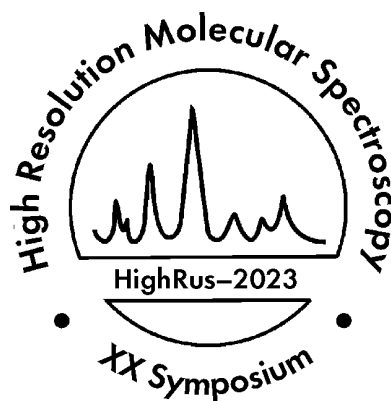




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# Abstracts of Reports

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## Broadening and shifting coefficients of rovibrational lines in the first overtone of HF perturbed by He

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The parameters of rovibrational lines perturbed by He appeared in spectroscopic database HITRAN2016 [1], however there are still some lacks, especially in the experimental data [2, 3]. Here we present the experimental values of broadening and shifting coefficients for the lines in the first overtone of HF perturbed by He. Additionally, the analogous parameters were measured in the fundamental band.

The spectra were recorded at the room temperature with a Bruker IFS-125 HR spectrometer with a resolution of  $0.005\text{ cm}^{-1}$ . A small amount of HF was admitted into a stainless cell with sapphire windows and successively diluted with He. The total pressure of the mixture was in the range of 1–11 atm. Each line in the overtone and fundamental bands of HF was fitted with a Voigt profile. The Doppler widths were fixed according to known relations. The broadening and shifting coefficients were obtained from linear dependences of Lorentzian widths and line centers, respectively, on the total pressure. Using different initial pressure of HF ( $0.7 - \sim 1 \cdot 10^{-4}$  atm) allowed us to evaluate line parameters in the large interval of rotational numbers  $J = 0 \dots 10$  in the overtone band and  $J = 0 \dots 11$  in the fundamental band. Most of the values, especially for the overtone transition, are novel.

The obtained data were compared with existing literature data of HF-He system as well as with HCl-He, HBr-He, and HI-He systems [4, 5].

The studies were carried out using the equipment of the resource center “Geomodel” of the Science Park of the Saint Petersburg State University.

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