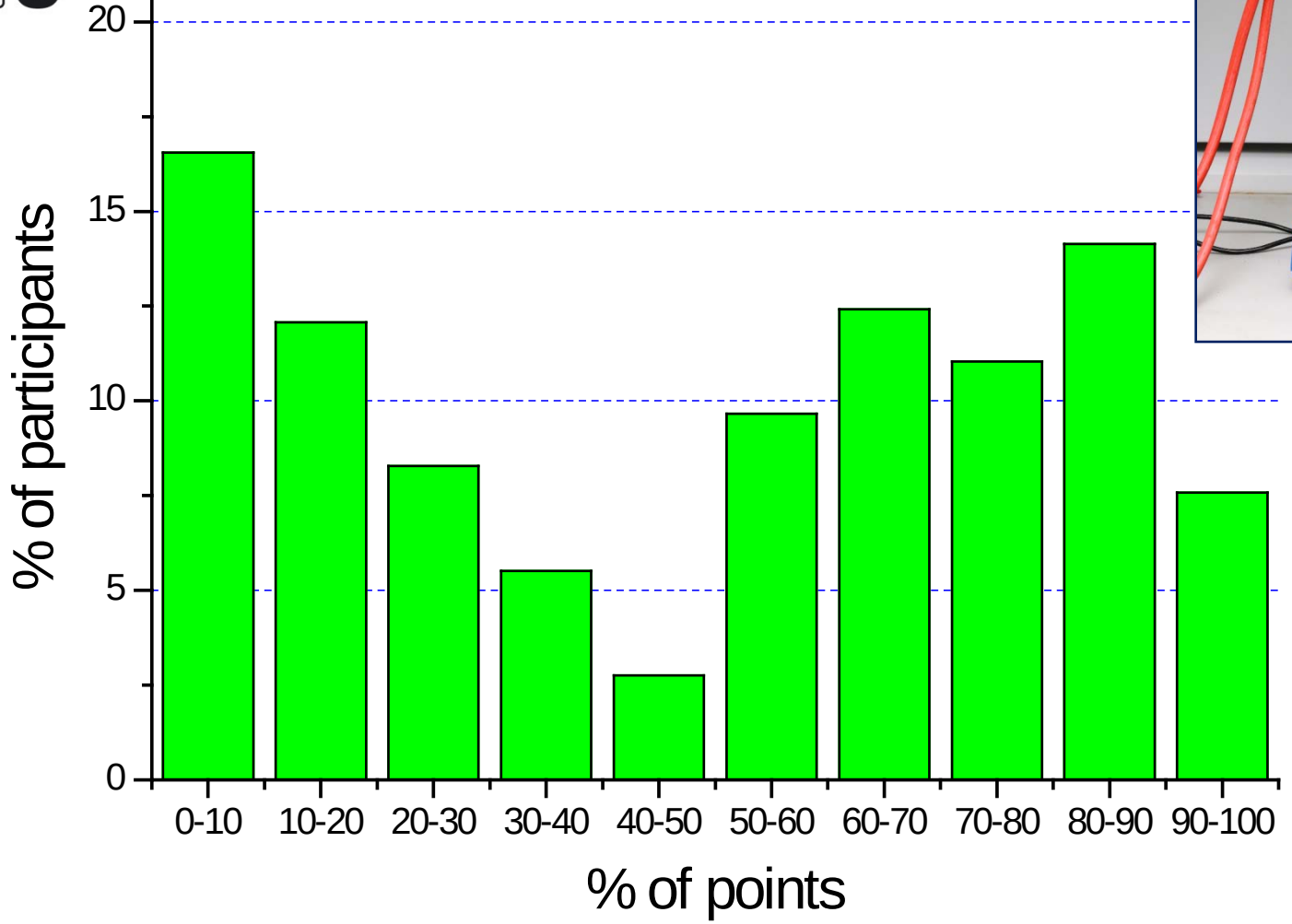
Statistical data on the problems

Experiment in brief

	Exp.		
No.	1	2	3
Max	15	12	13
Avg. %	**48.1**	**54.6**	**20.6**

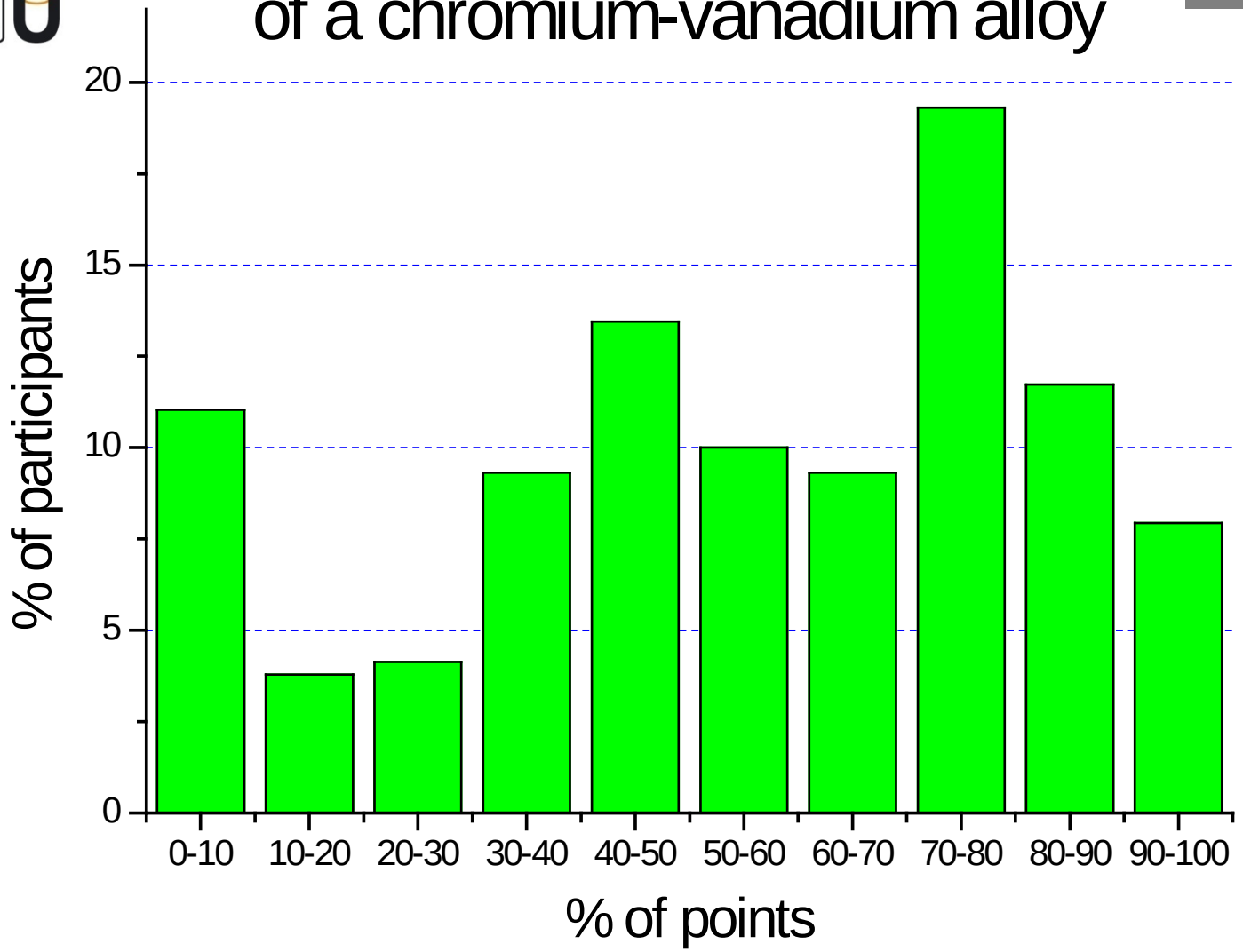
Avg. result in experiment – 40.92%

Exp.1. Tuning bromination selectivity by catalysis



