Study of As spectrallines for discharge diagnostic purpose
Atis Skudra¹, Natalja Zorina¹, Anda Abola¹, Gita Revalde ²

¹ Institute of Atomic Physics and Spectroscopy, University of Latvia, Riga, Latvia
² Institute of Technical Physics, Department of Materials Sciences and Applied Chemistry, Riga Technical University, Riga, Latvia

This work is devoted to the diagnostic of high frequency electrodeless light sources (HFEDL) for their use in high precision atomic absorption analyzers. The arsenic discharge is studied. The diagnostic technique consists of the line profiles measurements by means of Fourier transform spectrometer and Jobin Yvon SPEX 1000M spectrometer with further deconvolution and real (without instrumental function) profile obtaining by means of ill posed inverse task solution[1]. Special attention is devoted to the 189.042nm; 193.7nm and 197.262nm of As spectralline shapes. The spectral lines were analyzed in detail in dependence on the discharge power.

Within the framework of this work the influence of the instrumental function on the form and FWHM (full width at half maximum) of the lines profiles and were analyzed. The neglecting the instrument function, in the case of low –pressure or cold plasma when instrument function is on the same order that experimental profile, gives huge error for the FWHM estimation and consequently for discharge temperature estimation.[2]

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References