Electronic Supplementary Material (ESI) for Analyst.

Supplementary Material for:

Development of Lithium Attachment Mass Spectrometry - Knudsen Effusion and Chemical Ionisation Mass Spectrometry (KEMS, CIMS)

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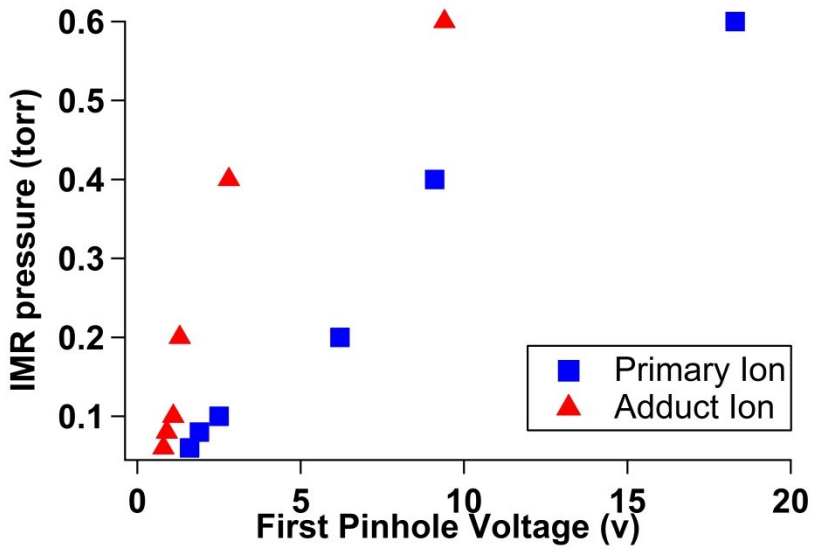

Figure SM1: Optimum voltages in the ion-molecule region.

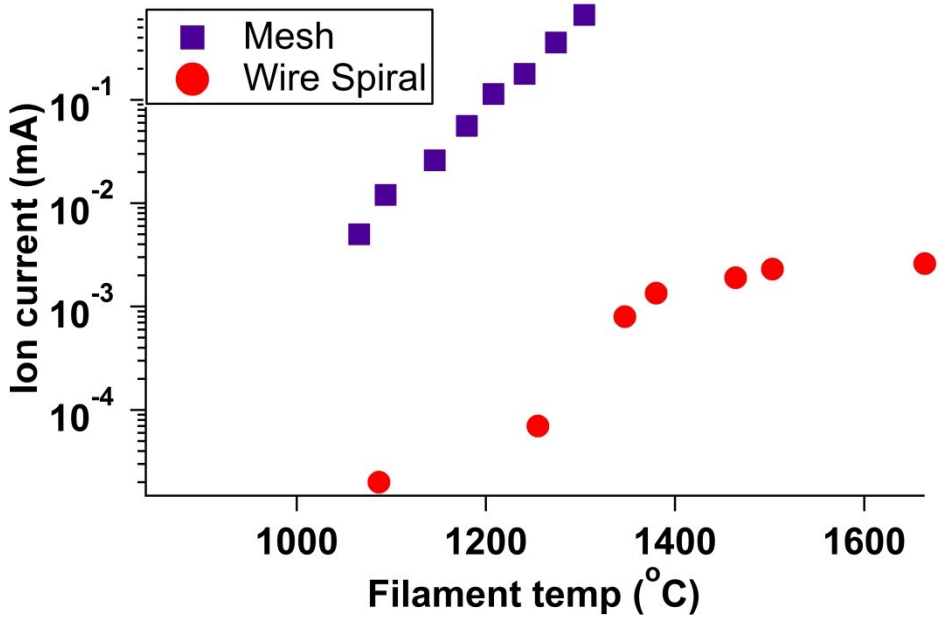

Figure SM2: Ion current vs filament temperature for mesh and single wire filaments in the CIMS.