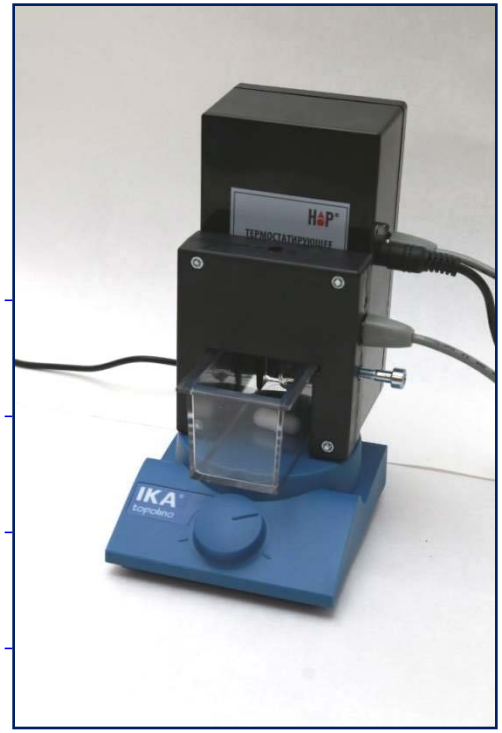
Avg. result – 48.1%

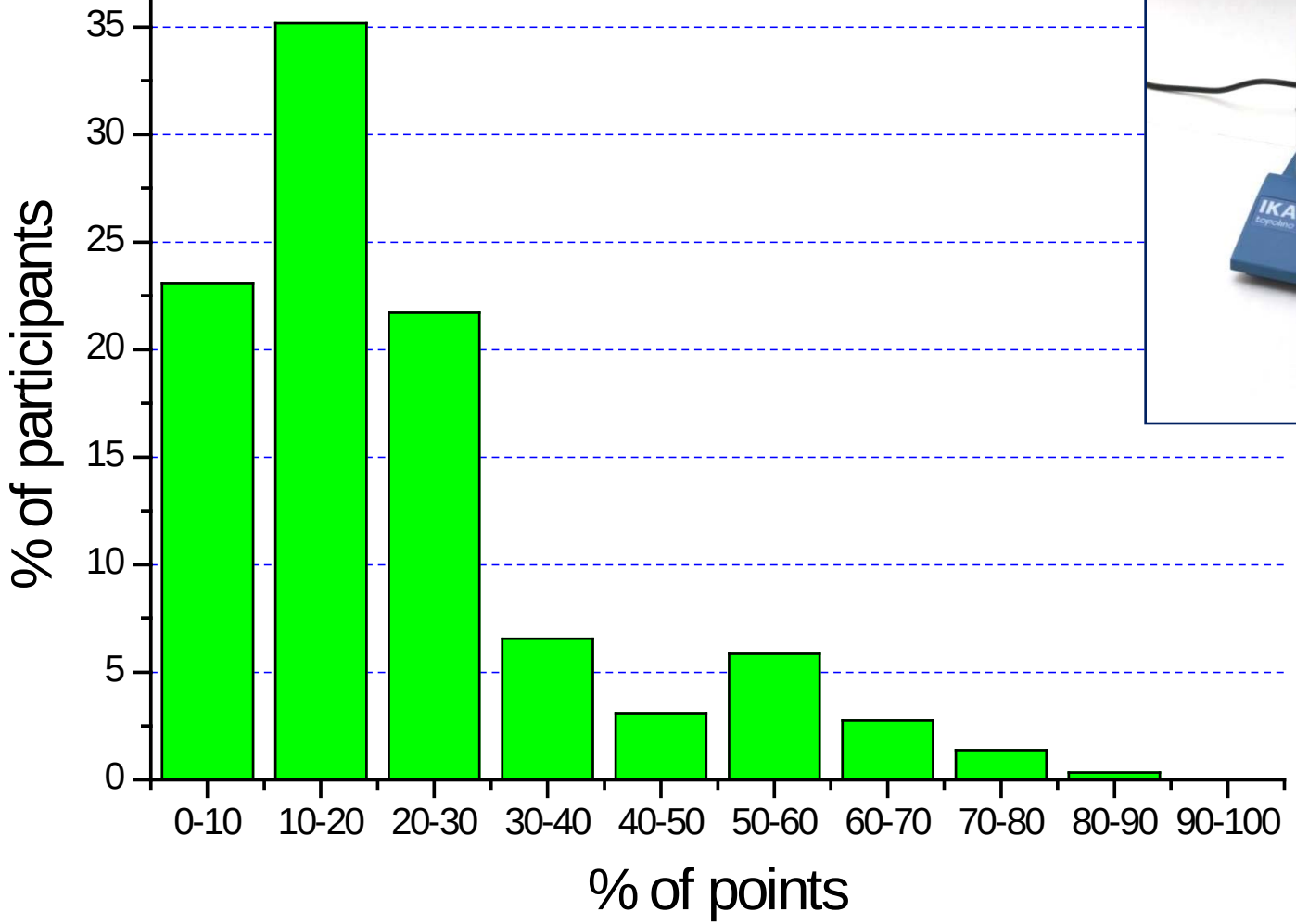
Exp.2. Analysis of the solution of a chromium-vanadium alloy



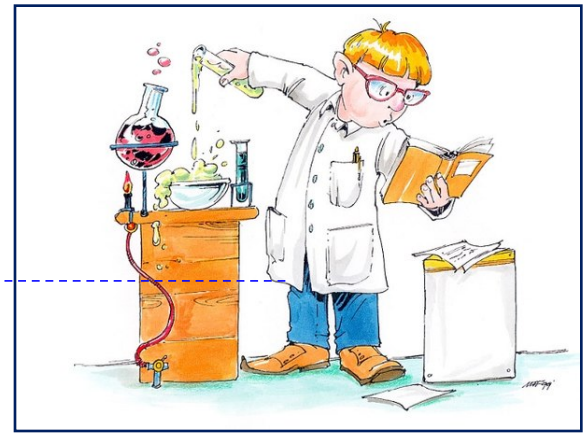
Avg. result – 54.6%

Exp.3. Kinetic determination of Diclofenac (DCF)

