

Answer on the question #55648 – Chemistry – General chemistry

Question:

Arrange H^+ , D^+ , He^{2+} and He^+ in descending order of their e/m ratios.

Answer:

e/m ratio is the charge to mass ratio. This quantity is of major importance in the electrodynamics.

Let's calculate this ratio, using atomic units for charge and atomic mass unit.

	H^+ : $e=1, m=1$	D^+ : $e=1, m=2$	He^{2+} : $e=2, m=4$	He^+ : $e=1, m=4$
e/m	$1/1 = 1$	$1/2 = 0.5$	$2/4 = 0.5$	$1/4 = 0.25$

Then, the descending order is: $H^+ > D^+, He^{2+} > He^+$