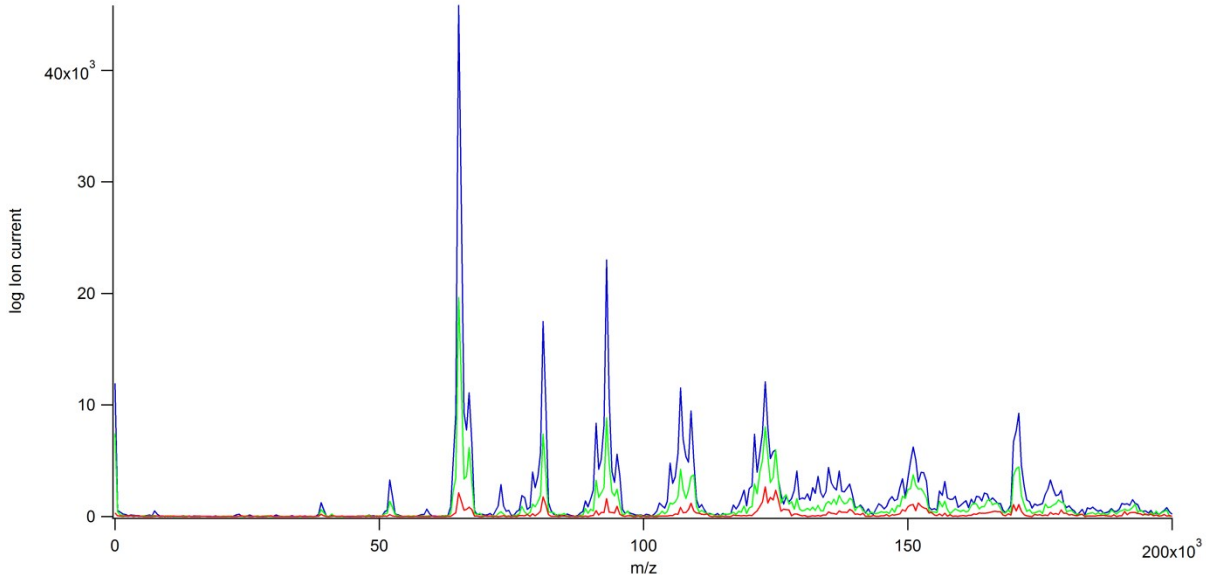

Figure SM3: A mass spectrum showing high concentration formic acid and water clusters at different CDC voltages.

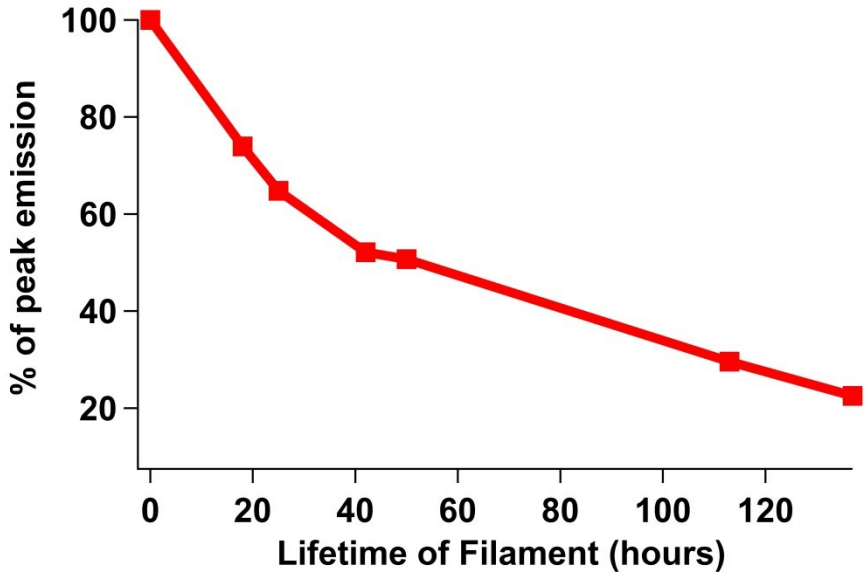

Figure SM4: Emission current over time.

Table SM1: Optimum Ion optics settings for CIMS

Pinhole	Pico 2	Pico 3	Pico 4	Pico 5	Octopole plate	CDC-DC	CDC-RF	Octopole RF	Octopole DC
0.072	0	0	0	0	-0.163	-0.476	1.526	1.921	-0.006

Table SM2: Ion-molecule region voltages relative to IMR pressure

Ion-molecule region pressure (mbar)	Pinhole voltage to maximise primary ions	Pinhole voltage to maximise secondary ions
0.06	0.008*X	0.016
0.08	0.009	0.019
0.1	0.011	0.025
0.2	0.013	0.062
0.4	0.028	0.091
0.6	0.094	0.183

Table SM3: Ion optics settings for the KEMS

Ion ref (V_1)	Cathode (V_2)	Focus (V_3)	Field axis (V_4)	Extraction (V_5)	Deflection (to SEM)
80	0	14	5	140	166