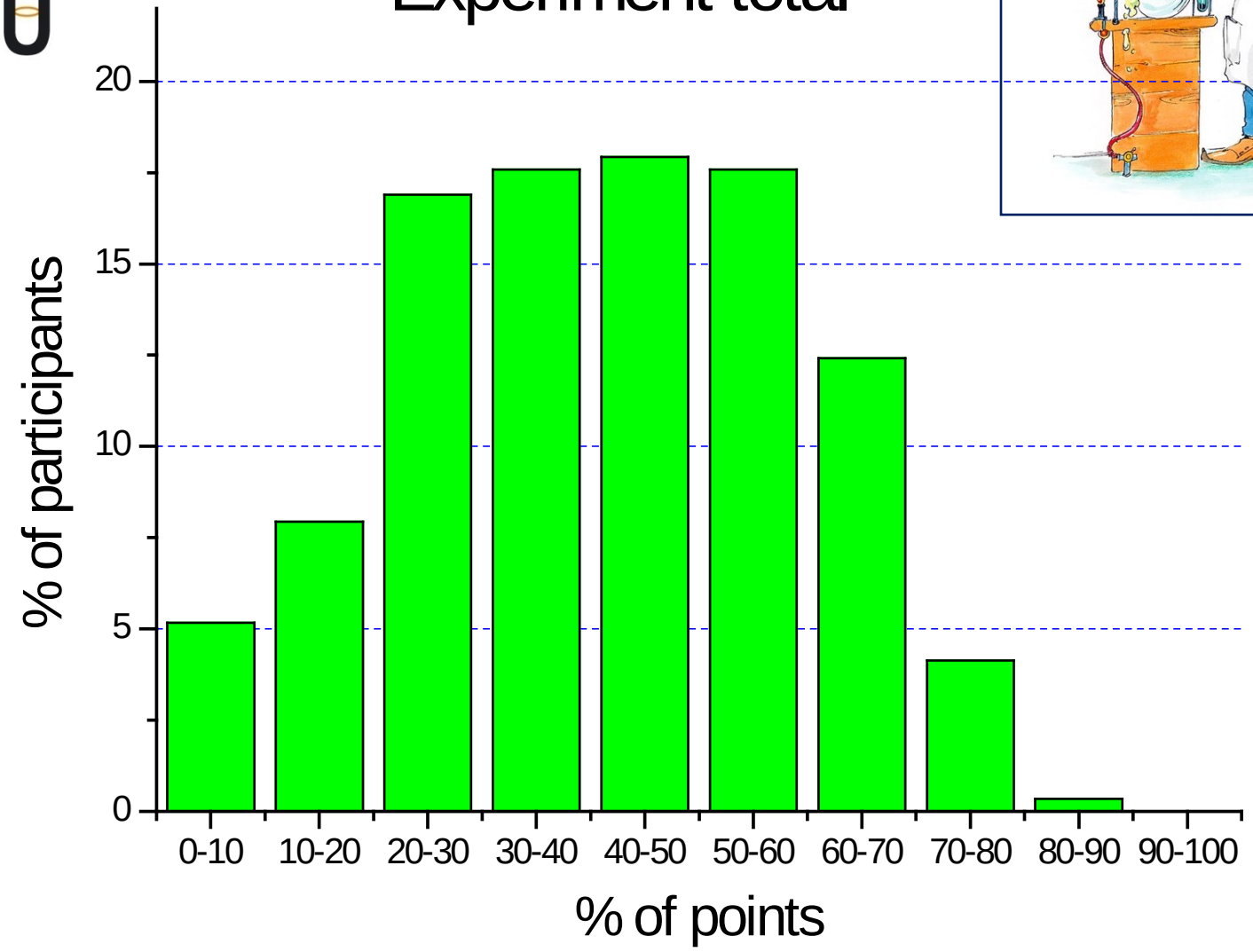




Avg. result – 20.6%



Experiment total



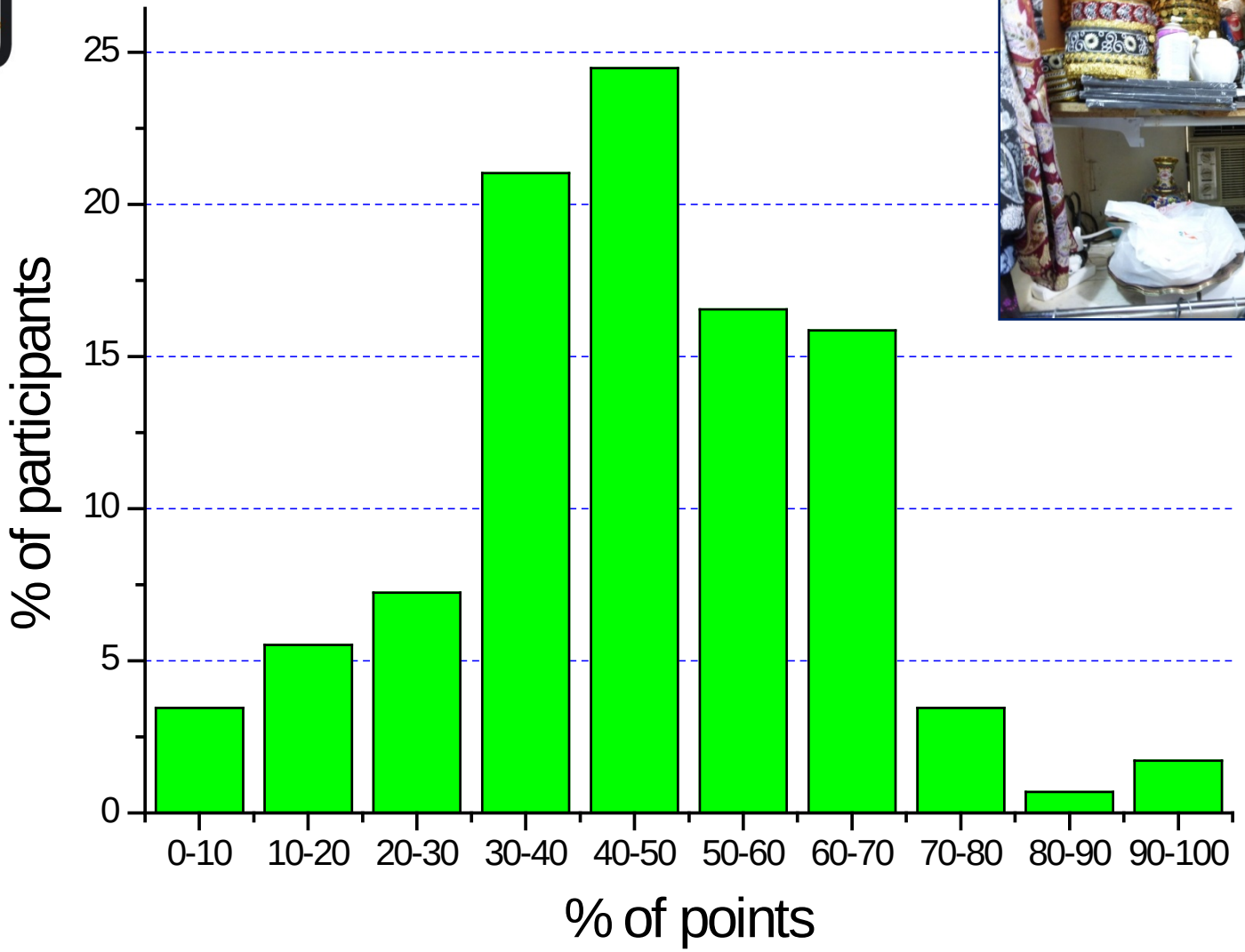
Min – 1.67%, max – 83.19%, avg. – 40.92%

Theory in brief

	Theory							
No.	1	2	3	4	5	6	7	8
Max	8	7	7	6	8	8	8	8
Avg. %	**45.3**	**40.5**	**52.0**	**26.1**	**44.1**	**29.3**	**56.8**	**33.4**

