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Development of inverter power supply for microplasma emission source on Micro Total Analysis System for multi-elemental analysis MAYUKO YOSHIDA, YUMA SUENAGA, FIRST, Tokyo Institute of Technology, Kanagawa, Japan, MOTOHIDE AOKI, TOMONARI UMEMURA, Graduate School of Life Sciences, Tokyo University of Pharmacy and Life Sciences, Tokyo, Japan, AKITOSHI OKINO, FIRST, Tokyo Institute of Technology, Kanagawa, Japan — Recently, Micro Total Analysis System (μ -TAS) has attracted attention as a compact device for not only chemical reactions but also chemical analysis. For analysis of microvolume sample, high sensitive and small detectors on μ -TAS is required. For elemental analysis we have developed a microplasma emission source that has diameter of 500 μm using a dielectric barrier discharge plasma on a microchip. By the atomic emission source, halogen gases of sub-ppm order was successfully analyzed. For more sensitive analysis, it is necessary to set the optimal discharge conditions which depend on the target elements. In this study, we developed an inverter power supply for a microplasma emission source that can generate plasmas with multiple discharge conditions continuously. The power supply can instantaneously and arbitrarily change the voltage, the frequency, and the wave form. Therefore, the power supply may continuously generate plasma with the optimal conditions corresponding to the respective elements. Basic characteristics of the plasma generated by the power supply was measured by time-resolved spectroscopy. In the presentation, details of the power supply and the measured results will be presented.

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