SPECTRAL LINE SHAPE TREATMENT AS AN ONLINE SERVICE

D. S. MAKAROV, *Institute of Applied Physics RAS, Nizhny Novgorod, Russia*

This report is on the proposal of the development of a universal service for the treatment of the recordings of the single spectral lines' profiles. Leaving beyond the scope some details of the spectrometers and measurements techniques used by the researchers, as well as primary processing the raw data acquired, it is focused on the analysis of the absorption-versus-frequency dependencies which are quite common in a large variety of thermodynamic conditions and frequency intervals. The result of the processing will be line shape parameters (central frequency, half-width, etc) of the separate recordings (for further analysis of the pressure- and temperature-dependencies of ones) and normalized to pressure coefficients in case of batch processing of the recordings. The service will be available both online and as a source code to be deployed anywhere in accordance with the users' needs.

The idea of the project is in making the instrument saving the time for treatment of large amount of data acquired from the measurements, available without installation of specialized software or with minimal amount of programs and packages to install. Main interaction with the service will be built through the visual interface and automatization of some routines usually performed while working with the data. The code will be written in python with employment of the dashboard packages, allowing user-friendly frontend and backend construction.

The service to be developed will employ, first of all, state-of-the art line shape models. The road map also suggests an option of the extension of the lines and bands model profiles set in accordance with the problems to be solved. One of the major features planned is simultaneous processing of the recordings of the same spectral object obtained via different spectrometer types and different signal registration techniques.

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