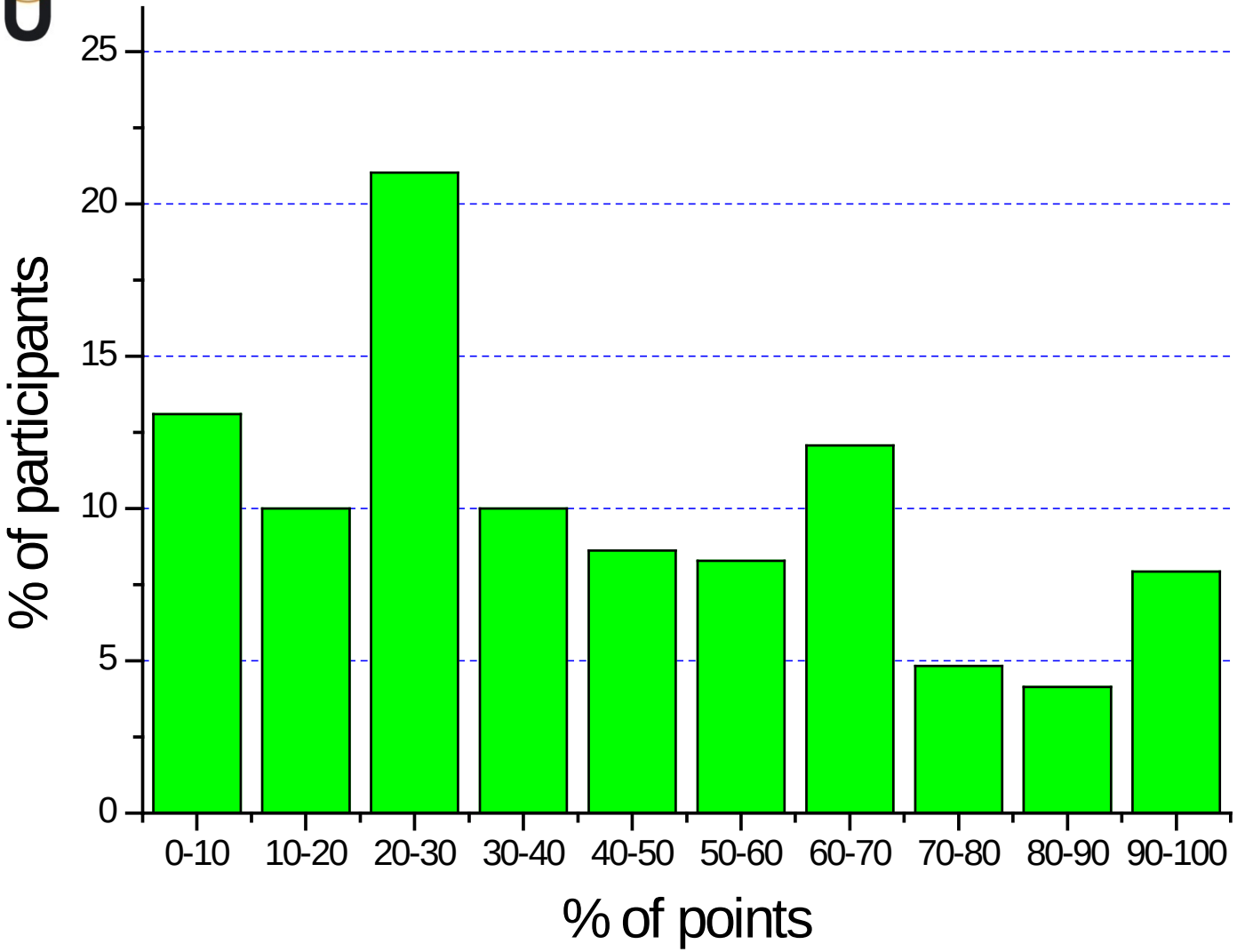
Avg. result in theory – 41.25%

Th. 1. New and well-forgotten old refrigerants



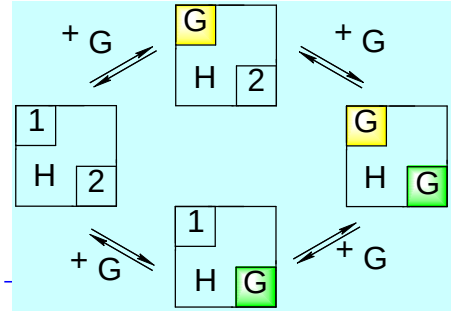
Avg. result – 45.3%

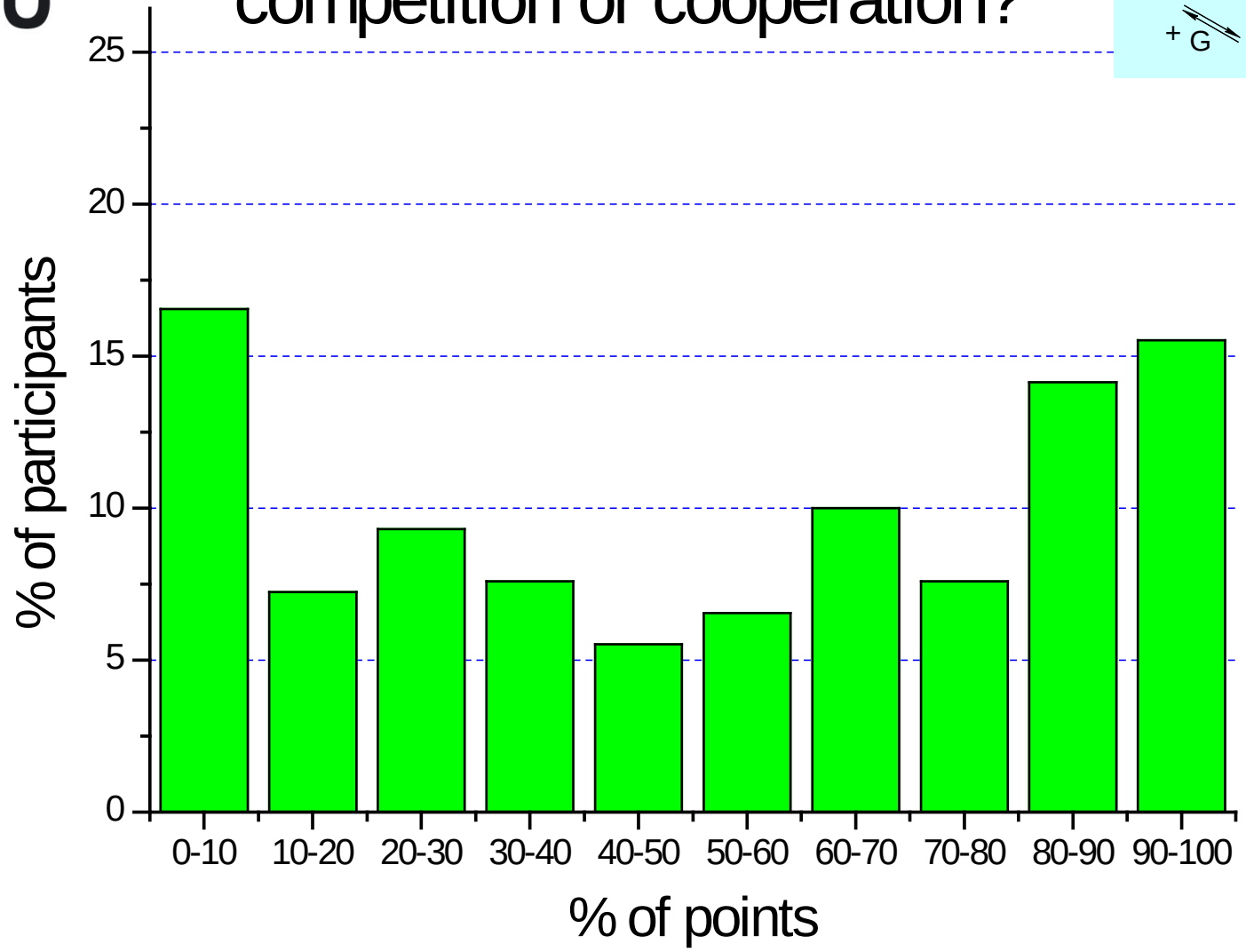
Th. 2. Coupling of chemical reactions



Avg. result – 40.5%

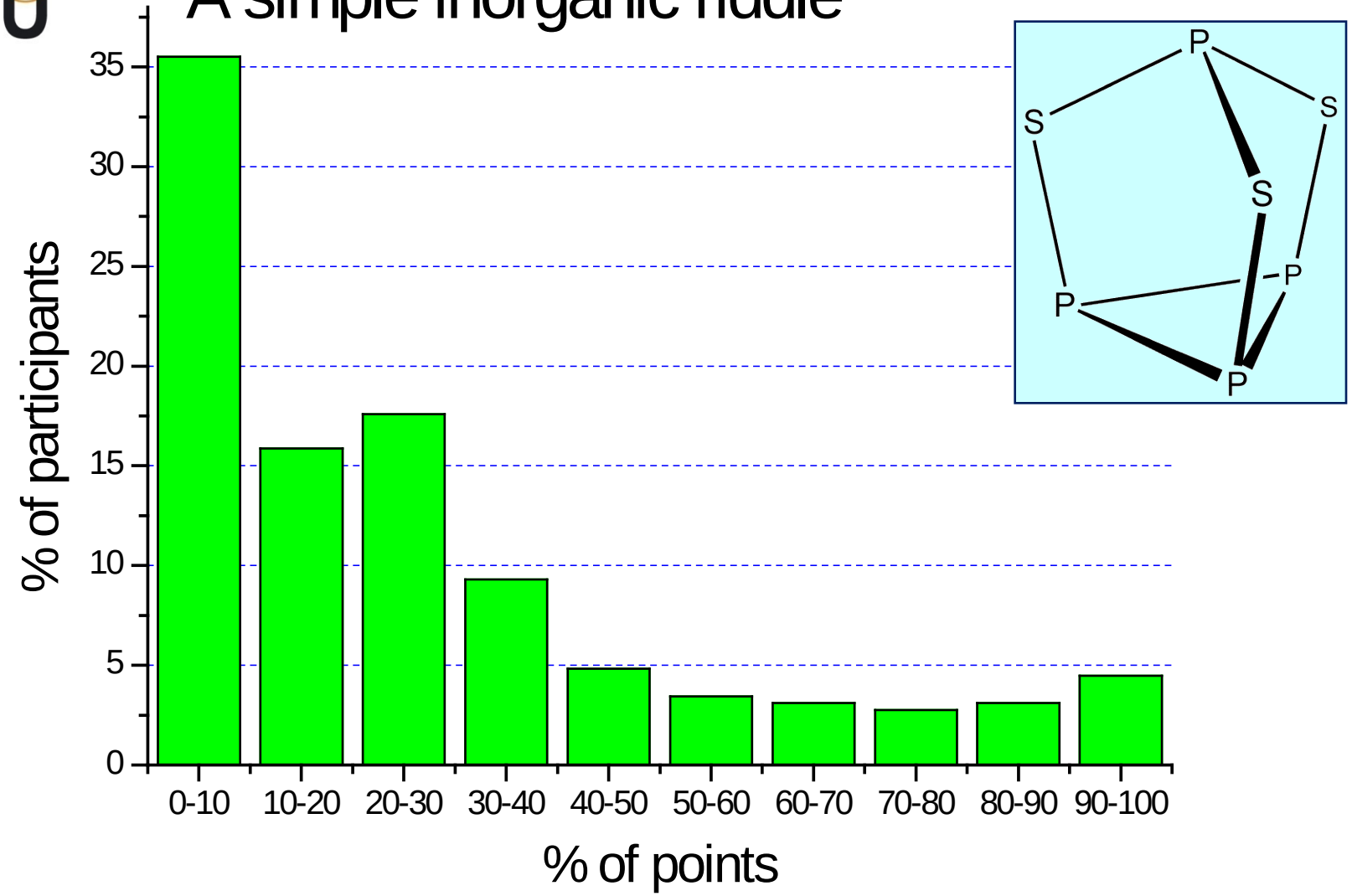
Th. 3. Two binding centers – competition or cooperation?





