

DISCHARGE MODULATION TECHNIQUE FOR DETECTION OF CARBON CHAIN IONS IN THE GAS PHASE  
BY FREQUENCY MODULATION ABSORPTION SPECTROSCOPY

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A technique combining discharge modulation with frequency modulation absorption experiments has been developed for the sensitive detection of electronic spectra of carbon chain cations generated in a liquid-nitrogen cooled hollow cathode.<sup>a</sup> The rotationally resolved spectra of the  $A^2\Pi \leftarrow X^2\Pi$   $0_0^0$  transitions of polyacetylene and cyanopolyacetylene cations have been obtained at Doppler limited resolution using this technique. The double modulation technique has been extended to the detection of species generated in a pulsed supersonic jet and preliminary results will also be presented.

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<sup>a</sup>W. E. Sinclair, D. Pfluger, H. Linnartz and J. P. Maier, *J. Chem. Phys.*, 110, 296, (1999).