Xie and Kerrich\textsuperscript{1} claim that for hexapole ICP-MS, the addition and variation of collision/reaction gases (He and H\textsubscript{2}) does not introduce any additional mass bias. This statement contradicts both previous findings on isotope analysis in ICP-MS with hexapole collision cell and the experimental results obtained by Xie and Kerrich\textsuperscript{1} themselves.

The theoretical and experimental achievements with pressurized rf-multipole ion guides in mass spectrometry have been described and reviewed in a variety of papers,\textsuperscript{2–18} including works related to their application in ICP-MS.\textsuperscript{2–18}

It is well known from earlier studies that the collision gas pressure influences the energy characteristics of the ions, sensitivity, mass resolution, background, \textit{etc.}\textsuperscript{2–9} At low ion energy elastic collision plays a significant role and the fractional properties.\textsuperscript{13,14,18,21,22} In addition, the rf frequency, the rf-hexapole in ICP-MS with hexapole collision cell. However, the effect of the mass discrimination value for the isotopic ratios mentioned above.

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The space charge effect within the hexapole is rather complicated and requires further study.

Mason \textit{et al.}\textsuperscript{15} pointed out that the type and amount of gases introduced into the hexapole cell had the greatest effect on mass bias for S isotopes. Recently, we demonstrated in refs. 21 and 22 the alteration of the mass discrimination per mass unit (MD) for elements from Mg to U when using helium as the collision gas. Especially isotopes with mass $m < 100$ u are subjected to this effect due to the larger relative mass difference of neighboring isotopes. For instance, dependence of MD for the $^{24}\text{Mg}/^{25}\text{Mg}$ isotope ratio on the helium flow rate was studied in our laboratory.\textsuperscript{21} Altered mass discrimination was also observed when introducing hydrogen. Changing the hexapole bias potential altered the mass bias both for light and heavy elements.\textsuperscript{21}

Results obtained by Xie and Kerrich\textsuperscript{1} show clear differences in mass bias for $^{25}\text{Mg}/^{26}\text{Mg}$, $^{63}\text{Cu}/^{65}\text{Cu}$ and $^{86}\text{Sr}/^{88}\text{Sr}$ measured at different collision gas flow rates. Thus, the mass discrimination decreased from 10.55 to 7.79 for $^{25}\text{Mg}/^{26}\text{Mg}$, from 5.70 to 3.74 for $^{63}\text{Cu}/^{65}\text{Cu}$ and from 2.03 to 1.02 for $^{63}\text{Cu}/^{65}\text{Cu}$ when the H\textsubscript{2} flow rate decreased from 2.8 ml min$^{-1}$ to 0 ml min$^{-1}$ at a constant He flow rate of 5.0 ml min$^{-1}$. Reducing the He flow rate at constant H\textsubscript{2} flow rate also reduced the mass discrimination value for the isotopic ratios mentioned above. These results confirm that the mass bias is altered by the addition of collision gases. It should be noted that the analyzed range of hydrogen flow rate from 0 ml min$^{-1}$ to 2.8 ml min$^{-1}$ at a constant He flow rate of 5.0 ml min$^{-1}$ and a range of helium flow rate from 2.5 ml min$^{-1}$ to 5.0 ml min$^{-1}$ at a constant hydrogen flow rate of 2.8 ml min$^{-1}$ might be too narrow for a representative investigation of mass discrimination behavior for other isotope ratios. The instrument used in this work allows a range of collision gas flow rates from 0 ml min$^{-1}$ to 10 ml min$^{-1}$. Investigating a wider gas flow range would reveal stronger deviations of mass discrimination.

In general, mass bias in the hexapole ICP-MS is a complex function of collision cell parameters in addition to the effects discussed by Xie and Kerrich\textsuperscript{1} although the experimental conditions in a particular case can be optimized so that the value of mass discrimination per mass unit in ICP-MS with a collision cell would be similar to the mass discrimination value in other quadrupole based ICP-MS, as was discussed in recent works.\textsuperscript{21–23}

Finally, it should be remarked that the precision of isotope ratio measurements reported by Xie and Kerrich\textsuperscript{1} is relatively poor compared to previous data obtained in ICP-MS with hexapole collision cell for lead isotope ratios (RSD of about 0.1\%),\textsuperscript{14} $^{34}\text{S}$$^{32}\text{S}$ isotope ratio (RSD of less than 0.05\%)\textsuperscript{15} and...
for $^{44}\text{Ca}/^{40}\text{Ca}$, $^{56}\text{Fe}/^{57}\text{Fe}$ and $^{78}\text{Se}/^{80}\text{Se}$ isotope ratios (RSD of 0.26%, 0.19% and 0.12%, respectively). Such a low precision of isotope ratios might make difficult the study of mass bias effect.

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