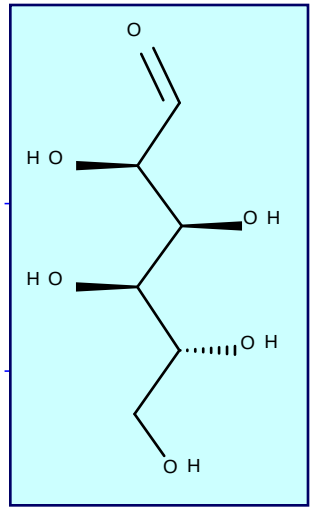
Avg. result – 52.0%

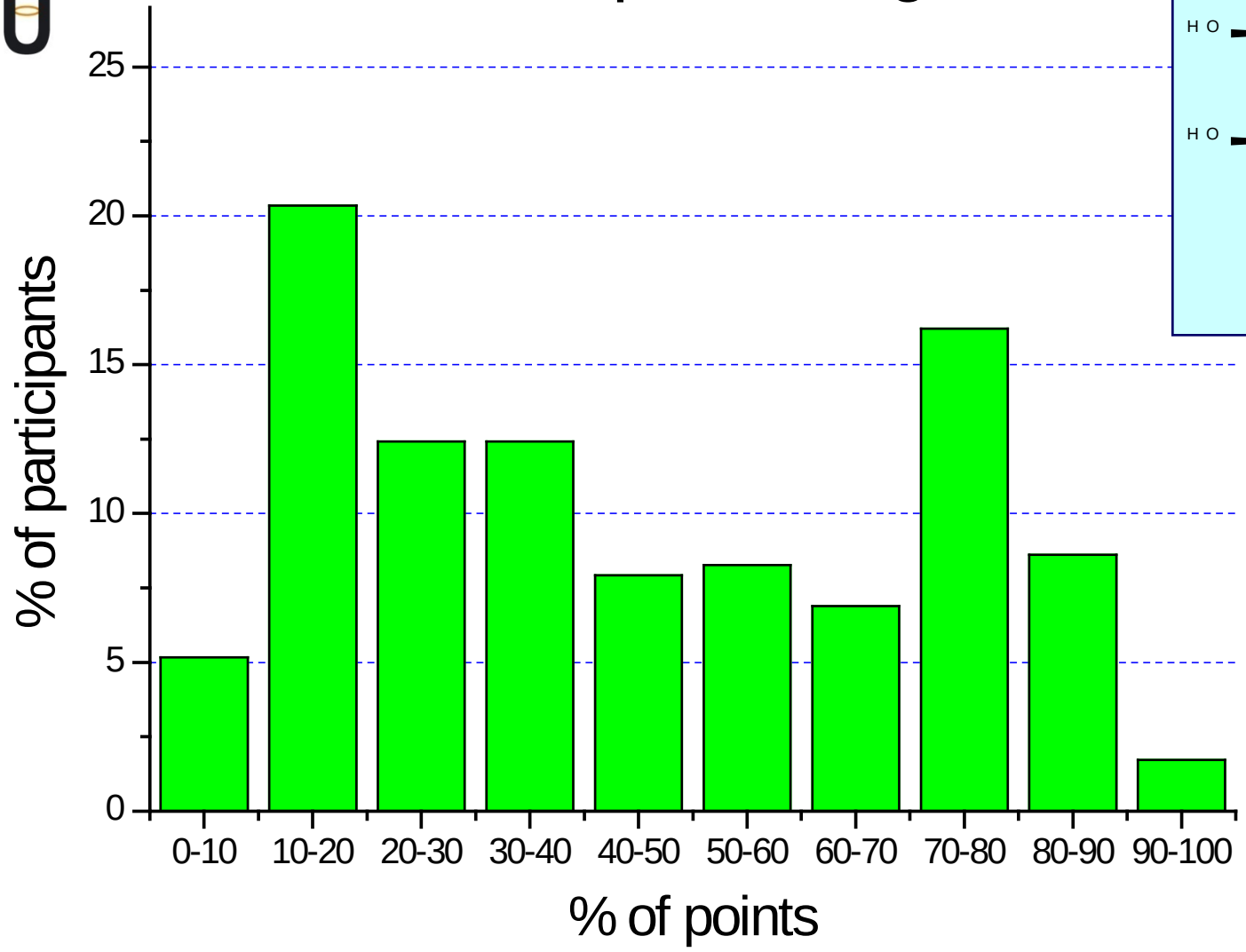
Th. 4. From one yellow powder to another: A simple inorganic riddle



