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## **Electronic Supplementary Information**

for

## Parametric Optimization and Spectral Line Selection for Liquid

## Sampling – Atmospheric Pressure Glow Discharge – Optical Emission

Spectroscopy

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Figure 1. Pareto plot of the results obtained from the DOE. LS-APGD parameters were analyzed by the DOE using triplicate 20  $\mu$ L injections of 500  $\mu$ g mL<sup>-1</sup> Ag and monitoring the Ag (I) 328.1 nm transition in the SGC powering mode. Enough parameters are included on the plot so that all individual parameters are shown (i.e. counter gas flow rate, electrode gap, sheath gas flow rate, solution flow rate, and discharge current are all represented individually). The vertical line represents a LogWorth value that is significant at the 95% significance level.



Figure 2. Pareto plot of the results obtained from the DOE. LS-APGD parameters were analyzed by the DOE using triplicate 20  $\mu$ L injections of 500  $\mu$ g mL<sup>-1</sup> Ag and monitoring the Ag (I) 328.1 nm transition in the SPC powering mode. Enough parameters are included on the plot so that all individual parameters are shown (i.e. counter gas flow rate, electrode gap, sheath gas flow rate, solution flow rate, and discharge current are all represented individually). The vertical line represents a LogWorth value that is significant at the 95% significance level.



Figure 3. Pareto plot of the results obtained from the DOE. LS-APGD parameters were analyzed by the DOE using triplicate 20  $\mu$ L injections of 500  $\mu$ g mL<sup>-1</sup> Ag and monitoring the Ag (I) 328.1 nm transition in the SGA powering mode. Enough parameters are included on the plot so that all individual parameters are shown (i.e. counter gas flow rate, electrode gap, sheath gas flow rate, solution flow rate, discharge current). The vertical line represents a LogWorth value that is significant at the 95% significance level.