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P5.3002 Study of As spectral lines for discharge diagnostic purpose

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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
[1] G. Revalde, N. Zorina, A. Skudra, Multicomponent line profile restoring by means of illposed inverse task solution, Journal of Physics: Conference Series, Vol. 810(1), Article number 012056, 2017
[2] N. Zorina, Deconvolution of the spectral line profiles for the plasma temperature estimation, Nuclear Inst. and Methods in Physics Research A 623 (2010) p. 763-765

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