Avg. result – 26.1%

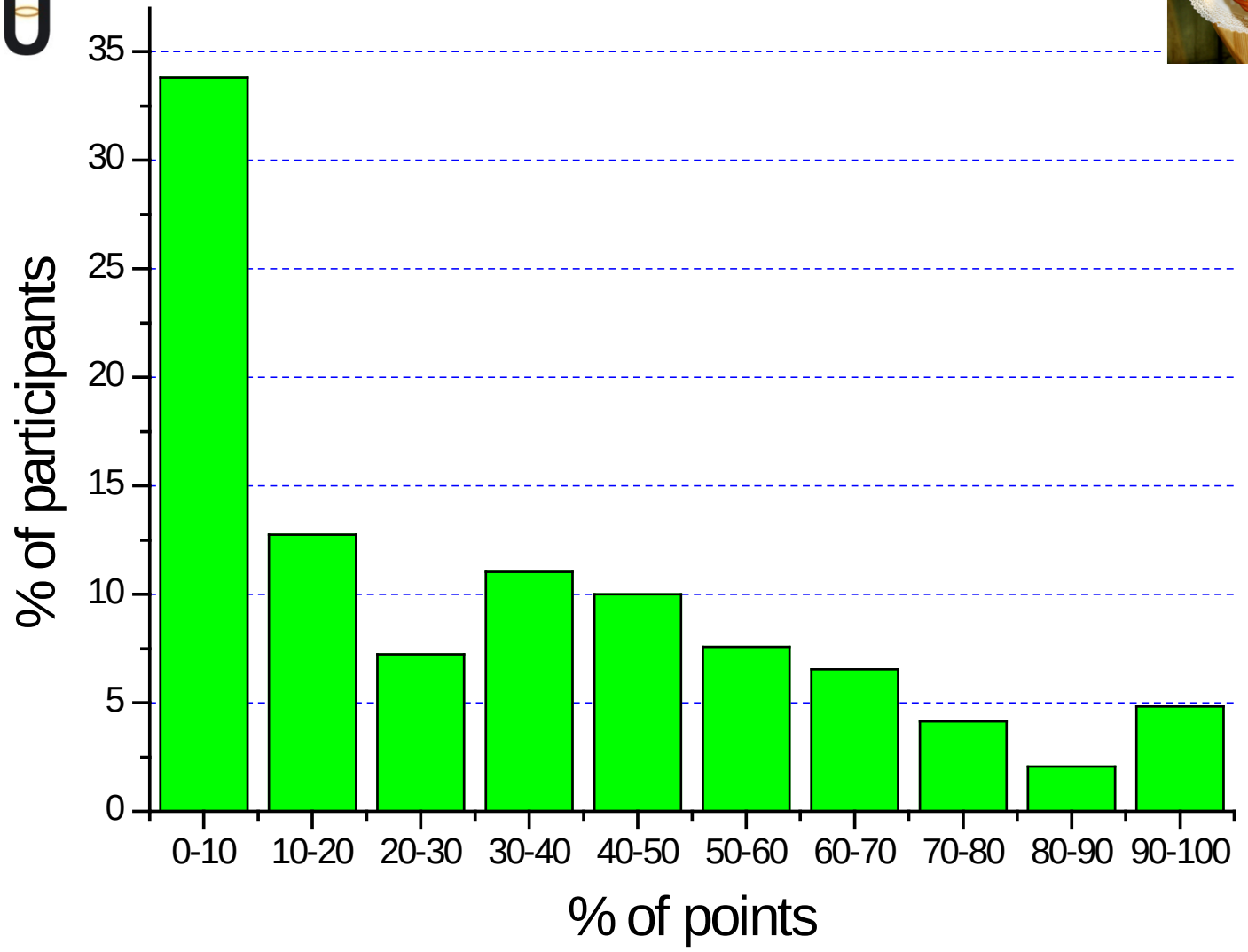
Th. 5. Indispensable glucose





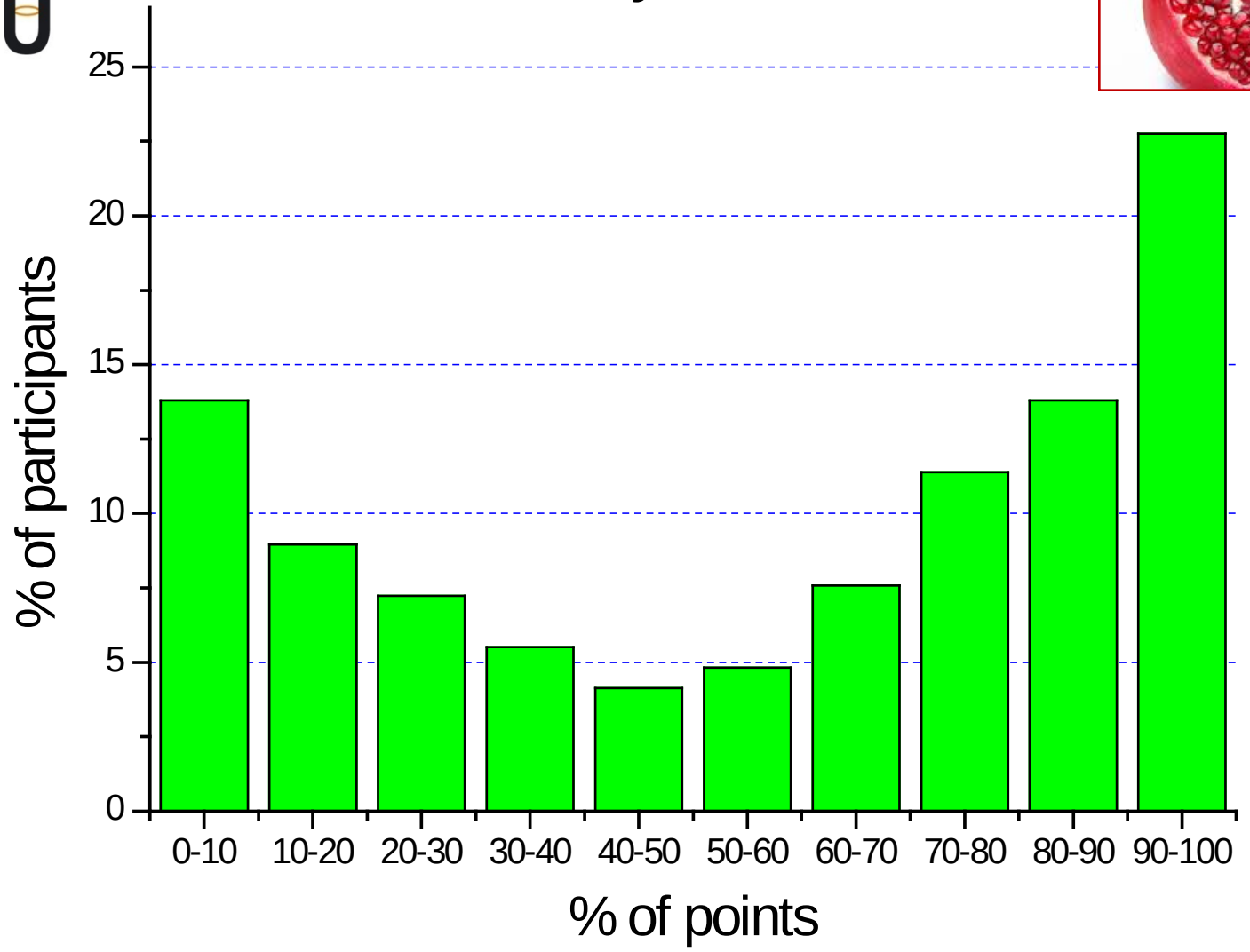
Avg. result – 44.1%

Th. 6. Bread is the stuff of life



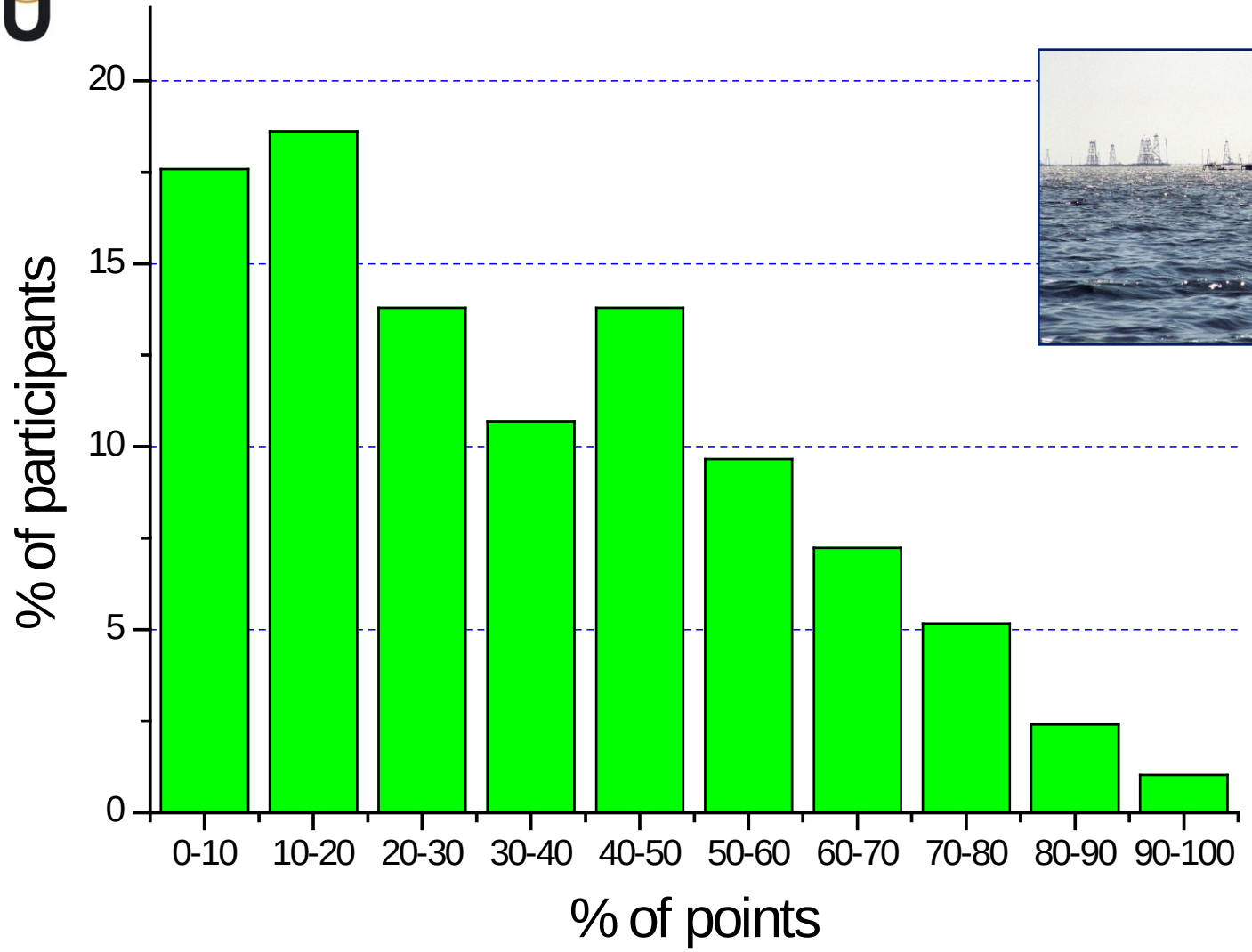
Avg. result – 29.3%

Th. 7. Not by bread alone



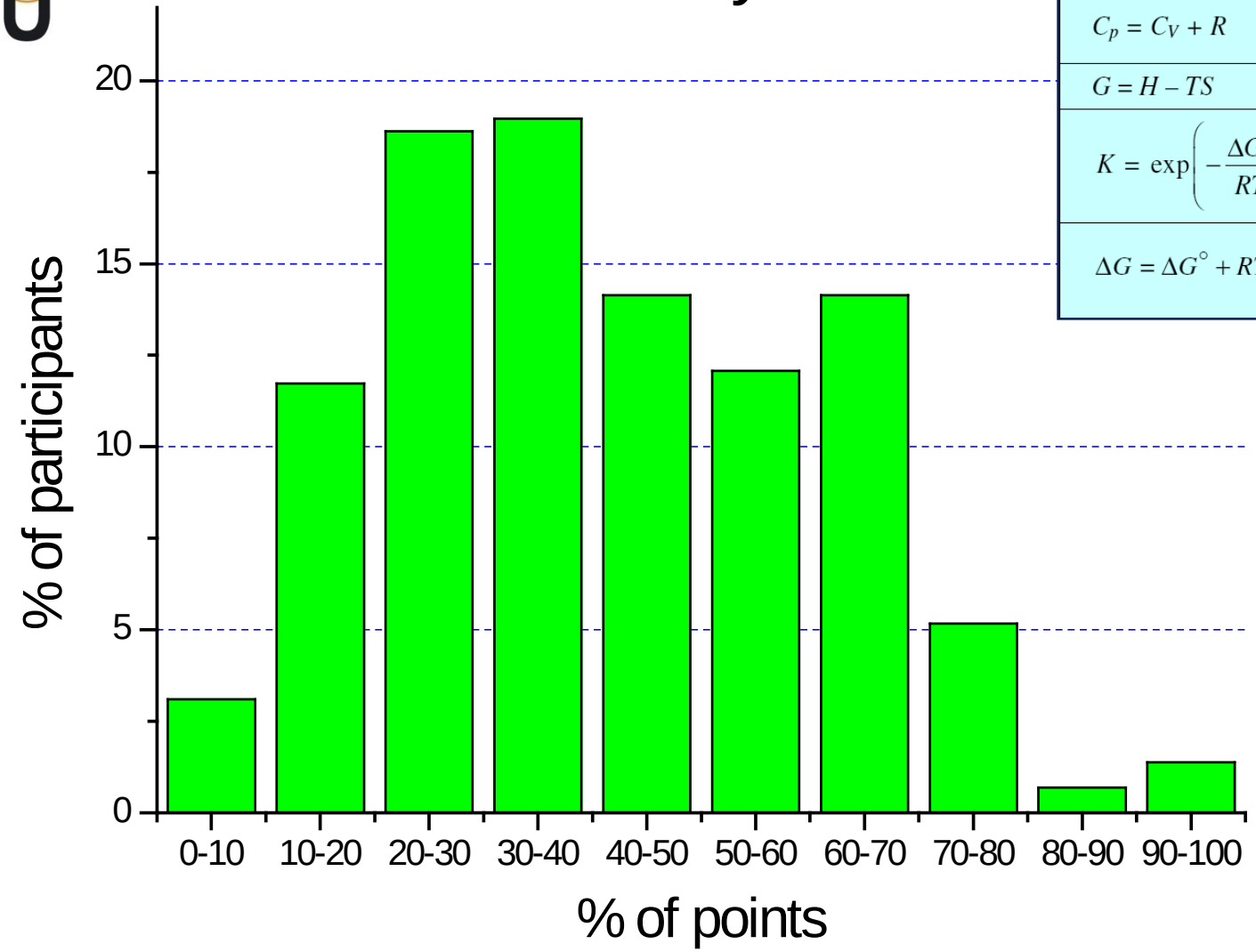
Avg. result – 56.8%

Th. 8. Oil for Life and Life after Oil



Avg. result – 33.4%

Theory total



$pV^{1+R/C_V} = \text{const}$

$W = nC_V(T_2 - T_1)$

$U(T_2) = U(T_1) + C_V(T_2 - T_1)$

$C_p = C_V + R$

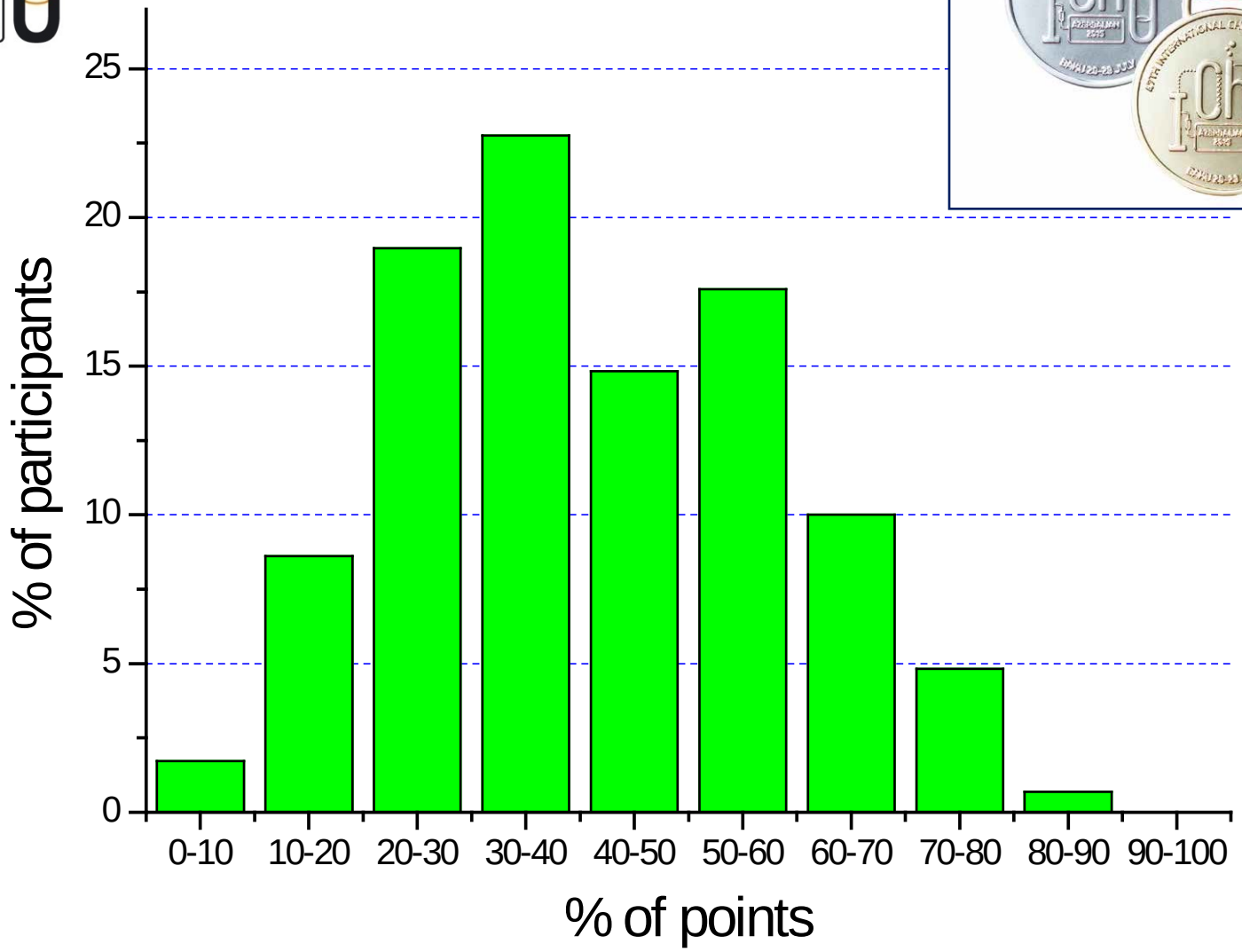
$G = H - TS$

$K = \exp\left(-\frac{\Delta G^\circ}{RT}\right)$

$\Delta G = \Delta G^\circ + RT \ln \frac{a_{\text{prod}}}{a_{\text{reag}}},$

Min – 4.54%, max – 98.07%, avg. – 41.25%

Total result



Min – 4.60%, max – 84.38%, avg. – 41.1%